ZoraBots

Zora Manual

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ZORA MANUAL

Preface

This document has been designed to document the general outline of the functions of the Zora robot.

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1 Getting Started

STEP 1

TAKE ME OUT OF THE BOX AND PUT ME IN THE CROUCH POSITION.

STEP 4

OPEN THE WIFI LIST ON YOUR COMPUTER AND CONNECT TO THE ZORAHOTSPOT.
THE DEFAULT PASSWORD:
zoranetwerk

STEP 2

PLUG ME IN. MAKE SURE THE SMALL LIGHT ON THE CHARGER TURNS ON.

STEP 5

OPEN GOOGLE CHROME AND TYPE IN 192.168.60.1 IN THE ADDRESS BAR.

NOTE: ONLY GOOGLE CHROME IS CURRENTLY SUPPORTED.

STEP 3

PRESS FOR 2 SECONDS ON MY CHEST BUTTON. WAIT APPROXIMATELY 3 MINUTES UNTIL I SAY: "I'M READY FOR USE."

STEP 6

YOU'RE ALL SET NOW!
GO TO THE STEERING TAB TO START.

PLEASE KEEP THE BOX IN A DRY AND SAFE PLACE. IF ZORA NEEDS SERVICING YOU WILL HAVE TO SHIP ZORA BACK IN THIS BOX!

2 Zora-Control

Zora-Control is the website portal through which all of Zora's features can be accessed.

The current version of Zora-Control is designed to be used with Google Chrome. Other web browsers are currently not supported and may lead to loss in functionality of the portal.

The portal is hosted by Zora itself. By filling in the IP address (i.e. 192.168.0.100) in the address bar of Google Chrome, the portal can be accessed. The specific IP address belonging to the robot (see Connection Settings) will be spoken aloud by Zora when a short press on the chest button is detected.

Caution: The IP address is by default not fixed, this may change over time.

2.1 Used terminology

This document uses the following terms:

Behavior	*A programmed set of motions or routines that mimic a certain behavior.*
Settings	*The settings that can be set for certain behaviors (i.e. the type of calculation exercises, the type of news to be read aloud, …).*
Dataset	*The collection of data that can be adjusted for a behavior (i.e. the questions in the QR quiz, the sounds in the jukebox, etc.).*
Snippet	*A small piece of text saved for speech.*
Composer	*The part of the portal where a custom set of routines can be made by using composer-blocks.*
Composition	*The stored routine made in the composer.*

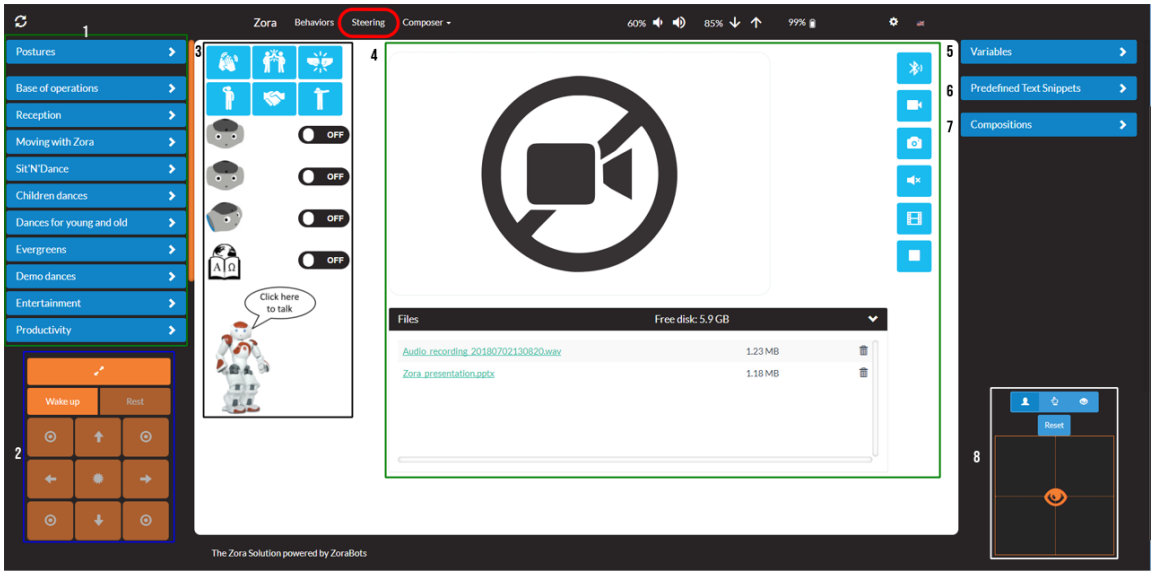
2.2 Zora-page

This section of the document describes the starting page when first accessing the portal website.

This page is also accessible by selecting the option '**Zora**' in the menu-bar of the portal.

2.3 Steering-tab

This page is responsible for controlling (most of) Zora. By selecting the option '**Steering**' in the menu, the following screen appears:



The available functions are split into different categories (from top left to bottom right):

1. ***Behavior-menu (including postures)***
2. ***Movement panel***
3. ***Basic functions***
4. ***Camera and microphone options***
5. ***Variables***
6. ***Text snippets***
7. ***Compositions***
8. ***Head movement, Point at something and eye colouring***

2.3.1 Behavior-menu

The following selections are possible on the top left side of the screen.

Postures	**Postures** This menu contains the possible postures for Zora (see also Postures). By clicking the arrow, the possible postures appear.
Base of operations Reception Moving with Zora Choirmaster Children dances	**Behavior-categories** This part of the steering-tab contains the list of categories and their behaviors. By clicking the arrow, the behaviors registered to the category appear in the list.

Note:

If the desired behavior or posture is not visible, please scroll or swipe up or down until it appears.

- ***Postures-menu***

This menu contains the postures that Zora can execute. By clicking on the QR-icon next to the name, a QR code will be generated which can be downloaded and printed or copied to a screen (smartphone) and then scanned by holding it close to Zora's head camera.

Postures	*This section can be opened by clicking on the arrow-head in the top right-hand corner.*
Stand init	*In this position Zora will hunch slightly forwards.*
Stand	*This position is the main position used by Zora to start behaviors. Zora will stand at attention.*
Stand Zero	*This position has Zora stand at attention with the arms forward.*
Sit	*This position will have Zora sit with bent knees and the hands on the knees.*
Sit relax	*This position will have Zora sit with straight knees and leaning back on the hands.*
Lying belly	*This position will put Zora lying flat on the belly.*
Lying back	*This position will put Zora lying flat on the back.*
Crouch	*This position will put Zora in a crouching-position, this can also be used as a safe posture for recharging.*
Close hands	*This option will close Zora's hands.*
Open hands	*This option will open Zora's hands.*

Prepare bench position	*This position will be used PRIOR to putting Zora on the bench.*
Extract bench position	*This position should be used when Zora should be moved off the bench.*
Start stick exercises	*This position will be used to safely hand Zora a foam stick.*
Stop stick exercises	*This position will be used to safely retrieve the stick from Zora.*

For more detailed images about the postures, see **Appendix 6 – Postures**.

For more information about QR codes, see **Appendix 4, Chapter 1 – QR codes**.

For more information about the bench, see **Appendix 4, Chapter 2 – Bench**.

- ***Behavior-categories***

In this section the category '*Reception*' will be used as an example.

If none of the behaviors are active **If a behavior is active**

This segment contains 2 parts, namely the **names** of the behaviors and the possible actions that can be taken with these behaviors.

By clicking the **name** of the behavior, it will start.

There are 3 possible actions that can be taken with the *behaviors*:

	Generate QR	This creates a QR code that can be used by Zora to start the behavior. By keeping the QR code in front [1] of the forehead-camera the associated behavior will start [2].
	Settings	This causes a pop-up screen to appear with the settings of the behavior. This is only visible if no behavior is running.
(start) (stop)	**Start (or stop) the behavior.**	The start button starts the behavior. This icon changes to stop-icon once the behavior is running. The stop button stops the behavior and changes back into the start-icon.

[1]: At about 10 cm with a normal sized QR-code.
[2]: Once a 'beep' noise is heard, the behavior of function is loading. Please remove the card as soon as possible to avoid running the same behavior multiple times. ***Note***: this beep noise can only be heard if the volume setting is high enough (at least 30%).

If multiple datasets are defined, the layout changes a little, but the functionality remains unchanged.

If none of the behaviors are active **If a behavior is active**

This changes the names a little bit. Instead of just the name of the behavior, the default database becomes visible as well. By clicking the triangle next to the name, the possible variations appear in the list. The stop-button has been moved from the custom dataset to the behavior.

2.3.2 Movement panel

The panel on the bottom left side of the screen shows the movement panel.

	This button enlarges or shrinks this panel to full screen mode. This is particularly useful when using a tablet.
	The **Wake-up** button activates Zora's motors and (with the newer models of robots) stands up in the Stand-posture. This posture is most used as start position for behaviors. The **Rest**-button causes Zora to switch to a stable rest-position and switches the motors off. This also means there is less power consumption.

Note: If Zora is in rest, only the 'Wake up' can be selected and if the robot is active, only the 'Rest'-button will be selectable. In other words, Zora can only move after the motors are active.

The next part of the panel moves Zora in fixed directions from Zora's perspective.

The first row moves Zora forward.

Left Turn Forwards | Straight Forwards | Right turn Forwards

The second row has Zora step sideways or stops the robot.

Left | Stop robot | Right

The last row moves Zora backwards.

Left turn Backwards | Straight Back | Right Turn Backwards

Notes:

1. *When walking, the distance covered in each step is dependent on the surface. On a loose surface, a step will be shorter than on a harder surface. This is to maintain Zora's balance.*
2. *The floor must be steady, straight and not too slippery.*
3. *When pressing any of the direction buttons, Zora will keep going until the 'Stop robot' button is pressed.*

2.3.3 Basic Functions

This part of the steering-tab contains some basic functions for the Zora.

The first part contains some basic gestures:

	Clap Hands Zora will make the gesture of clapping the hands but will not make physical contact with the hands. The loudspeakers will generate a cheering sound.
	High Five Zora will make the gesture of a high five.
	Fist bump Zora will bump hands with the right hand.
	Salute Zora will make a salute with the right hand.
	Hand shake Zora will offer the right hand for a handshake and hold the hand there for about 5 seconds.
	Dap Zora will cover her eyes with the right hand and extend the left arm.

The second part contains some basic functions:

	Blink Eyes If this function is turned ON, Zora will periodically blink the eyes.
	Follow Person If this function is turned ON, Zora will follow the head of the person it has detected.
	Breathing Mode If this function is turned ON, Zora will move the hips a little while standing.
	Translation option and speech-output This allows Zora to speak and translate small texts. This will be explained more in detail in the following pages.

If these functions are turned off from the on-position, Zora will return to the standard head-position.

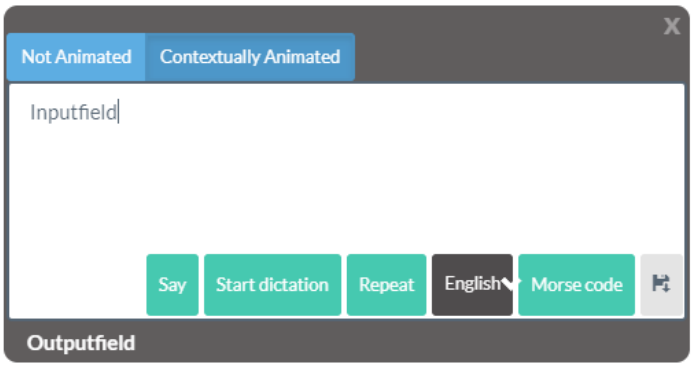
Note: *If the blink eyes function is switched on, the colour of the eyes will reset to white after Zora has blinked.*

- ***Speech module***

	To open the speech-module, click on the Zora with the text balloon. There are 2 different outputs available, depending on the setting of the 'Translation Module'.

  - *Translation Module OFF*

When the translation-module is turned off, the following screen will appear:



This pop-up contains the following segments:

➢ **Type of animation**

Not Animated	This option does not cause any motions.
Contextually Animated	This option causes Zora to gesticulate if the motors are turned on.

Note:

When using the option 'Contextually Animated', the animations that Zora uses can be specified. See **Appendix 4 –Article VII. Using Animations in Text-fields** for more information.

- **Input field**

This field contains the words Zora should speak. By pressing the 'Start dictation' the connected device is asked to connect the microphone to the portal [1], and the input via the microphone is filled in in the input field.

When inputting text into the input-field, the variables can be used. See Chapter 2.3.5.4 – Using variables for more information.

- **Output field**

This field contains the last output Zora spoke.

By clicking this the value in the output field is sent back to the input field to be repeated or to make adjustments if needed.

- **Speech Options**

Say	This button reads out the text to the output field, and thus to Zora.
Start dictation	This button activates the microphone to translate speech to text. The translated speech will appear in the input-field. ***WARNING***: this option no longer works in Google Chrome v60+.
Repeat	This button repeats the value in the output field without filling it back in in the input field.
English	This selection-box contains the installed languages on Zora and determines which language will be used to read the text.
Morse code	This option has the entered text be spoken as Morse code (of course, this implies the letters can be translated to Morse code). *Note*: This does not apply when using the 'repeat' option.
	This option makes Zora speak the text in the input-field and saves that output to a wav-file on the disc (see Disc Explorer). This can be used be used in other applications (e.g. Powerpoint)

[1]: This function is not available in Google Chrome v60+.

- *Translation module ON*

IMPORTANT: This feature ONLY works with a stable internet connection.

By activating the translation module and clicking on the robot with the speech-bubble, the following option is shown on screen:

This screen contains the following elements:

	Input Field The field with the microphone icon indicates the field in which input can be typed. Alternatively, by clicking the microphone icon, the connected device will try to connect the microphone, so speech can be used as input. By hitting the Enter-key, the input will be translated to the set language.
	Output Field The field with the speaker symbol next to it will show the translated speech that Zora is speaking or has spoken.
	Reverse selection This button changes the in- and output fields.
	Language Selection These fields select the used language for the speech engine. Not only do they have to be set for the output-language, but when using the microphone this is also used by the speech recognition. ***Note***: The selected system-language will automatically be selected as input-language.

Note:

It is not possible to use the microphone in Google Chrome v60+. If Google Chrome does not ask for permission to use the microphone, please do not use this feature.

2.3.4 Camera and microphone

The middle of the steering-page contains the camera-output window and has 3 major elements:

1. ***Camera-window***

This window will show the camera-output from the forehead-camera.

2. ***Editing Buttons***

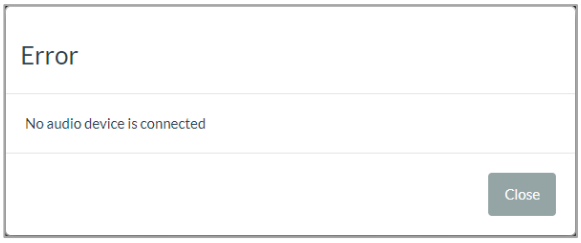
This section contains the buttons that control the camera.

Action	**Start**	**Stop**
Start streaming the audio to the Bluetooth device. A connection with a Bluetooth-device must be made first. (see Connection Settings)		
Show the video stream in Zora-Control. Only one instance of Zora-Control can show the video-stream at the same time.		
Take a picture (It is recommended to activate the live video).		
Listen to the microphones of the robot on the computer.		
Record a video This is limited by the available disc space. (see Disc Explorer).		
Record audio This is limited by the available disc space. (see Disc Explorer).		

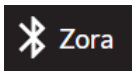
Notes:

1. ***Bluetooth:***

If a connection has not yet been made, an error will show on Zora-Control, indicating an audio device needs to be connected first.



In addition, the Zora-icon in the menu-bar will be altered to show the audio is being streamed to a Bluetooth-device.



2. ***Recording a video***

After recording a video, some time is needed to merge the audio- and video-tracks. During this process Zora-Control will be temporarily unavailable.

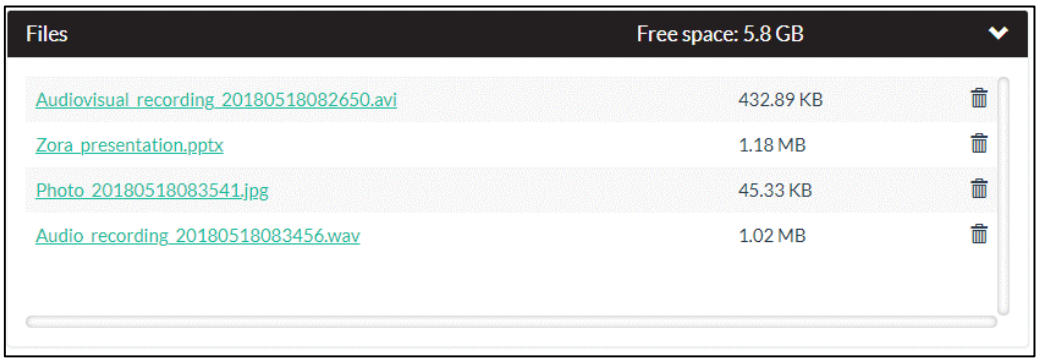
The refresh speed of the video is not very high. This is however the standard for a web display. The transfer speed of the video is dependent on the quality of the network connection.

3. ***Recording audio***

When recording a long piece of audio, some time is needed before the file is available on the robot. During this process Zora-Control will be temporary unavailable.

3. *Disc Explorer*

This part of the webpage contains the media-files (audio and video) made in this tab. By default, it also contains a PowerPoint presentation of Zora which can be used as an example for the behavior 'Presentation'.

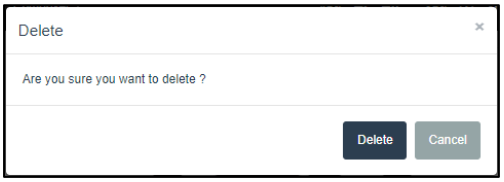


This contains 2 major elements, specifically the menu and the file list.

- ***Menu***

Files	This is the title of the disc explorer.
Free space: 6.0 GB	This show the remaining free disc space.
	This button shows or hides the file list.

- ***File list***

Zora_presentation.pptx	This is the name of the file. By clicking this, the file will become available for download to the connected device.
1.18 MB	This is the size of the file.
	This can delete the file from the disc. However, it is needed to confirm this operation.
	By clicking the delete button, the corresponding file will be permanently deleted. By clicking the cancel button or the cross in the top right corner, the file will not be deleted.

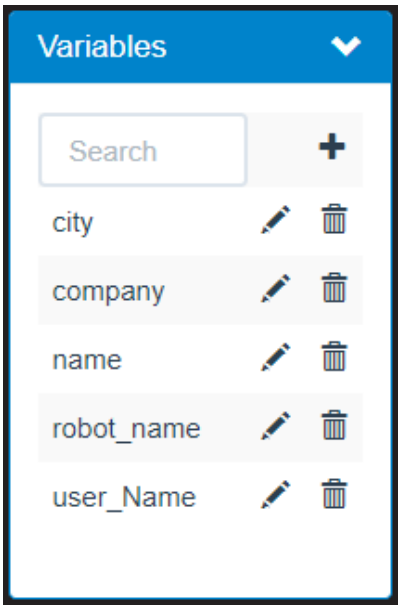
Note: If the list is open, new files will not be shown in the list. It is necessary to close the File Explorer list and re-opening it to show any new recordings since the last time the menu was opened.

The name of a video file will start with **audiovisual_recording_**, an audio file will start with *Audio_recording_* and a photo will start with Photo_. All files are followed by a timestamp (in the format: Year, Month, Day, Hour, Minute, Seconds) and the necessary file extension (avi/jpg/wav)).

2.3.5 Variables

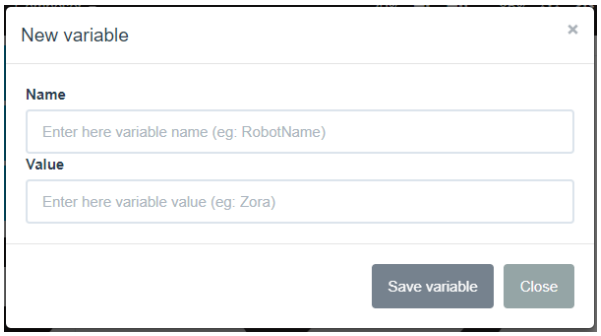
At the top right of the screen (excluding the tab bar) the variables are shown. A variable is a way to store simple information (mostly text) that can be used multiple times.

In this case, the value can be used in the non-animated speech blocks of the composer, the snippets and when reading text aloud.

	By clicking the name of the category or the arrow, the list is of variables is shown or hidden.
	A search field has been provided in case a lot of variables are needed. By clicking the + button, a new variable can be added to the list.
	A variable can also be modified by clicking the icon and removed by clicking the icon.

- ***Creating a variable***

By clicking the + button, a popup is shown where a new variable can be made:

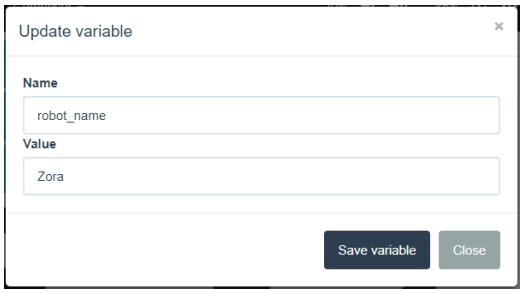


As stated before, a variable contains simple information. So, a variable always consists of the following pair: **Name** and *Value*. Any value can be inputted, but it will ONLY be used for speech-purposes. Keep this in mind when using the value in another language.

Note: Use only the characters a-Z, the numbers 0-9, the symbols '-','_' and a space in the name of the variable (e.g. Test01, Test_today, Test later, …).

- ***Modifying a variable***

By clicking the icon a variable can be changed to a new value:



By clicking the 'Save variable'-button the new value(s) for the variable is saved.

By clicking the 'Close'-button the value is not updated.

- ***Deleting a variable***

By clicking the icon, a variable can be deleted.

Note: This will colour every snippet that uses the variable in red, indicating there is a problem with the snippet.

- ***Using variables***

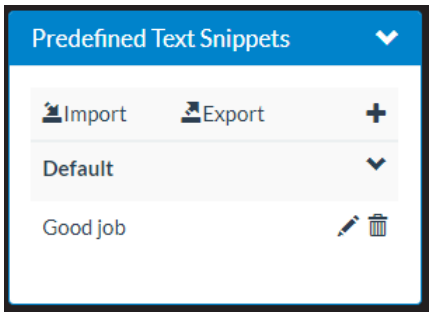
To use a variable in a text-field (text snippet for example), the name of the variable can be entered, accompanied by accolades (e.g. {variable}).

A full example of a text containing variables looks like:

Hello {name}, I am {robot_name}. Welcome to {company} in {city}.

2.3.6 Text Snippets

Just below the variables, the text snippets are shown and can be edited. When clicking on the tile bar, the following screen is shown:



The following icons are used in this part of Zora-Control:

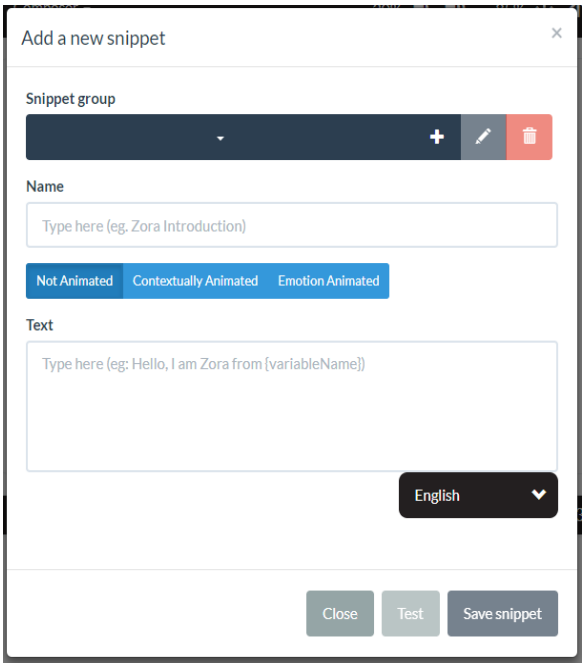
Predefined Text Snippets	By clicking the title bar, the list becomes available below the title. By clicking it again, the list is no longer shown.
Import Export	These buttons are used to import snippets from a computer or to export the *selected* snippets to a computer.
Default	This is the standard category and contains by default only one snippet.
+	This adds a new snippet and will be further explained in the following chapter.
	This button opens the settings for the snippet.
	This button deletes the snippet.
Good job	This is the name of a saved snippet [1]. By clicking it, Zora will speak the text saved in the information.

[1]: The colour of the name of the snippet shows whether it is animated or not (black = not animated, green = animated, red = error, primarily because a variable is not defined).

Note: If the snippet-category for the snippets does not exist, the imported snippets are placed in the 'Default'-category.

- ***Adding snippets***

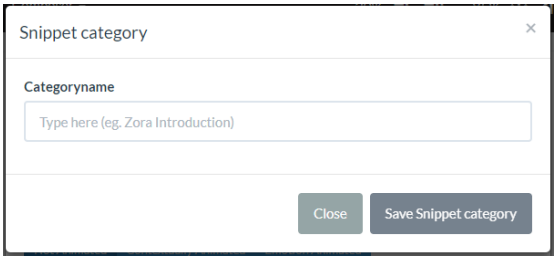
By clicking the + button a screen appears to add a new snippet:



	This section contains the information of the group to which the snippet will belong. A group must be selected, otherwise the 'Save snippet' and 'Test' buttons will be unavailable.
	This section contains the name that will be displayed in the list of snippets.
	This selects the type of animation to be used (see also Type of animation).
	This contains the text to be spoken aloud. A variable can be used here by inputting the name of the variable in accolades {variable}, e.g.: **Hello, I am {robot_name}. Welcome to {company} in {city}.**
	This contains the options for the created snippet. The options '*Test*' and '*Save snippet*' will only be active once all the information has been filled in.

There are 2 major parts in this section of the page, specifically the **snippet groups** and the **snippets** themselves.

1. Snippet groups

	By clicking this button, the current list of available snippet-groups is displayed.
	This button creates a new group for snippets. A popup appears to input the name of the new category:  By clicking the button 'Save Snippet category', the new category is saved [1].
	This button alters the name of the selected group [1].
	This button [2] removes the selected group *and its snippets* [1].

[1]: Make sure the category-name is unique.
[2]: These buttons only become active once a group has been selected from the list.
[3]: By deleting the category, the snippets in the category are also removed from the robot.

2. Snippets

A snippet must contain the following information:

Snippet group	To display the snippet in the steering tab, a category is needed.
Name	To have Zora read the snippet out, a title is needed.
Animation type	A type of animation must be defined. Emotion animation is not active in this version of Zora. (see Type of animation)
Text	The text to be spoken. Below the field, the language to be used by Zora when speaking the text can also be specified from the languages installed on Zora. If the option **'Contextually Animated'** is selected, custom animations can be defined. For more information, see **Appendix 4 –Article VII. Using Animations in Text-fields.**

3. Operations

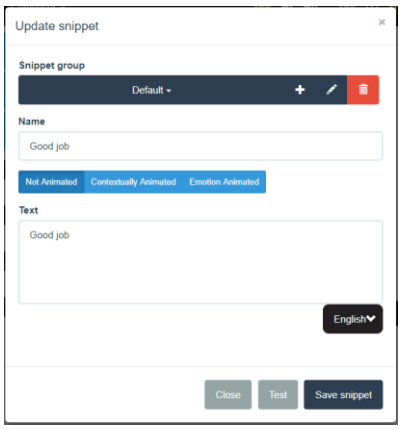
When creating a new snippet, 3 operations are available:

Close	By clicking this button (or the cross in the top right corner of the popup), the created snippet will NOT be saved
Test	By clicking this button, the snippet will be spoken by Zora, but small changes can be made (e.g. adding a comma for emphasis or a … for pauses) before saving it.
Save Snippet	This button saves the new snippet in the selected category.

- ***Editing Snippets***

By clicking the button, the editing mode is enabled. By clicking on a snippet now, the previous window will appear with all the data of the selected snippet filled in.

For example:



To change the value of the snippet, the already existing values must be altered.

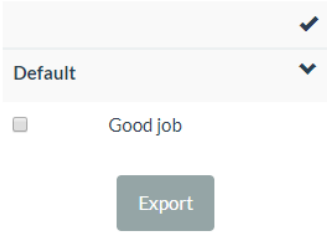
Like the previous chapter, by clicking 'Save snippet' the snippet will contain the new information.

Note:

If a snippet group doesn't have any snippets in it, it will not be visible in the steering page.

- ***Exporting snippets***

By clicking the Export-button on the screen, the display is modified, so multiple snippets can be selected to be exported.



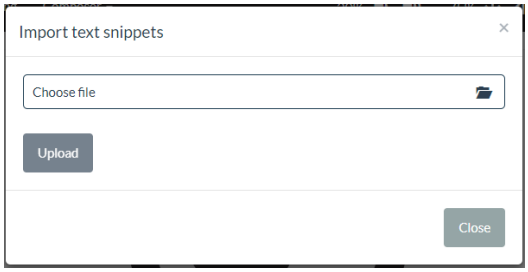
By clicking on the **name of the snippet** (NOT the checkbox), the snippet is added to the collection and will be exported once the button 'Export' is clicked.

To exit this mode, click on the ✔-button.

Note: The 'Export'-button does not become active until at least one snippet has been selected.

- ***Importing snippets***

By clicking the Import-button on the screen, a popup is shown where the exported file can be chosen.



By clicking the '**Choose file**'-button, an explorer-window is opened, so the file can be selected from the connected device.

By selecting the option '**Upload'**, the file is uploaded, and the snippets will be automatically installed.

WARNING: If the snippet-category does not exist from an imported snippet-file, the snippet will be placed in the category 'Default'.

2.3.7 Compositions

If there are no compositions available on the robot in the selected system language, this section will not appear in the steering page.

Compositions	The menu opens or closes the list of compositions that are present on the Zora robot by clicking the arrow at the right.
Composition Zorabots.cmp Demo dancing.cmp Demo multilingual speech.cmp Demo qr scan.acmp Demo sensor.acmp Demo speech recognition.acmp Demo variables.cmp Exercises with a stick.cmp Feet exercises.cmp	This list contains the currently stored compositions ***in the system language***. By clicking the ▶-button, the composition will be played, the icon will change to the ■-button and the stop-button in the menu-bar is shown. To stop the composition, press the ■-button in the composer-menu or press the stop-button at the top of the menu. This list contains both the simple and advanced compositions.

Note: *It may be necessary to reload the page if a new composition has been made while the page was active (i.e. by using another tab in Google Chrome).*

2.3.8 Head movement, Point at something, eye colouring.

The bottom right of the page contains the following items:

Head movement

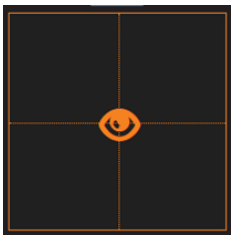
Point at something

Set eye colour.

By selecting the corresponding option from the available icons, the pane below will change to match the function.

The 'Reset'-button sets the head position to straight ahead and colours the eyes white.

- ***Head movement***

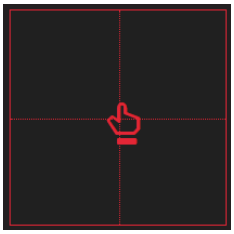


This pane sets the direction in which Zora will look.

The grid represents the field of vision as seen by Zora.

By moving the eye, Zora will look in the selected direction.

- ***Point at something***



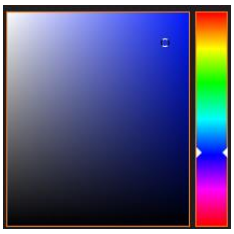
This pane sets the direction in which Zora will point and look.

Like the grid for the head-movement, it represents Zora's field of vision.

By moving the pointer-hand, Zora will look in the selected direction.

Note: If the option 'Breathing' has been selected, Zora will only point briefly.

- ***Eye colouring***



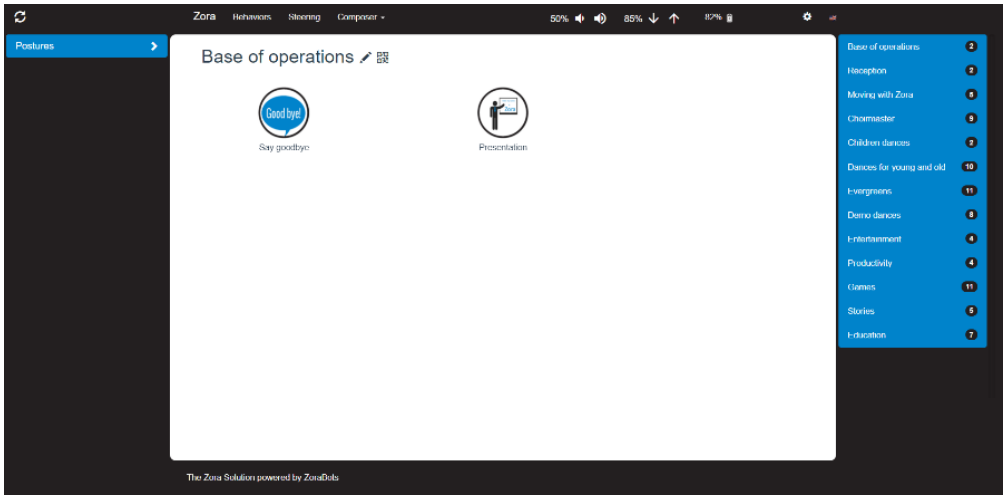
This pane sets the colour of Zora's eyes.

By changing both the tint and colour, Zora's eyes will change colour.

Note: The darker the selected colour, the less output the LEDs will have, and the less colour will be seen. To have the best results, a bright and clear tint should be used.

2.4 Behavior-tab

By clicking on the option 'Behaviors' in the menu bar, the following screen is shown:



There are 3 discernible parts to this page:

- ***Postures***
- ***Selection screen***
- ***Category selection***

2.4.1 Postures

This menu contains the postures that Zora can execute. By clicking on the QR-icon next to the name, a QR code will be generated that can be scanned by holding it close to Zora's head camera or downloaded to the connected device. The robot will then use the associated posture.

Postures	*This section can be opened by clicking on the arrow-head in the top right-hand corner.*
Stand init	*In this position Zora will hunch slightly forwards.*
Stand	*This position is the main position used by Zora to start behaviors. Zora will stand at attention.*
Stand Zero	*This position has Zora stand at attention with the arms forward.*
Sit	*This position will have Zora sit with bent knees and the hands on the knees.*
Sit relax	*This position will have Zora sit with straight knees and leaning back on the hands.*
Lying belly	*This position will put Zora lying flat on the belly.*
Lying back	*This position will put Zora lying flat on the back.*
Crouch	*This position will put Zora in a crouching-position, this can also be used as a safe posture for recharging.*
Close hands	*This option will close Zora's hands.*
Open hands	*This option will open Zora's hands.*

Prepare bench position	*This position will be used PRIOR to putting Zora on the bench.*
Extract bench position	*This position should be used when Zora should be moved off the bench.*
Start stick exercises	*This position will be used to safely hand Zora a foam stick.*
Stop stick exercises	*This position will be used to safely retrieve the stick from Zora.*

For more detailed images about the postures, see **Appendix 6 – Postures**.

For more information about QR codes, see **Appendix 4, Chapter 1 – QR codes**.

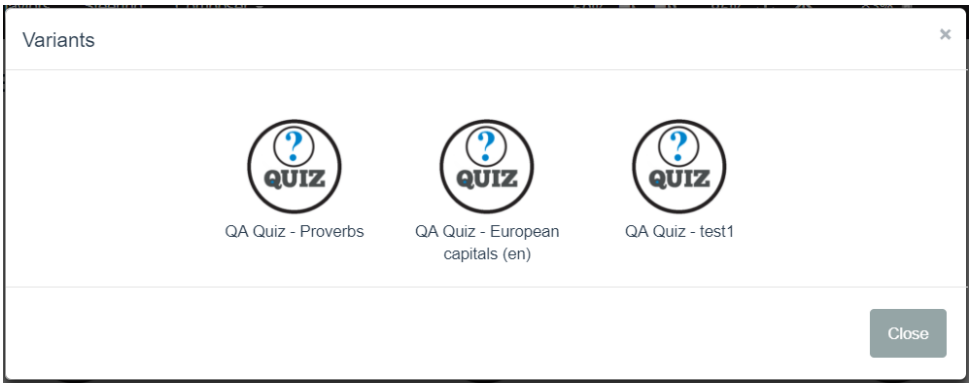
For more information about the bench, see **Appendix 4, Chapter 2 – Bench**.

2.4.2 Behavior selection

In the middle of the page, icons are available for selection. These icons represent the possible behaviors that are available for Zora to execute.

This page contains the following components:

Base of operations	**Category-name** The name of the category to which the behaviors belong.
	Editing Buttons By clicking the left icon, the editing mode will start. This means that instead of starting the behaviors, the settings will be opened when clicking the behaviors. By clicking the icon on the right, the editing mode will close.
	Generate QR By using this button, a popup will be shown containing a QR-code which can be shown to Zora to start the behavior.
Good bye! Say goodbye	**Icon and name of behavior** By clicking the icon, the corresponding behavior will start.
3	**Collection Icon** This icon appears when multiple datasets are defined for the same behavior. By clicking this icon, a list of the possible datasets to be used will be displayed.



By clicking the chosen dataset, the selected dataset will run (or be edited).
The naming of multiple datasets is as follows: Name of the behavior followed by Name of the dataset. (so take care not to use the name of the behavior when creating a dataset).

For more information about datasets: see chapter Data Management

- ***Adjust Settings***

This section describes how to adjust the settings of a behavior.

	By clicking this icon, the editing mode will be activated. There is now a small change to the icons.

Behaviors that have **no adjustable settings** are coloured grey.

Behaviors that have **adjustable settings** are displayed with shadow.

 How still can you sit	 QR Quiz

After selecting the behavior a popup appears which contains the adjustable settings.
After adjusting th settings to the desired values the changes can be saved by clicking the save button or discarded by clicking the close button of the cross in the right hand corner.

	By clicking this icon the editing mode will be de-activated. The icons return to their normal style, and clicking them will start the behaviors.

- ***Types of Settings***

The following types of settings can occur in behaviors:

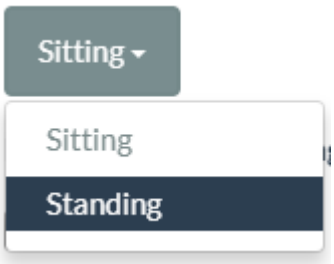
1. ***Text or number input***

	This field requires a manual input of either text or numbers.

2. ***Check box***

	This type of setting will become active if checked and ignored if unchecked.

3. **Multiple choice**

	This type of setting cannot be left empty, and one of the valid choices must be selected from the list. By clicking on a value, the registered value will be used by the behavior the next time it starts.

2.4.3 Category menu

On the right of the screen the selection of possible categories is visible.

This contains two main elements:

Games	**Name** of the category	11	**Number** of behaviors in this category.

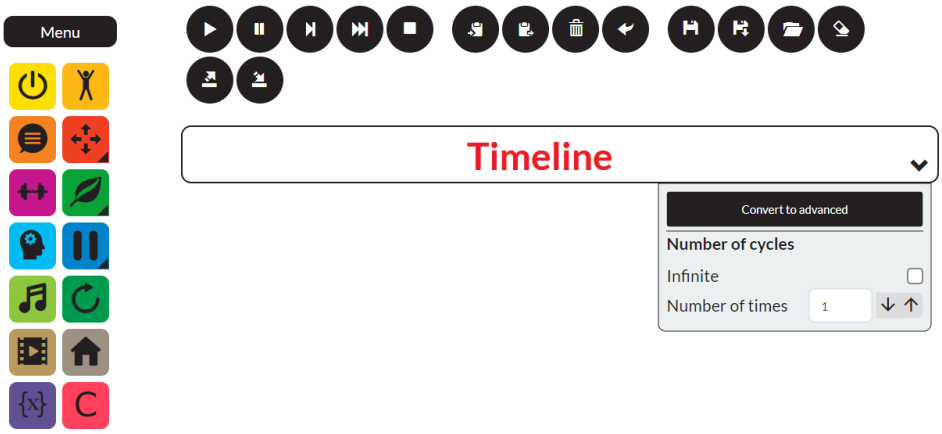
By clicking a new category, the selection screen is reloaded and a new list of behaviors appears that belong to the selected category.

2.5 Composer-tab

When clicking this tab, 2 options are presented, specifically 'Simple Composer' and 'Advanced Composer'.

2.5.1 Simple Composer

When selecting the option 'Simple Composer' from the composer tab in Zora-Control the following page appears:



This page contains 3 parts, specifically:

- ***Menu bar***
- ***Operational buttons***
- ***Timeline (with properties)***

The composer-page is designed to manually set a series of routines or gestures to make Zora carry out a choreography or exercise.

This is done by dragging the blocks in **the menu** into **the timeline** and playing (part of) the composition.

- ***Menu-bar***

On the left side of the screen the menu-bar is shown with all the possible actions that can be put into the timeline.

	Rest/Wake up This block puts Zora in a stand-posture or puts Zora in a rest-position.
	Postures This block selects the posture that Zora will take (see Postures).
	Speech This block makes Zora say a text in the selected language.
	Motion This block makes Zora move the head, hands or arms. In case Zora is sitting on the bench, the legs can also be moved. Each function is divided into sub-blocks.

Head:	**Hands:**	**Arms:**	**Legs:**

	Gym This block makes Zora do exercises.
	Natural This block shows actions that emulate natural behaviors, such as breathing or blinking with the eyes. Each function is divided into sub-blocks.

Blink eyes:	**Follow head:**	**Breathing**

	Wait This block temporarily stops the composition from playing until an input is detected or some time has passed. Each function is divided into sub-blocks.

Wait for x seconds	**Wait until a certain time**	**Wait for sensor**	**Wait for QR code**	**Wait for speech**	**Wait for face-recognition**

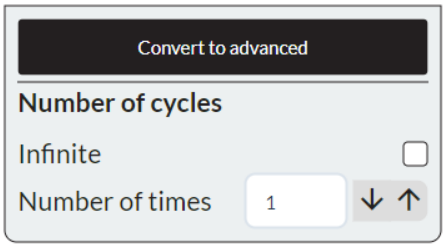
	Behaviors This block enables the active behaviors to be played in the composition.
	Music This block starts or stops music from playing.
	Loop This block creates a second timeline that can be repeated if needed.
	Animation This block makes Zora execute an animation.
	Bezonia This block is only available for specified users.
	Variables This block allows for the creation of variables in the composition.
	Composition This block allows for the composition to use another composition.

For more info about the possible properties of each block: see **Appendix 3 – Composer.**

- ***Timeline***

This part is used to combine the different block into one choreography. An example:

There are endless possibilities for combining the blocks.

Besides adding the blocks, the following functions are available by **hovering the mouse over the arrow** at the end of the timeline. The current 'simple' composition can be converted[1] to an 'advanced' composition. The timeline can be infinitely repeated or played several times (just once for example).	

[1]: By changing to an advanced composition, the currently open advanced composition will be overwritten and the current 'simple' composition will be erased from the timeline.

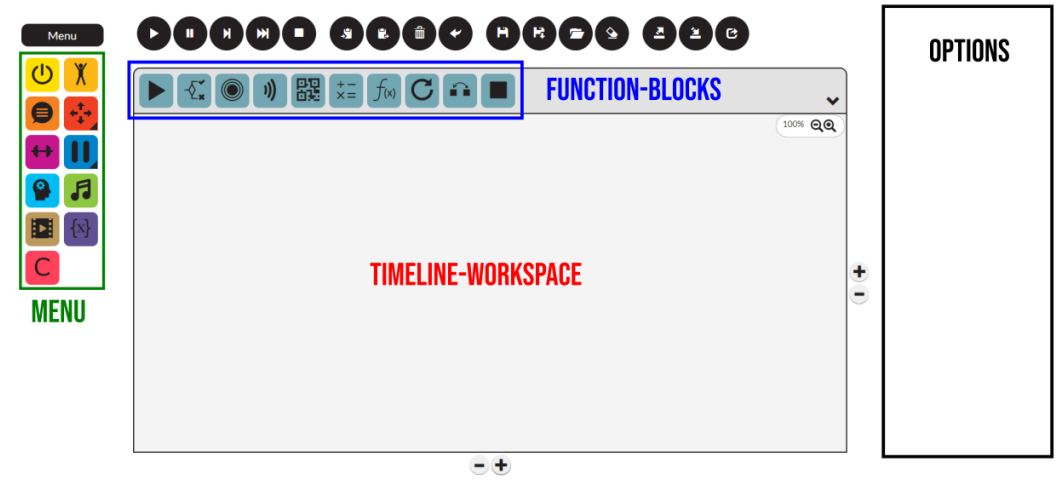
Note:

The Gym- and Behaviors-blocks contain a lot of data and could potentially slow down the loading process.

Important:
When adding a music block, a second music block must be added to stop the music.

2.5.2 Advanced Composer

When selecting the option '*Advanced Composer*' from the composer tab in Zora-Control the following page appears:

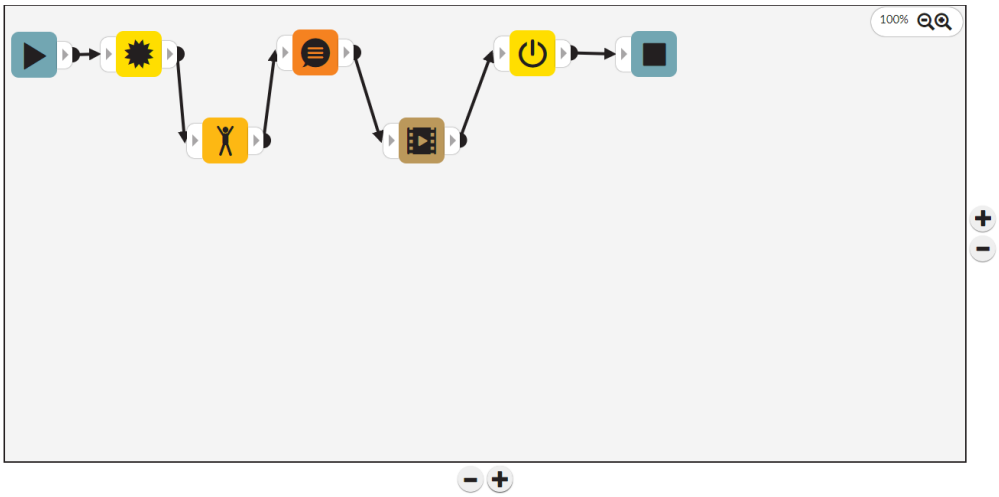


This page shows a lot of differences compared to the 'simple' composer.

The timeline is now a workspace, where the elements must be dragged to and there are new function-blocks available. To accommodate the new functions of the new blocks (such as creating simple decisions with if/else-scenario's or creating a more advanced loop), a workspace was required.

To adjust the options for a specified block, a space has been provided on the right of the workspace.

Unlike the simple composer, it is now possible to define which block can be run by linking the blocks together. For example:



- ***Menu-bar***

The function-blocks have been split into 2 menu-bars, one above the timeline and one to the left of the timeline. To the left of the timeline, the same blocks (excluding the loop-block) can be found as in the 'simple' composer.

In the menu above the timeline, the following new function-blocks are available:

	Start Composition This block will show where the timeline of the composition begins.
	If/Else Block By using variables, this block can separate the current timeline into separate branches. E.g.: if a specific sensor is (not) pushed, path 1 will be taken, else path 2.
	Sensor-input This block works the same as the Wait for sensor option in the simple composer, but the inputted value can be used in the If/Else block.
	Speech-input This block works the same as the Wait for speech-recognition option in the simple composer, but the inputted value can be used in the If/Else- and speech-blocks.
	QR-code input This block works the same as the Wait for speech-recognition option in the simple composer, but the inputted value can be used in the If/Else- and speech-blocks.
	Math This block allows for operation to occur on number-values (including creating a random number).
	Math formula This block allows for a variable to be defined by a mathematical formula of other variables (e.g. c = l*2 + b*2).
	Loop This block allows for the following blocks to repeat **for** several times or **while** a condition is valid.
	Go to This block allows for a loop to be interrupted by selecting the block from which the composition must continue.
	Stop composition This block marks the end of a **branch of the timeline**.

(1): The values that can be used as variables have to be entered manually before they can be used as variables.
(2): This stop indicates the end of the composition, not the number of times it must be played.

- ***Timeline***

Unlike the simple composer, the timeline used by the advanced composer is not linear. By linking the blocks together, several branches can be made and configured.

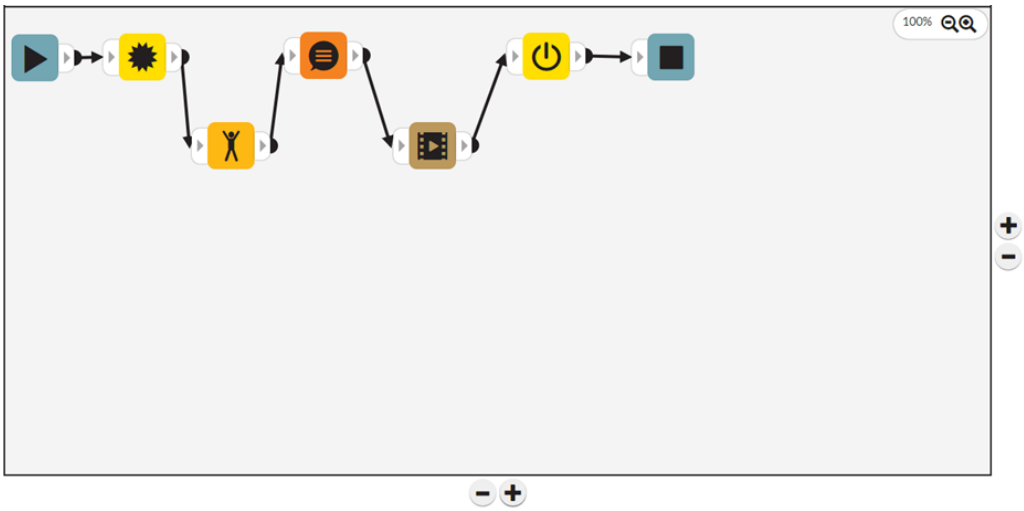
- ***Placing Blocks***

By dragging a block from either of the menus to the timeline, the block is added. However, to link the blocks together, extra elements are added to the block:

	Input Connector By selecting this component, the block is added later in the timeline than the block from which the link started.
	Output connector By selecting this component, the block to be added is added later in the timeline than the current block.

- ***Linking Blocks***

To link blocks together in a type of flow or flowchart or timeline, the Output Connector-component of a block must be connected to an Input Connector-component of another block.



The blocks can be scattered across the timeline, if they are connected in the correct order, the composition will run.

At this moment, only 1-on-1 links can be used, meaning that a block (excluding the if/else and loop-blocks) can only link to one other block.

For more information on how to create a composition and especially on the if/else-block, see **Appendix 3 – Composer**.

2.5.3 Actions

This section describes the actions that can be taken on the compositions. These functions sometimes have some minor changes depending on the version of composer used.

A first group of buttons cause the composition to be executed or stopped.

	Play [1] This button plays the full composition from start to finish.
	Pause This button halts the composition AFTER the current block has been played fully.
	Play selected This button plays only the selected block.
	Play from selected This button plays the composition from the selected block until the end.
	Stop This button stops the currently playing composition.

[1]: When playing an advanced composition, if they played element is outside the workspace, the workspace will move to show the playing block.

A second group of buttons allows you to copy, paste and delete a selected block.

	Copy to clipboard This button copies the selected block to the clipboard.
	Paste from clipboard This button adds a copy of the previously copied block at the end of the composition in the simple composer. In the advanced composer, the block will be added in the top left side of the screen.
	Delete selection This button removes the selected element from the timeline.
	Undo the last action [1] This button undoes the last action taken by the user, in case a block has been accidentally deleted.

[1]: Only the last action can be un-done, it is not possible to undo multiple actions.

The last group of buttons handles the storage and remote management of the compositions.

	Save This button saves the currently active composition in the set system language. ***Note**: If no filename has been provided, a popup will appear asking for a name, otherwise the current filename will be used*. This icon will turn yellow if changes have been made to a composition, but the composition has not been saved *if the composition has been already being saved*.
	Save as This button allows you to specify which filename should be used when saving the composition.
	Open [1] This button opens a selection of the currently saved compositions on the robot in the system language and fills the timeline with the saved blocks. ***Note**: The current blocks in the timeline will be erased*.
	Clear timeline [1] This button clears all blocks from the timeline and closes the opened composition if necessary.
	QR code [2] This button generates a QR code which can be used to start the composition. To use a QR code, simply hold it in front of the forehead camera (in the correct position) while Zora is not running behaviors or compositions.
	Export [3] This button is used to export the currently saved compositions to the connected device. By selecting the desired compositions from the popup-screen, a zip-file will be created and downloaded to the connected device.
	Import [3] This button allows the earlier exported compositions to be re-installed on Zora. Please ensure the compositions in **z(a)cmp**-format are used and not the zip-archive.

[1]: If unsaved changes have been made to the composition, a warning-popup will appear to confirm erasing the current composition from the timeline.
[2]: This button is only available if the composition has been saved on Zora.
[3]: When importing files from a previously exported zip-file, the compositions must be extracted from the zip-archive in (z)cmp-format when re-importing them.

It is possible to have a composition run for several times (even infinitely) instead of just once. To show this, the following options are shown when the mouse-pointer is over the icon in the timeline:

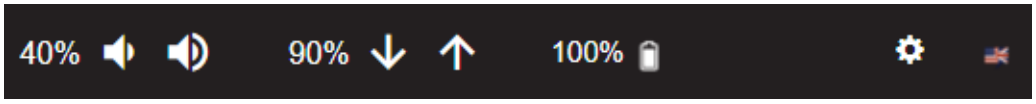
Number of cycles Infinite ☐ Number of times 1	**Number of cycles** The timeline has an option to repeat the timeline several times. *Note*: If Infinite is selected, only by using the stop-button from the composer itself can the composition be stopped.
Convert to advanced	**Convert to advanced** This option is only available in the simple composer and will convert a simple composition to an advanced composition, after confirming that the present composition *in the advanced composer* may be erased. This will also erase the timeline for the simple composer.

Notes:

1. *Importing a composition does not automatically load them into the timeline.*
2. ***A simple composition will open the simple composer; an advanced composition will open the advanced composer. The same principle is valid when saving a composition.***
3. *When playing a composition, the number of times the composition must still be played will be displayed in the bottom right of the timeline.*

Control bar

This part of the menu bar contains the settings for volume and voice pitch, shows the state of the battery, current system language settings and a button that opens the settings for Zora.



Note:

The gear wheel in the top right corner changes colour depending on the status of Zora's motors.

- When it is coloured orange, some motors are getting a little hot. Please ensure Zora has sufficient cooling.

- When it is blinking red, the motors on Zora are overheating. Zora must be put into a rest-mode as soon as possible. Safety measures will put Zora in a rest-position if left alone for too long.
***DO NOT** start any behaviors or movements, because Zora may fall and/or break something.*

2.5.4 Volume-settings

The volume settings use the following symbols:

40%	Current volume in percentages.
	Decrease volume by 10% down to a minimum of 20%[1].
	Increase volume by 10% up to a maximum of 100%.

[1]: The minimum volume is set so it is always possible to hear Zora read out the IP address.

2.5.5 Speech speed

The speech speed settings use the following symbols:

90%	Current speech speed value in percentages.
	Decrease speech speed by 5% down to a minimum of 50%.
	Increase speech speed by 5% up to a maximum of 150%.

Note:

If Zora is not fully understandable when speaking, decrease the speech speed to better suit the text. The recommended setting to fully understand Zora's speech is about 80%.

These settings are not applied when using a Bluetooth-device, only the volume set by the Bluetooth-device will be used.

*Important: The settings for the volume and the speech speed can be altered **during behaviors** or compositions to adjust the output of Zora's speech.*

2.5.6 Battery level

The following symbols are used to display information about the battery.

100%	The current charge level of the battery.
	The battery is not charging.
	The battery is being charged.

Note:

If the battery drops below 30%, Zora will inform you that the battery should be charged. If the battery drops below 5%, Zora will need to be charged immediately or it will stop.

2.5.7 Settings of Zora

By clicking the gear wheel ⚙, a list of possible categories for settings appears in a dropdown list. This list is divided in several sections.

A first part contains the technical information and settings for Zora:

Language	By clicking this section, a popup appears with the possible values for the system language. The button on the top right of the screen (the language flag) works in the same way.
Change data	By clicking this section, the data editing environment is opened. By using this environment, it is possible to alter or create custom datasets for certain behaviors See chapter Data management
General settings	This button opens the general settings for Zora. See chapter General settings
Connection settings	This button opens the network connection management page. See chapter Connection Settings
Hardware	This button opens a page with the information about the motors and the installed modules. See chapter Hardware
About	This button opens a popup with some technical information of Zora See chapter About

A second part contains diagnostic data and a feedback form:

Feedback	This button shows the feedback form with the user experience.
Download overview	By clicking this button, a list of all the behaviors and compositions that have run since starting Zora will be sent to the connected device.
Download diagnostic	By clicking this button, a list of diagnostic data is sent to the connected device. This data is useful when using remote help.

The final part contains operations for the currently running Zora-Control:

Stop	This button stops the current running behavior or composition.
Software update	This button uploads the new version of the operating system on the USB-stick. There are 2 options available in the following screen: - **Update**: this option will keep the user files and settings on the robot. - **Install**: this option will reset the settings to default values and erase the user files. ***IMPORTANT: Close the page of Install/Update after 10 seconds (before the installation starts).***
Backup data	This downloads the current data to a connected device via the network or copies the data to a connected USB-drive at the back of Zora's head. For more information, see **Appendix 4**, Chapter **Backup Data**
Restore data	This restores a previously made backup to Zora. Again, there are 2 options: via USB-stick in the head or via upload to a connected device. For more information, see **Appendix 4,** Chapter **Restore Data**
Reboot	This button fully reboots the robot and puts Zora in a stable position if necessary.
Quick reboot	This button shuts down all services and restarts them. This is quicker but less efficient than a full reboot.
Shutdown	This button shuts Zora down and puts Zora in a stable position if necessary.

Notes:

- *Do **not** update the software when in hotspot-mode. This may cause some problems when installing additional data.*
- *The USB-stick used for backing up and restoring the data must be formatted in FAT32-format.*

IMPORTANT: Close the page of Install/Update after 10 seconds (before the installation starts).

- ***Data management***

  - *Introduction*

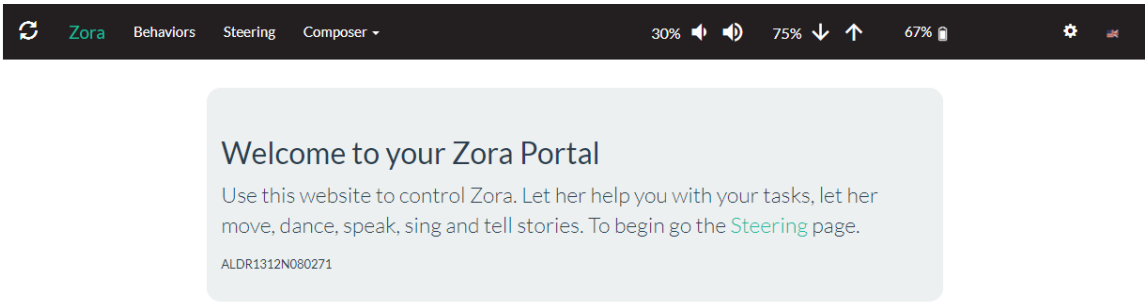
The data management page is designed to customise (most) behaviors by allowing the owner (or a proxy of the owner) of the Zora to add sets of data to behaviors. For example, the types of task in ADL Training or the questions in a QR/QA quiz.

Some terminology used throughout this document:

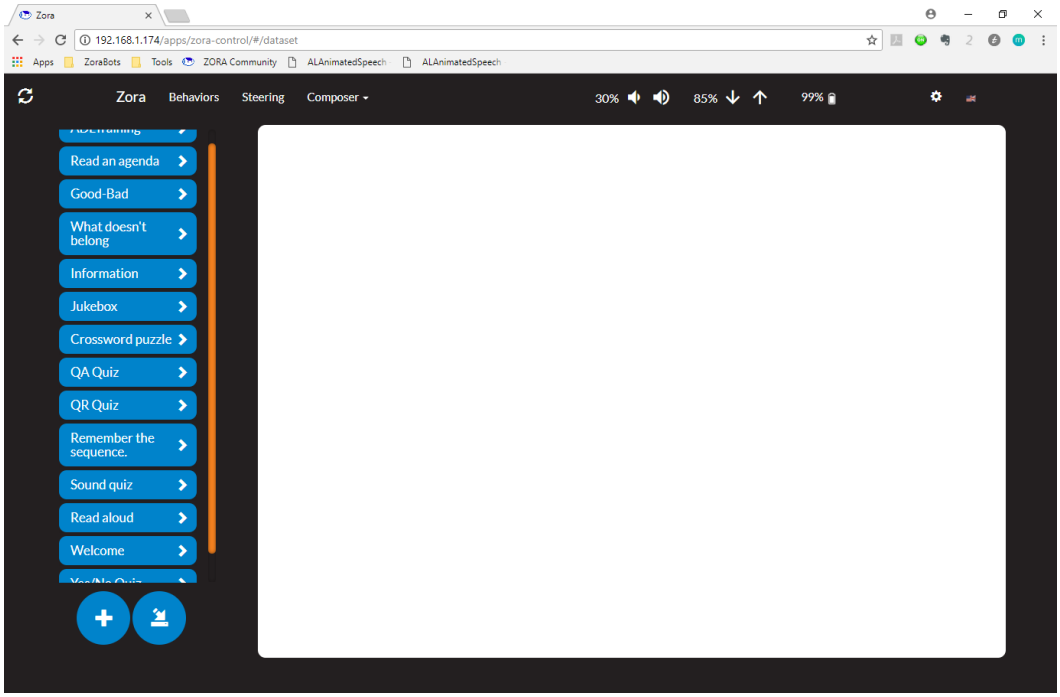
Database	The file containing all the data
Dataset	A list of data associated with a specific behavior containing rows of data, split into columns
Row/Record	One entry in the dataset according to the columns
Field	One column in one row of the dataset

○ *Accessing data management*

To access the data set, open the menu by clicking the ⚙-icon and selecting the option **'Change Data'**.



The following screen is shown on Zora-Control:



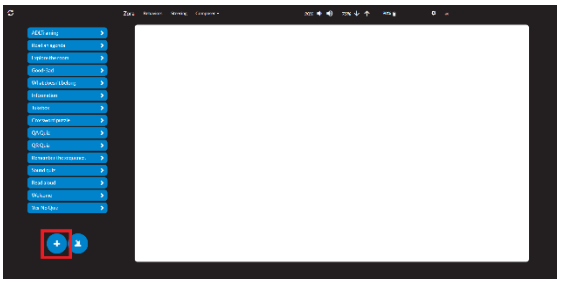
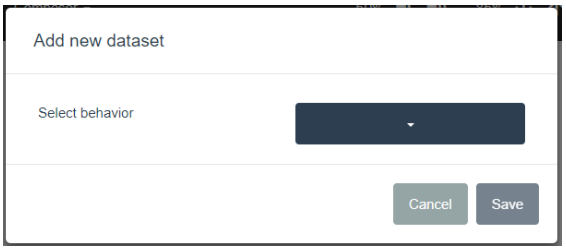
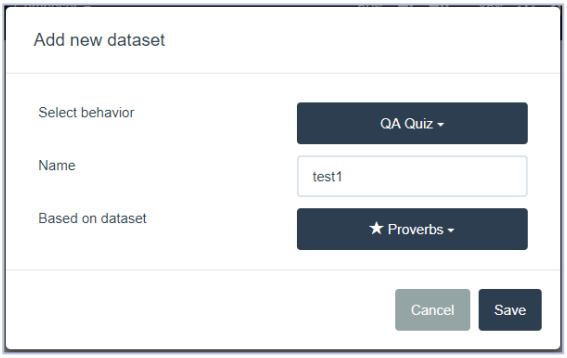
This page allows the user to manipulate (some of) the data used on Zora.

- *Creating a new dataset*

To create a dataset, the following variables are needed as identifiers:

1. ***Name of the behavior***
2. ***Name of the dataset itself***
3. ***Based on already existing data or from scratch***

Note*: When starting these datasets from the behavior-tab, the name of the behavior is already filled in, so the dataset named 'QR Quiz test' will be displayed as QR Quiz 'QR Quiz test'.*

Step 1 – Add a new dataset Click the button on the bottom of the menu on the left side of the screen	
Step 2 – Select the behavior A popup appears to select the behavior	
Step 3 – Fill in the name and select a dataset to use. After selecting the behavior, the other identifiers must also be filled in:	**Select behavior** – A dropdown list of behaviors that can be customised via datasets. **Name** – The name of the dataset **Based on dataset** – The dataset whose records will be duplicated to start
Step 4 – Doublecheck the information The example shows a new dataset for QA quiz based on 'Proverbs' dataset. Create the dataset by clicking the 'Save'-button.	

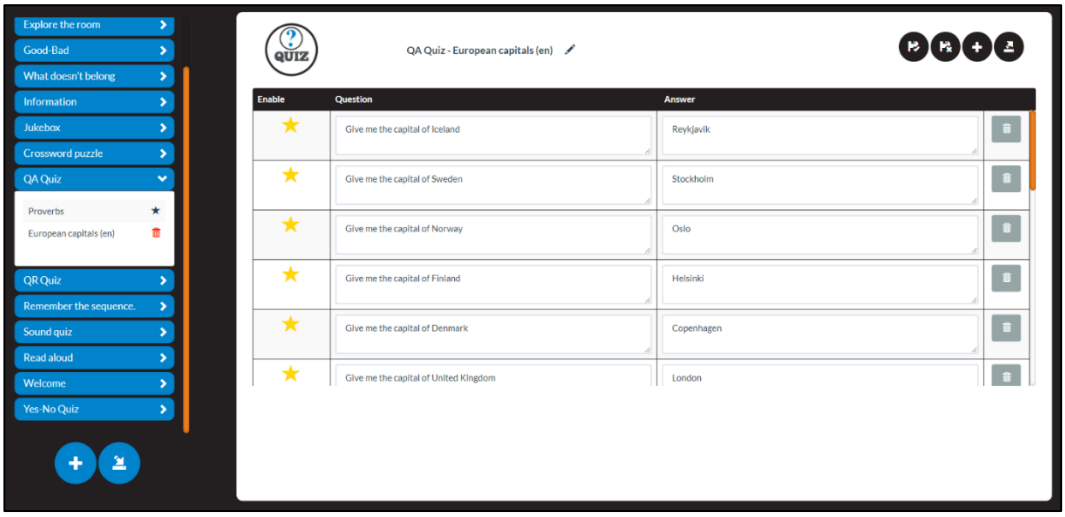
○ *Editing a dataset*

Once the dataset is created, it is automatically selected and active for editing. To select another dataset, first open the list of every dataset for the behavior and then select the dataset to be edited.

	By default, none of the available datasets for any behavior will be shown. By clicking the ›-icon next to the behavior, the list of datasets for that behavior is shown. To close the list, the ⌄-icon can be clicked to close it again, or another list can be opened. Important: Only one list can be shown at a time.

Note: The ★-icon next to a dataset means it is a default dataset, and that it cannot be edited, only viewed.

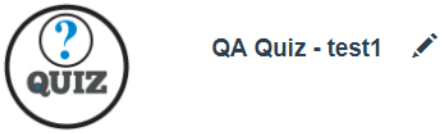
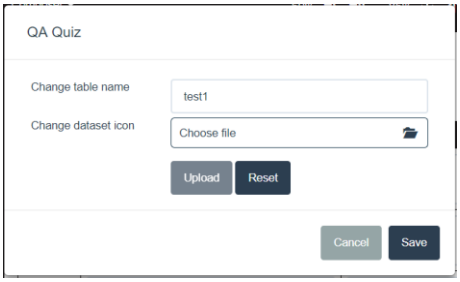
By selecting the dataset, the middle of the page will show the records in the dataset.



This page contains the following elements:

1. **Tools for editing the selected dataset**

The following items can be found:

	At the top of the page, the currently selected dataset is shown. The name and image can both be changed for **non-default** datasets by clicking the ✎-icon.
	The name of the dataset can be altered to better suit the data in the dataset. A custom image (**in PNG-format**) can also be chosen to better show the content of the dataset. By clicking the Reset-button, the default image will be used for the dataset. By clicking the Save-button the new values will be saved, otherwise the older settings will be used.

2. **Tools for editing the rows of the dataset**

The following items can be found in this collection, just above the rows of data:

	Save Changes This button saves the changes made to ALL rows of data and writes the data in the dataset to the database.
	Undo changes This button reloads the last saved data in the dataset from the database.
	Add data Adds a new empty row of data.
	Export dataset By clicking this button, the dataset can be saved on a local hard drive.

3. **Tools to alter the rows of data**

By selecting the dataset, the main window will contain all the data from this dataset. This data can be directly edited **if it is not a default dataset**.

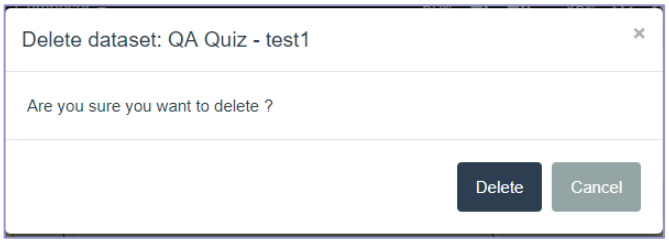
For more information on which behavior contains which type of data fields, please refer to **Appendix 2 – Behavior List**.

Note: Please use the following precautions when creating or altering data:

- Input valid numbers in fields requiring numbers.
- Fill out all data fields.
- Take care not to exceed the number of active datasets.
  The following behaviors should only have 1 active row per dataset per language:
  Read Aloud, Read an agenda and Welcome.

- *Deleting a dataset*

By clicking the -icon next to the dataset, the selected dataset will be deleted after confirming the dataset should be deleted by clicking the 'Delete'-button in the popup.

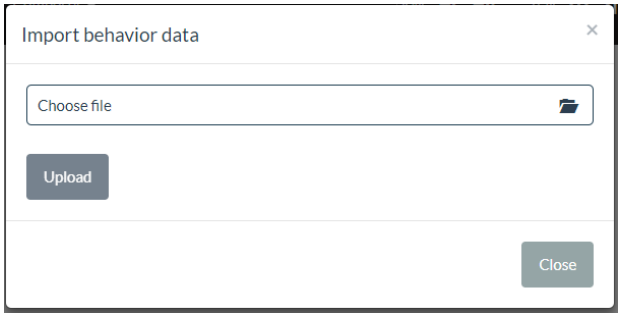


- *Exporting datasets*

By clicking the -icon next to a dataset, it will be exported to the local hard drive of the connected device.

- *Importing a dataset*

By clicking the -button at the bottom of the list of the datasets, it is possible to select the earlier datasets to import from the local hard drive.

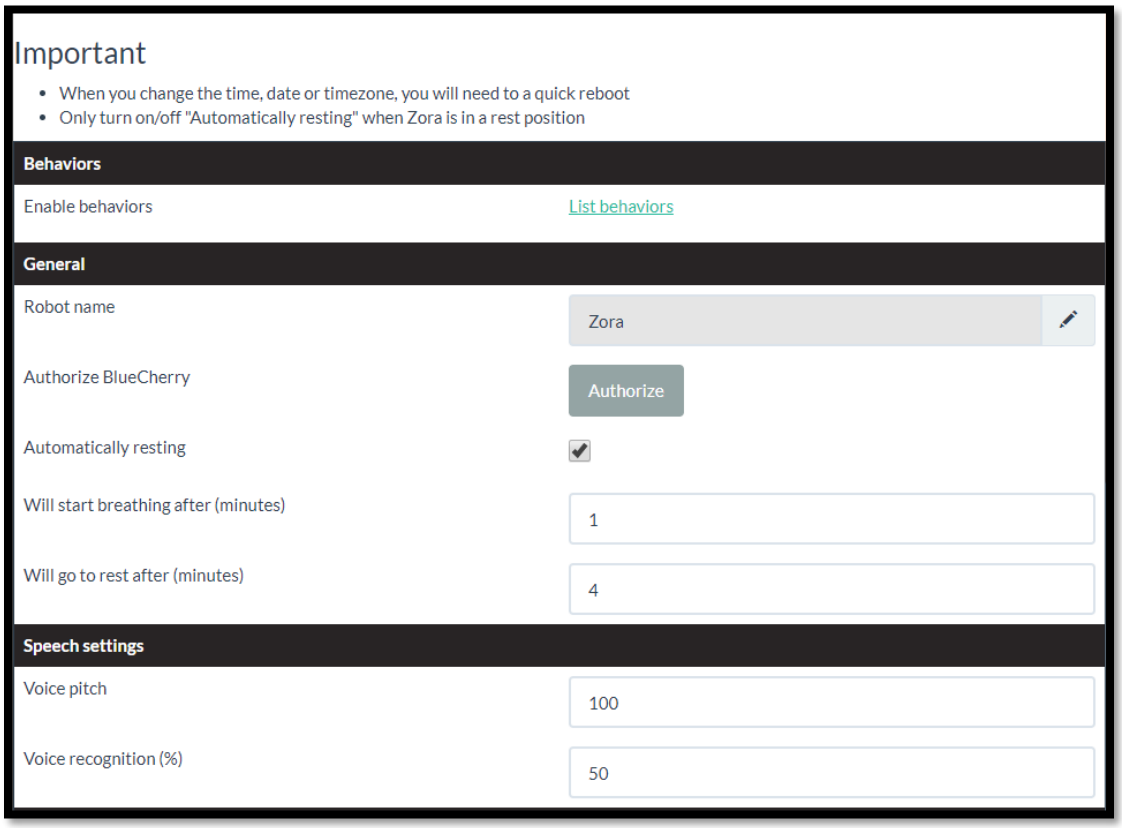


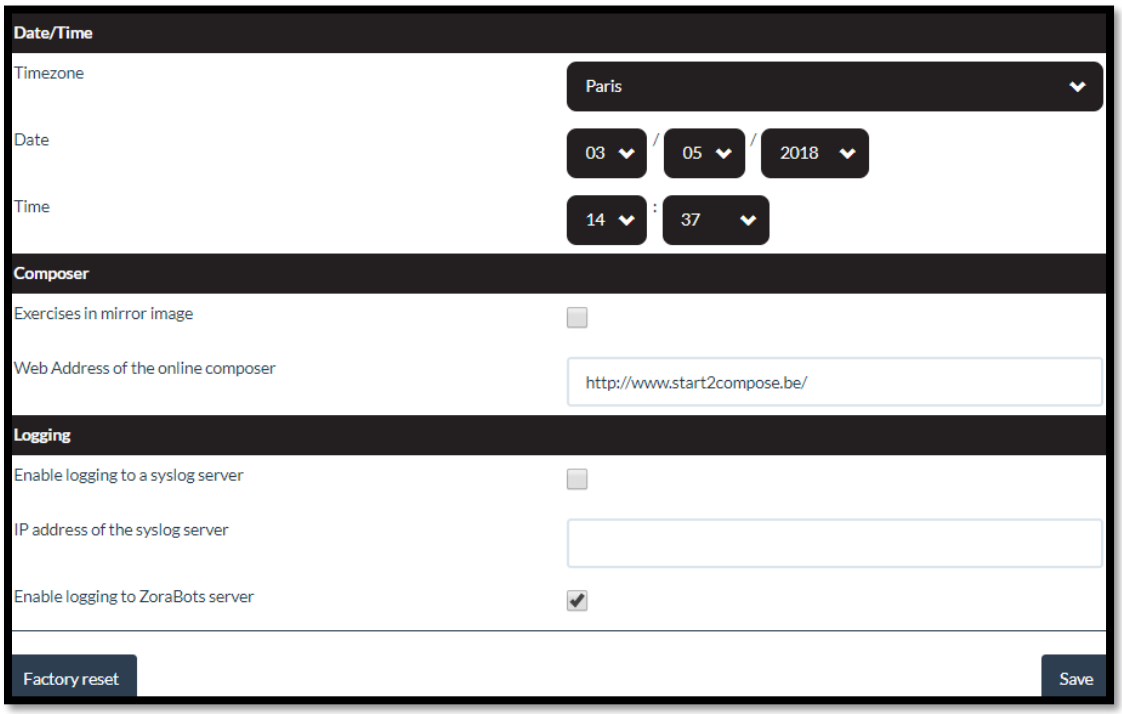
By clicking the '*Choose file*'-section, an explorer window is opened, and an exported dataset can be selected to be imported.

By clicking the button '*Upload*', the dataset is imported into the database and is ready for use.

- ***General settings***

By clicking the option '*General Settings*' in the menu, a page appears with the following categories: ***Behaviors***, ***General***, ***Speech Settings***, ***Date/Time***, ***Composer***, ***Logging*** *and* ***Factory reset***.

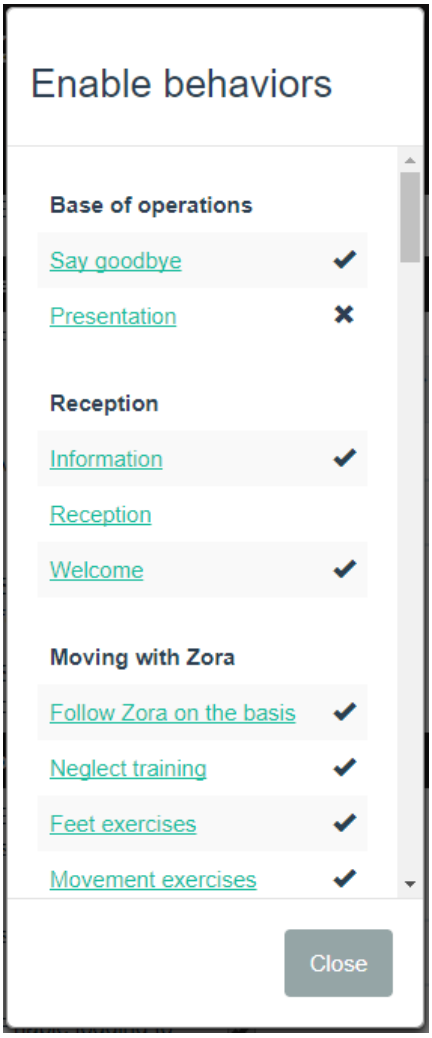




- *Behaviors*

Behaviors	
Enable behaviors:	List behaviors

By clicking the link of '**List behaviors**' a popup appears with a list of available behaviors in their respective category.



There are two options available for the behaviors in this list:

✔	The behavior will be displayed in the behavior-tab and steering-tab in the shown category
✖	The behavior will not be displayed

By clicking the row of the behavior, the selection will be reversed. The new settings will be saved immediately.

By clicking the Close-button, the general settings page will be displayed.

- *General Settings*

This category contains the general settings of Zora.

A few warnings are associated with changing the settings, specifically:

- When changing the date or time, the robot needs a quick reboot.
- When changing the settings for 'Automatically resting', make sure Zora is position in a 'Crouch'-position.

Robot name	*An administrator can change the name of the robot after inputting the system password.*
Authorize Bluecherry	*This button will generate a random key, to be used by our support team when provided remote help.*
Automatically resting	*If this option is selected, Zora will go into a safe resting position, so the motors do not overheat from being in use for long.*
Will start breathing after (minutes) [2]	*If the option 'Automatically resting' is selected, Zora will slightly move around after some time.*
Will go to rest after (minutes) [2]	*If the option 'Automatically resting' is selected, Zora will assume a safe resting position after some time.*

[1]: This setting has been replaced by another information field (How to connect to Wi-Fi) and is inactive in this version.
[2]: The new settings are only applied AFTER Zora has been placed in a stable resting position.

- *Speech settings*

This category contains the options for the speech recognition and speech output.

Voice pitch	*This setting controls the pitch of Zora's speech engine.*
Voice recognition (%)	*This setting allows the user to indicate how close the match must be when using voice recognition (the higher this value, the more correct the answer must be in terms of pronunciation, voice pitch and intonation).*

- *Date/Time settings*

This section contains the settings for the time zone and the current time and date.

IMPORTANT: When changing these settings, the robot must be sent a 'quick reboot'-command from the administrative menu.

Timezone	*This setting shows the available time zones around the globe.*
Date	*This setting contains the current date.*
Time	*This setting contains the current time in the specified time zone.*

- *Composer*

The next part of the general settings contains information related to the composer.

Exercises in mirror image	*If this option is selected, the exercises (and only the exercises) will be executed with right and left inverted.*
Web Address of the online composer	*This should be set to http://www.start2compose.be. This is the current address of the online composer and is necessary for running online compositions on Zora.*

After filling in the correct settings, they will be stored on the robot by clicking the Save-button.

- *Logging*

This category contains the settings for logging information or errors on Zora's systems.

Enable logging to a syslog server	*If this option is active, the IP address of the syslog server must be filled in correctly.* *If both are correctly filled in, the system log files (time/date, system language, …) will be synchronized with the specified server.* *Otherwise, the data will only be available on Zora.*
IP address of the syslog server	*The IP address of the syslog server in the network.*
Enable logging to ZoraBots server	*If this option is active, the information from the feedback form will be sent to the ZoraBots server.* *If this option is inactive, the information from the feedback form is only saved on the robot.*

- *Factory reset*

By clicking this option, a popup will be shown with a warning that the data on the robot will be erased (this includes custom datasets, snippets, user data i.e. photos, videos and audio-recordings and general settings).

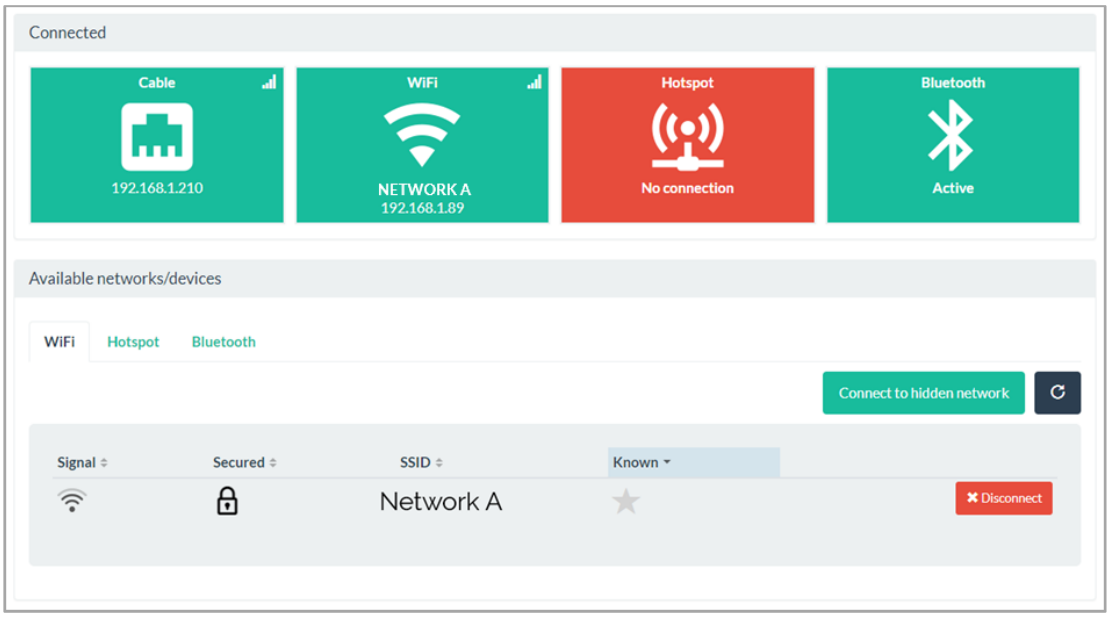
After confirming the robot may be reset to the factory values, the robot will be reset to the default factory values.

Note: This process may take some time, depending on the amount of data that needs to be reset. The wifi-settings will be deleted, but the last known network will remain active. Likewise, the hotspot will not be disabled if it is active.

- ***Connection Settings***

WARNING: Do not disconnect from the Wi-Fi-network when switching to hotspot.

This page contains all the necessary settings required for connecting Zora to other devices (e.g. Wi-Fi-network or Bluetooth-speakers).



As is shown on the picture above, there are 3 settings for the network, and 1 for the Bluetooth.

If a connection is made, the icon will be shown in green, otherwise the icon will be shown in red.

The (possible) properties of the connection are shown in the icon:

	At the top-right of the screen, an icon is displayed [1] if the network can connect to the internet.
	In the middle of the screen is the type of connection (both as name and icon)
	At the bottom of the icon, the current settings for the connection are shown [2].

[1]: It may take some time for the icon to be displayed when connected to a Wi-Fi-network.

[2]: For a cabled connection, only the IP address will be shown, for a *Wi-Fi-network*, the *network-name (SSID)* and the *IP-address* will be shown, for a **Bluetooth**-connection, the **name of the device** and it's **MAC-address** will be shown.

Caution: It is not possible for the robot to be connected to a Wi-Fi-network and function as a hotspot. When switching the robot from hotspot to a Wi-Fi-network (or vice versa), the other connection will be broken and displayed in red.

- *Cabled connection*

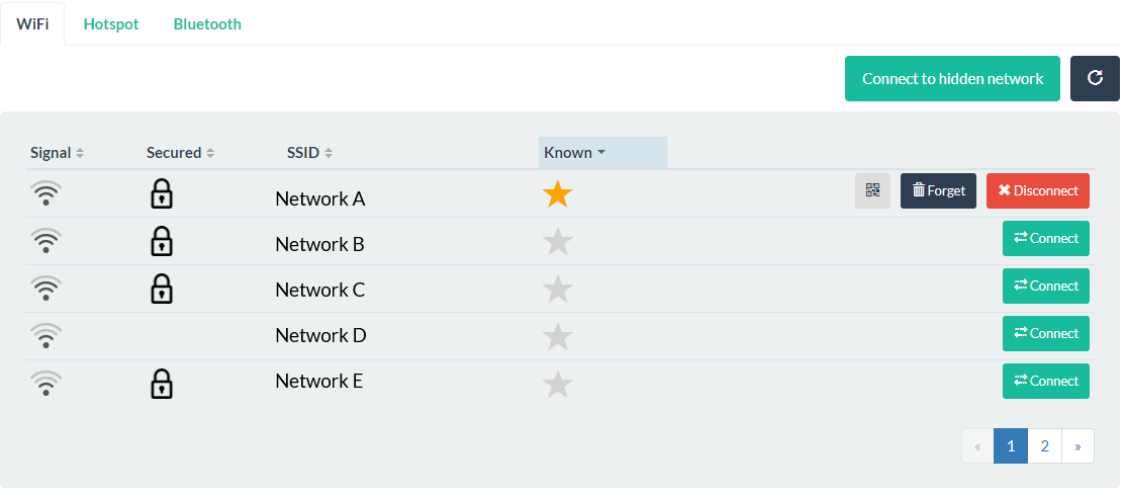
When connecting Zora to the network via cable, the properties of the network cannot be set manually, meaning the robot's configuration must be done on the router or switch.
By default, Zora will use a DHCP-address provided by the router to connect to the rest of the network and the internet.

Note: If there is an active connection by cable and by Wi-Fi or hotspot, by clicking the chest button, ONLY the network address of the cabled connection will be spoken aloud.

- *Wi-Fi*

In the bottom half of the page, the information regarding the several tabs is shown. For example, by clicking on the big 'Wi-Fi'-icon, the tab below is changed so the tab 'Wi-Fi' is selected.

The first time this list is loaded, it may take some time, or only 1 network may be shown. To scan again for Wi-Fi-networks in range, click the -button in the top right corner.



Caution: Networks with WEP-security are not shown and cannot be connected to.

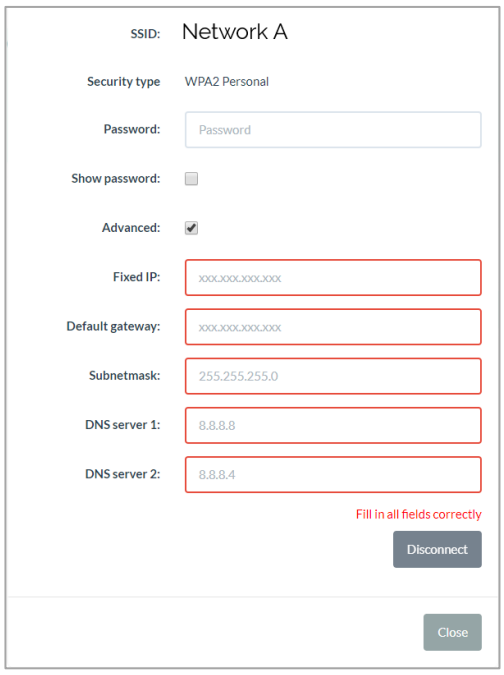
The networks have the following properties:

Signal	This icon shows how strong the received signal is on Zora.
Secured	This icon shows if the network has security (other than WEP).
SSID	The name of the network.
Known	If the configuration of the network is known on Zora, a star will be shown.
	By clicking this button, the network configuration is displayed as a QR-code, which can be shown to the robot to connect to the network.
Forget	This button makes Zora forget the stored network.
Connect Disconnect	These buttons connect or disconnect [1] Zora from the network.

[1]: **DO NOT DISCONNECT** when activating the hotspot, only when connecting to a different Wi-Fi-network.

- ***Connecting to a network***

To connect the robot to a Wi-Fi-network, the name or SSID will be shown in the tabs in the bottom half of the page. To enter the required password (or other information, such as IP-configuration), click the name of the network and a popup will appear containing the necessary information.



The SSID and type of network security is already filled in.

The password-field is by default secured, meaning the letters will not appear, just dots. However, by checking the option 'Show password', the password is shown in a readable format.

If the option 'Advanced' is checked, it is possible to enter the information of the network manually.
It is not possible to enter some of the information, the entire network configuration must be entered.

When everything is entered correctly, it is possible to click on the 'Connect'-button to connect to the network. To change the information for the network however, there must first be disconnected.
(as shown in the picture).
If there is no need to change the information, this window may be closed by clicking the 'Close'-button.

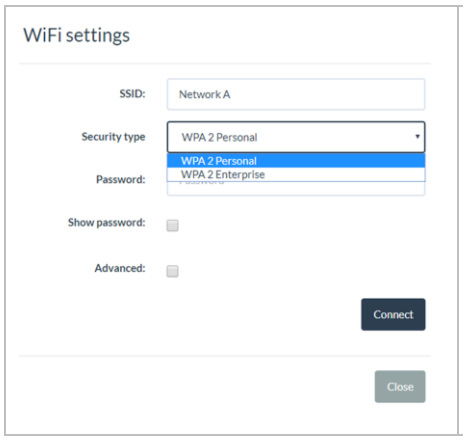
Caution: The 'Connect'- or 'Disconnect'-button are only active if the required information has been entered.

Once the 'Connect'-button is clicked, Zora will try to connect to the network with the provided information. If this information is correct, the network configuration will be spoken aloud by Zora.

- ***Connecting to a hidden network***

To connect to a hidden network, the corresponding button can be pressed to open a window to enter the relevant information, like the previous one.

WARNING: Only WPA2-secured networks are supported.



The main difference is that when connecting to a hidden network, the SSID and the type of security MUST be entered manually.

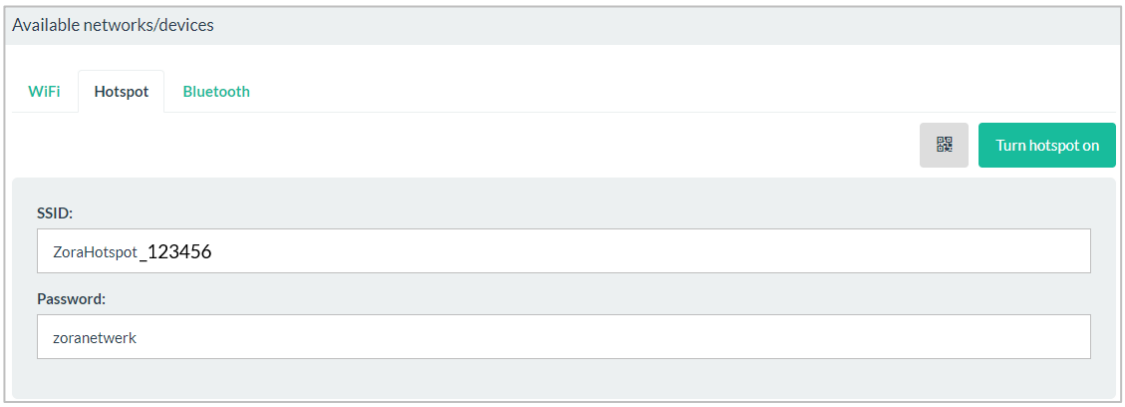
For security reasons, there is only a choice between 'WPA 2 Personal' (with a password) or
'WPA 2 Enterprise' (with a username and password)

Once the information has been entered, a connection can be made by clicking the 'Connect'-button.
By clicking the 'Close'-button, the window is closed, and the connection is not made or saved.

Once the 'Connect'-button is clicked, Zora will try to connect to the network with the provided information. If this information is correct, the network configuration will be spoken aloud by Zora.

- *Hotspot*

By selecting the option 'Hotspot', the list in the bottom half is changed to show the network-settings that are used for the hotspot-configuration.



The name of the hotspot is formatted as such: ZoraHotspot_<SerialNumber>. The Serial number used is the last 6 digits of the full ID of the robot (which can be found at the back of the robot.

These values **CANNOT** be changed.

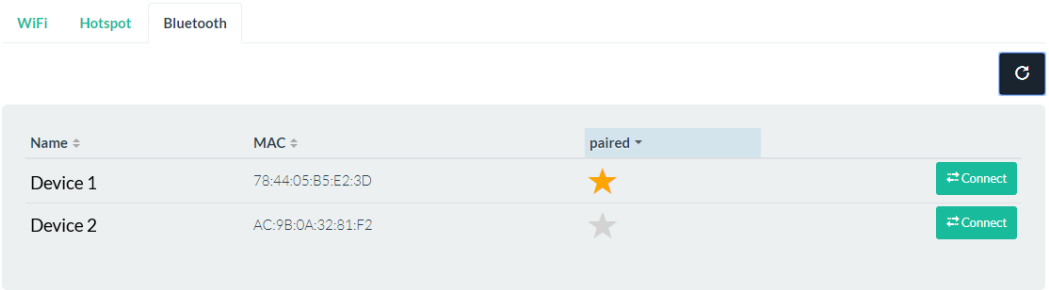
There are 2 possibilities to activate the hotspot on Zora, namely:

- Generate a QR-code by clicking the -button, which can then be printed (or copied to a camera-phone), and then shown to the robot.
- Click the button 'Turn hotspot on' from Zora-Control.

- *Bluetooth*

To activate this option, a Bluetooth-Dongle needs to be inserted in the USB-slot in the back of the robot's head.

By selecting the option 'Bluetooth', the list in the bottom half of the screen is changed to show the known and detected Bluetooth-devices.



This list contains the following elements:

Name	This field contains the displayed name of the device
MAC	This field contains the network address of the device
paired	If a device has been connected before, a star will be shown in this column
Connect	Click this button to connect to a Bluetooth-device
	This button has Zora scan again for Bluetooth-devices

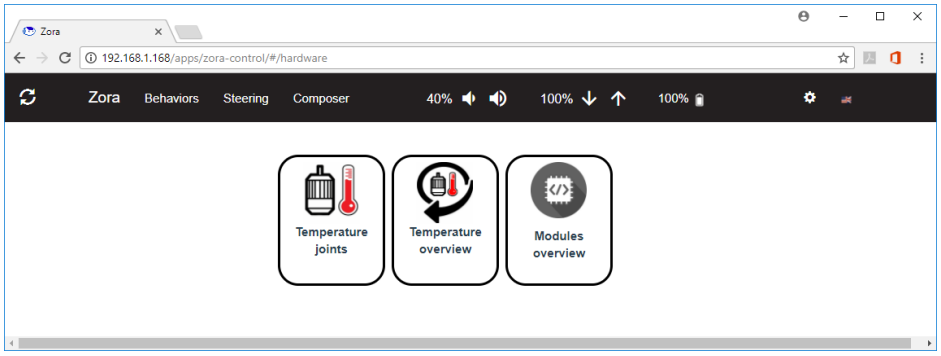
***Notes*:**

- Even if a device is not active, but has been paired to the dongle before, it will be shown in the list.
- This configuration will be reset if a new dongle is inserted. If the old dongle is re-inserted, the configuration will be shown again.
- Only devices with HSP-profiles can connect to the robot (mostly used by headsets).
- The volume-settings are managed by the Bluetooth-device, NOT Zora-Control.

IMPORTANT: After connecting to the Bluetooth-device, the settings for the primary output-device still need to be changed. To do this, the button in the Steering-tab must be used.

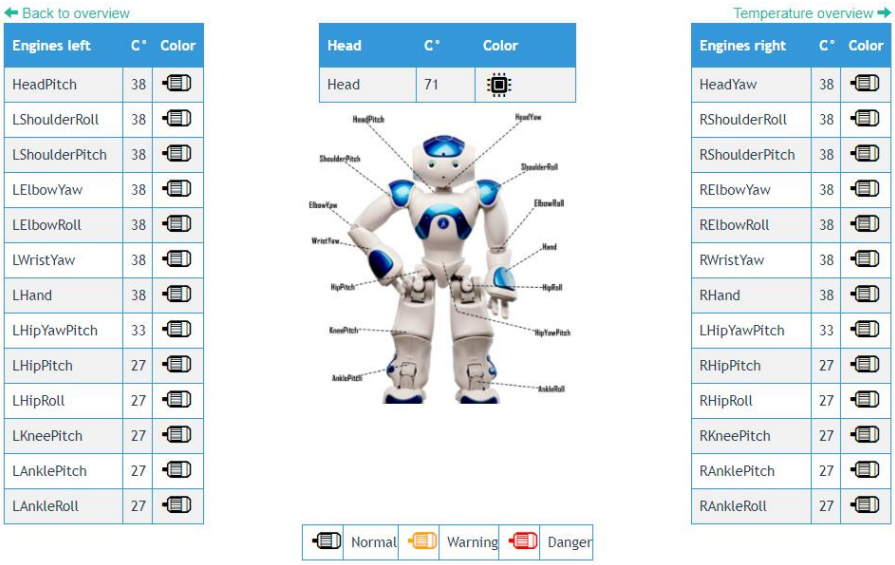
- ***Hardware***

By selecting this option from the menu, the following page is shown on Zora-Control:



- *Temperature joints*

This page shows the current temperature of the motors in the joints of Zora.



There are 3 major areas, specifically: a list of engines, their current temperature and the status of the motors.

The figure of Zora in the middle of the screen shows the location of the motors. Below the figure of Zora is the legend of the colour scheme.

Engines right	C°	Color
HeadYaw	38	
RShoulderRoll	38	
RShoulderPitch	38	
RElbowYaw	38	

Name of the motor	HeadYaw
Current temperature (in °C)	38
Current condition of the motor [1]	

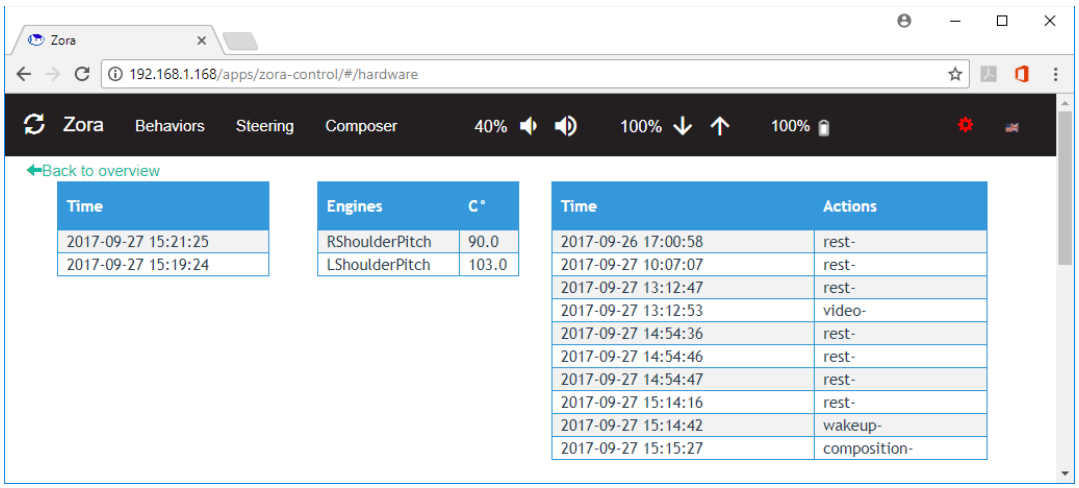
[1]: The legend below the picture of Zora shows the possible colours for the motor-icons and the associated management state. If any of the motors have a state of 'Warning' or 'Danger', the icon in the top right corner of Zora Control will change to the associated colour as well.

- *Temperature Overview*

This page contains the latest data of overheated motors. In case no motors have overheated since the last boot of Zora, the following message will be shown:

'No history of overheated engines'.

If an overheated motor has been detected the following screen will appear:



This page contains the following elements:

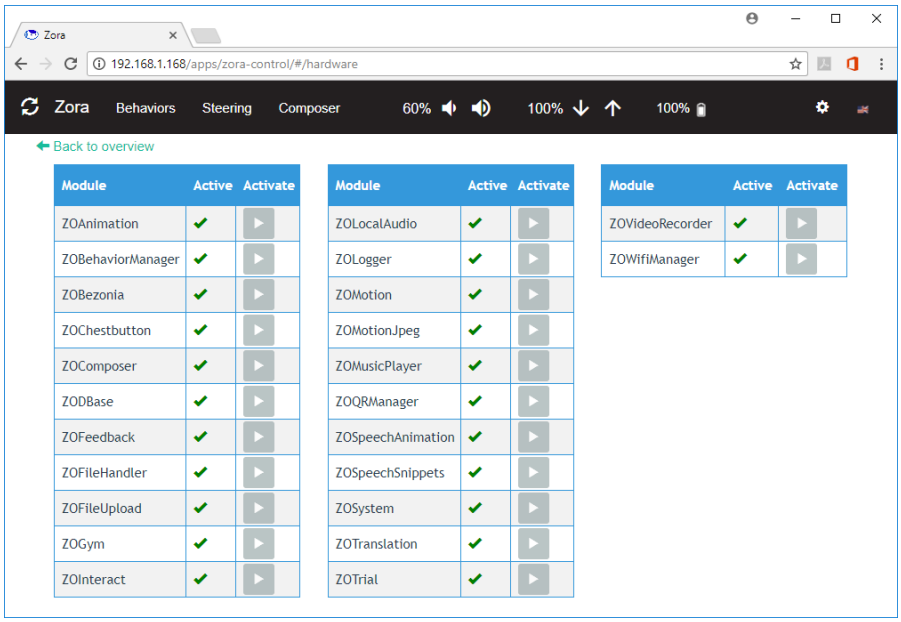
Time 2017-09-27 15:21:25 2017-09-27 15:19:24	The time when an overheated motor was first detected.
Engines **C°** RShoulderPitch 90.0 LShoulderPitch 103.0	The name of the overheated motor. To know which motor it is, see the image of the Zora on the page of temperature joints.
Time **Actions** 2017-09-26 17:00:58 rest- 2017-09-27 10:07:07 rest- 2017-09-27 13:12:47 rest- 2017-09-27 13:12:53 video- 2017-09-27 14:54:36 rest- 2017-09-27 14:54:46 rest- 2017-09-27 14:54:47 rest- 2017-09-27 15:14:16 rest- 2017-09-27 15:14:42 wakeup- 2017-09-27 15:15:27 composition-	List of behaviors that were in use at the time of the overheated motors. This list can only contain 10 items.

Note:

The history of active behaviors is not automatically updated. To view the latest data of overheated motors, the Zora-Control must be reloaded by pressing the key combination CTRL+F5 in the browser.

- *Modules Overview*

This page shows the installed modules on Zora and displays the option of restarting them if needed.



These tables contain 3 rows, specifically:

Name of the module This displays the name of the module.	ZOAnimation
Status If the green check is shown, the module is running. If a red cross appears, the module is not running.	
Activate This button only becomes active if the module is not running.	

- ***About***

This page contains some technical information of Zora which is used by our back-office support. It is split into several sections.

  - *Version information*

Name	*This field contains the name of the Zora.*
Serial number body [2]	*This field contains the serial number of the body of the Zora.*
Serial number head	*This field contains the serial number of the head of the Zora.*
System version	*This field list the installed version of the NaoQi system.*
Wpa supplicant	*This field contains the installed version of the network security.*
Mac address Wi-Fi[1]	*This field contains the hardware address of the Wi-Fi adapter.*
Mac address ethernet[1]	*This field contains the hardware address of the ethernet adapter.*
Zora control version[2]	*This field contains the installed version of Zora Control.*
Composer version	*This field contains the installed version of the composer.*
Date-time	*This field contains the set time and date on the robot*[3]*.*
Timezone	*This field contains the set timezone of the robot;*
Internet connection	*If a ✔ has been filled in, the robot is connected to the internet.*

[1]: This information is given in case a fixed IP is necessary in the network.
[2]: This information must be provided to the **support team** with every request for support**.**
[3]: To retrieve the latest setting for the time and date, the page may need to be reloaded.

  - *General Information*

  - **Powered by Zorabots**

    The software was developed by the Zorabots company.

  - **Change Log**

    This link will open a popup which shows the various changes that have been made since the previous version.

  - *Legal Information*

Zorabots EULA	*This link will open a popup which shows the legal contract with Zorabots.*
Aldebaran EULA	*This link will open a popup which shows the legal contract with Aldebaran.*

3 Epilogue

We sincerely hope you will have a lot of fun with your Zora. We have poured part of our hearts and souls in creating this product.

Hopefully you will continue to provide us with the desired features or bugs which occurred in the workplace, so we can keep improving and expanding the product.

In case you need to contact us, please use the contact-information below.

Website	*http://zorarobotics.be/index.php/nl/contact*
Ticketing	*https://zorabots.freshdesk.com*
E-mail	*support@zorabots.com*
Telephone	*+32 59 20 03 11*
Address	*Archimedesstraat 17* *8400 Oostende* *Belgium*

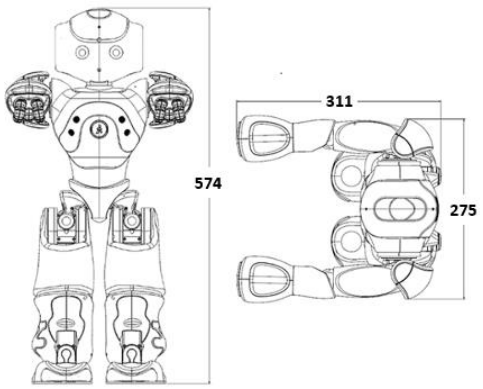
APPENDIX 1 - HARDWARE

Zora is equipped with an array of sensors designed for interaction with people. The following documentation is valid for the v5 robot.

1 General

This section describes the dimensions and battery usage of the ZORA robot.

1.1 Dimensions

	**Width**	*574 mm*
	Height	*275 mm*
	Depth	*311 mm*
	Weight	*5.4 kg*

1.2 Battery

The battery pack is located at the back of Zora and protected by a cover. The following specifications apply:

	Type	*Lithium-Ion*
	Capacity	*48.6 Wh*

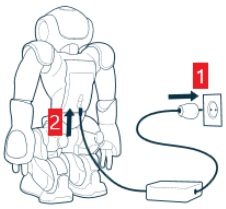
Note:

On a full charge, Zora can move from 1,5 to 2 hours depending on the type of usage. It is therefore recommended that you charge the battery between exercises.

See also the safety sheet in **Appendix 5 – Safety procedure**

1.3 Charging the battery

Please use the following procedure when charging Zora:

	Make sure Zora is in a seated (rest) position *The example shown is the crouch-position*
	*Plug the charger in the mains first before connecting the charger to the battery pack*

Note:

The LED of the charger will change colour if Zora is charging or not.

2 Communication

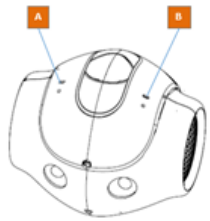
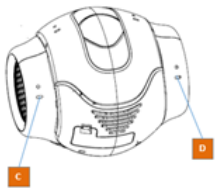
Zora has a lot of means to communicate with the user. The following items contain a short description of the sensors used to communicate.

2.1 Sensors

Zora has a variety of sensors at its disposal to detect input.

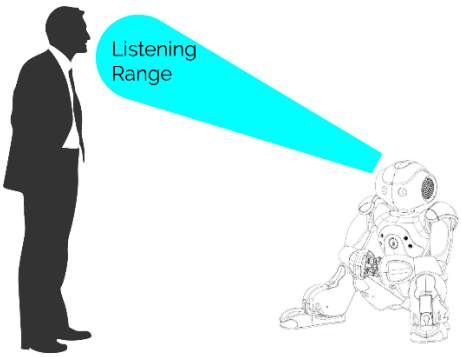
2.1.1 Microphones

Zora has 4 microphones installed in the head:

	*2 microphones at the front of the head*
	*2 microphones at the back of the head*

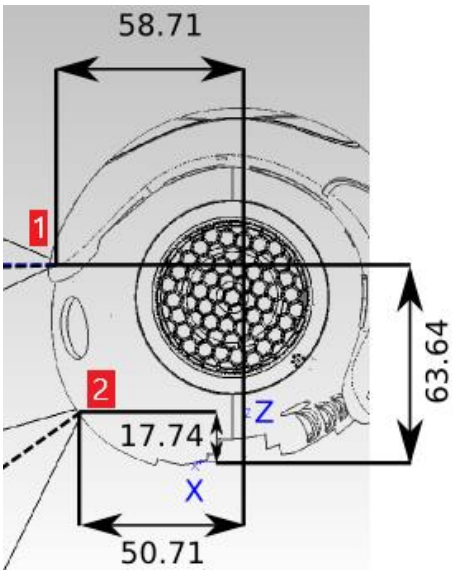
These microphones have a range of 150 Hz to 12 kHz, which detect sounds in a conical range.

Therefore, when talking to Zora, please speak into the front microphones from the front:



2.1.2 Video-camera

Zora has two cameras mounted in the head. The one used in Zora-Control is the one on the forehead.

	2 cameras are available, one in the forehead (1) and one in the mouth (2). These cameras can provide a video-feed of a maximum resolution of 1280x960 at **30 frames per second**.

2.1.3 Force Sensitive Resistors

To detect input in the surface, Zora has sensors at the bottom of its feet. These generate a current when a change in force up to 25N is detected

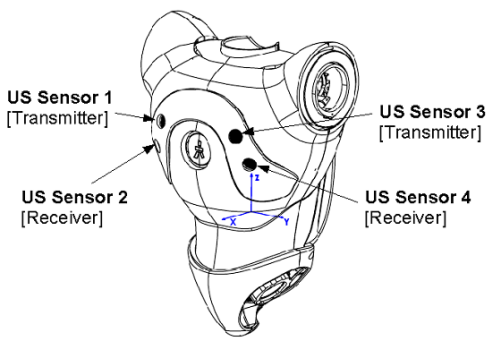
2.1.4 Inertial Unit

The inertial unit contains the sensors capable of detecting angle and relative position of the robot to detect a fall.

This unit consists of a set of 3 gyro meters and an accelerometer to detect a fall.

2.1.5 Ultrasonic sensors

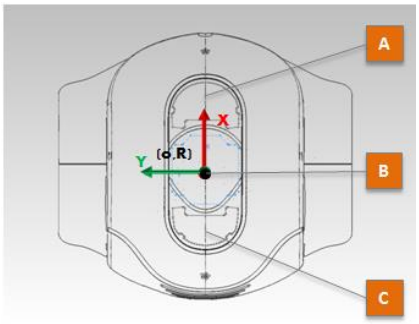
Zora is equipped with ultrasonic sensors (sonar) in the chest to detect obstacles in front. These sensors are a set of 2 transmitters and 2 receivers. The following specifications apply:

	**Frequency**	*40 kHz*
	Resolution	*1cm – 4cm*
	Detection Range	*20 cm – 80 cm*
	Effective cone	*60˚*

2.1.6 Contact and tactile sensors

Zora has the following touch sensors at its disposal: 3 sensors on the head, 3 sensors at each hand and 2 bumpers at each foot.

2.1.6.1 Tactile head



Zora has 3 sensors on top of the head, specifically:

A: Front Head Sensor

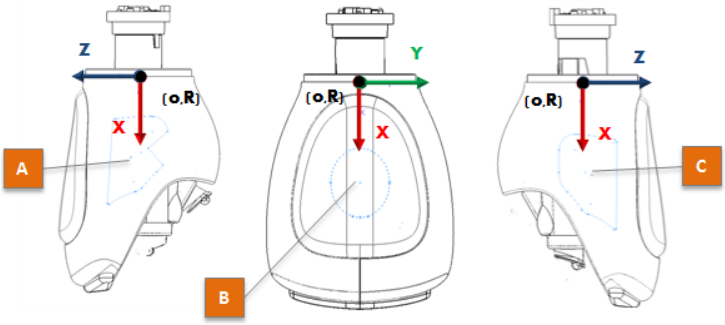
B: Middle Head Sensor

C: Rear Head Sensor

These sensors are accompanied by LEDs on the side of the sensors which light up when the button is pressed.

2.1.6.2 Tactile Hands

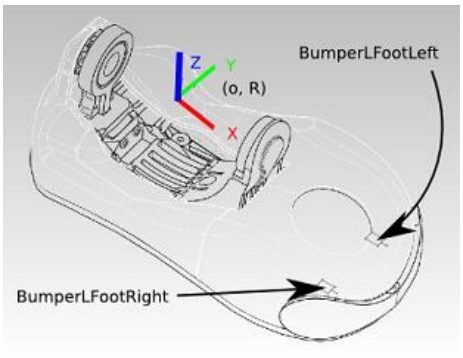
Zora has 3 sensors on each hand, of which one is clearly indicated and two are not quite so distinctive.



Other than the sensor in the middle of the hand, there are also 2 sensors at the side of the hand. To ensure a successful input, please grasp the hand all around, so all the sensors detect the pressure of the touch.

2.1.6.3 Feet Bumpers

Zora has 2 bumpers on each foot, one on the outside and one on the inside.



Like the hand-sensors, the feet bumpers register multiple values to register an accidental bump or an intentional push.

2.1.7 Chest button

Besides the tactile and touch-sensor Zora has a button installed on the chest. This button is surrounded by LED's which will change colour when a push is detected or if Zora has a message for the user (e.g. battery is fully charged).

2.1.7.1 Functionality

The following functionality has been programmed into the chest button:

- ***Start Zora***

To power Zora on, a short push (for a maximum 2 seconds) of the button is needed. Zora will say when the website is available after approximately 3 minutes.

- ***Read aloud the network address***

If Zora is already booted, by briefly pushing the button once Zora will read aloud the registered IP address. If there is a system message available, this will follow the IP address.

- ***Activate / Rest***

If Zora is active, by briefly pushing the chest button twice, Zora will go into a rest-position. If Zora is inactive, by briefly pushing the chest button twice, Zora will stand and display human-like movements. The term used for this type of behavior is autonomous life.

- ***Repeat the last numbers of the network address***

To repeat the last two numbers of the IP address, press the chest button three times.

- ***Shutdown***

To shut Zora down completely without using Zora Control, the chest button can be pressed for a long time (approximately 5 seconds) until Zora makes the 'gnouk gnouk' noise to indicate a shutdown sequence has started.

- ***Hard Shutdown***

In case of emergencies, Zora can be fully shut down by keeping the chest button pressed until the lights go out and the motors no longer receive power.

2.1.7.2 Colours

The chest button has the following colours to indicate certain statuses of the robot:

- **White**: Everything is normal
- **Yellow**: A system message is available (i.e. Motors are overheating)
- **Red**: A critical error has occurred, and Zora needs to be shut down
- **Green**: The battery is fully charged, or an update was completed successfully

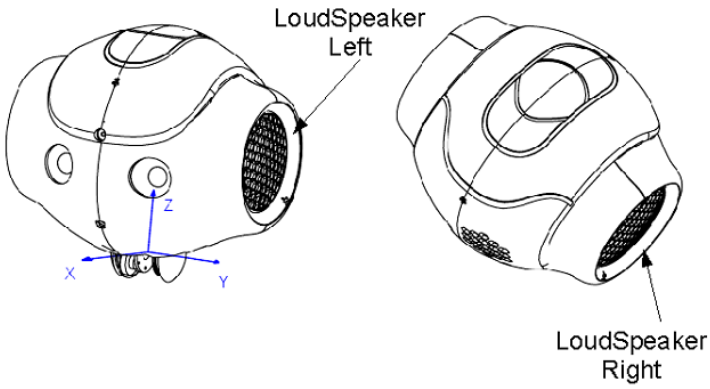
Note: This indicates the colours of the LED-lights. The actual output may vary due to the colour of the chest button itself.

2.2 Output

Zora has several means of communicating data to the user. The main method of communicating is speaking and colouring LED-lights.

2.2.1 Loudspeakers

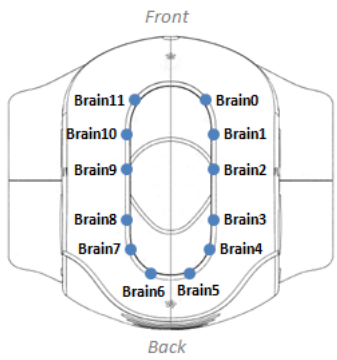
The loudspeakers are located at the side of the head.



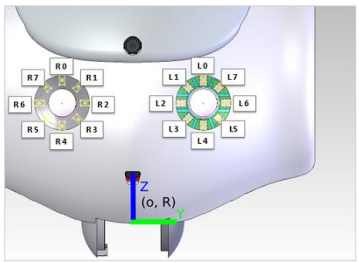
2.2.2 LED locations

Zora has a variety of LEDs available on the head, around the ears and around the eyes.

2.2.2.1 Head LEDs

	These LEDs are used primarily to detect input of the head-sensors. They light up (or burn brighter) when the nearest sensor is pushed.

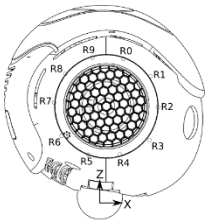
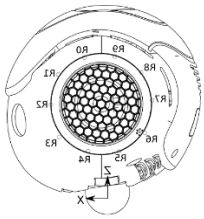
2.2.2.2 Eye LEDs

	There is a LED strip installed around the eyes to indicate if an emotion is being displayed, a question is asked or These can also be set manually by using the steering page.

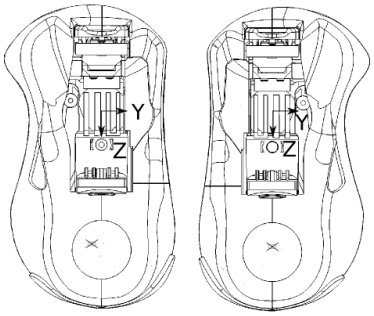
Important:

When Zora is waiting for input, the eyes will light up in sequence to indicate this.

2.2.2.3 Ear LEDs

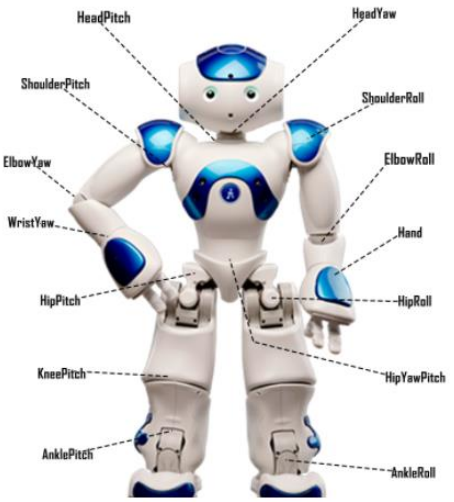
		Like the LEDs in the eyes, Zora also has LEDs around the ears that indicate if Zora is listening, is emulating anger, or if a behavior is starting. These cannot be calibrated directly via Zora-Control.

2.2.2.4 Feet LEDs

	Like the LEDs on the head, Zora has LEDs on its feet to indicate if the bumpers have been pressed correctly. These are located at the front of the foot, in the circle.

2.2.3 Limbs

Besides the subtler ways of giving information to the user, Zora can obviously move to give you information. Below is a summary of the motors that are used to move Zora:

	The motors in the limbs have sensors that monitor their current position and temperature. These can be used to determine if the motors aren't overheating or if they are damaged.

APPENDIX 2 – BEHAVIOR-LIST

This document contains the list of behaviors that are available in Zora v7.52. Included in this document are the possible settings and dataset fields for creating a custom dataset.

Some general guidelines:

- Always make sure Zora has enough space to move around.
- Take care not to tangle any wires (charging cable or network cable).
- Keep an eye out for overheating motors by watching the gear in the top right corner of Zora Control.
- When interacting with Zora, only speak when a specific 'Beep' is heard, otherwise Zora will not listen.
- When putting Zora on the bench, make sure the straps are tight enough.
- When playing dances, please buy the corresponding songs.

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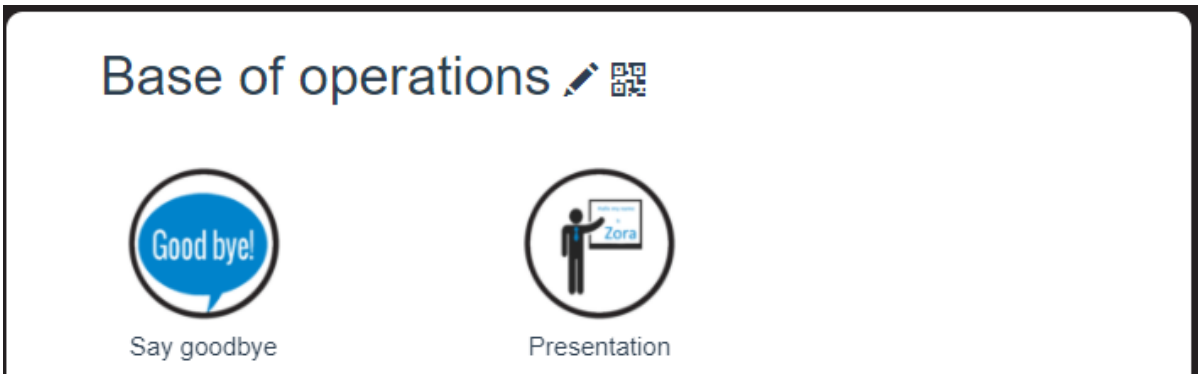
Category I : Base of Operations

This category contains behaviors that are used to introduce Zora and when saying goodbye.



Behavior I.1 : Say goodbye

By pressing different sensors, Zora will give a different action (sensor-specific) and a random response as a way of saying goodbye. Zora can be picked up and passed around or can be left in the 'sit'-posture. Only when Zora is sitting, will Zora make gestures.

Sensor list and actions

- ***When sitting:***

Left hand sensor	*High five with the right hand.*
Right hand sensor	*Hand shake.*
Left foot bumper	*Fist bump.*
Right foot bumper	*Kiss on the cheek (+ giggle).*
Head (keep for 3 seconds)	*Zora will stop the behavior and go into a rest position* [1].

[1]: The 'crouch'-posture is used when this behavior ends.

- ***When passing Zora around:***

Left foot bumper	*Kiss on the cheek (+ giggle).*
Right foot bumper	*Kiss on the cheek (+ giggle).*
Head (keep for 3 seconds)	*Zora will stop the behavior and go into a rest position* [1].

[1]: The 'crouch'-posture is used when this behavior ends.

Procedure

Step 1: Put Zora in a free space and start the behavior.	*Make sure Zora has enough free space to change position to the 'sit'-posture.* *Take care not to tangle any wires between the joints.*
Step 2: When asked, choose between the different options	*Say 'Pick you up' to pass Zora around and 'Sit and wait' to have Zora stay seated.*
Step 3: Choose the type of goodbye from the list above	
Step 4: Put Zora in a free space and stop the behavior	*Make sure when stopping the application, make sure Zora has enough room to change postures.*

Behavior I.2 : Presentation

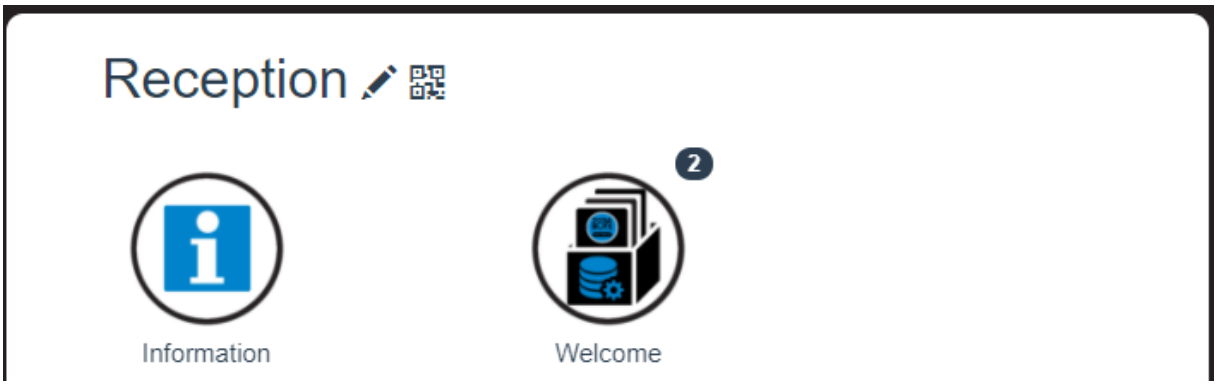
Zora will introduce itself (with a few gestures) and give technical information if asked.

Procedure

Step 1: Put Zora in a free space and start the behavior	*Zora will make gestures and movements, so please stand clear.*
Step 2: Respond with 'Yes' or 'No' when asked for more technical information	*If 'Yes' is selected more information will become available.*
Step 3: Wait for the behavior to finish	

Category II : Reception

This category lists behaviors designed to give an introduction at a reception-desk. Please make sure the charge cable is plugged in.



Behavior II.1 : Information

This behavior is designed to have Zora answer some simple questions the guests may ask. The posture used in this behavior is the 'Sit'-posture.

This behavior is customizable by creating a new dataset.

Settings

Skip intro:	*This option skips the introduction of the behavior.*
Period between spontaneous action (sec) [1]	*Zora will speak something to attract attention. This setting states how long Zora will take between actions.*
Animation on:	*If this option is enabled, Zora will move the arms while giving the answer* [2]*.*
Ask for attention with name:	*If this option is enabled, Zora will only respond to questions when 'Zora' is spoken first.*

[1]: This includes the time to ask the question, so take care not to set this too low.

[2]: Take care using this setting, the fingers could get stuck on the knees.

Dataset

Enable	*The record in the dataset will be active.*
Question	*The question the user may ask.*
Answer	*The answer Zora will speak.*

📋 *Procedure*

There are 2 types of processes to follow, one for the owner (or creator of the dataset) and the procedure for the user who asks the questions:

- ***Owner***

The owner must set the database up and provide the possible questions to the users.

Step 1: Create the dataset	*Create a dataset with possible questions and answers.*
Step 2: Set up Zora	*Put Zora in a highly visible location and on the location where Zora would be required.* *Adjust the volume setting according to the surroundings.*
Step 3: Test for surrounding noise	*If Zora keeps hearing things from wind noise of the general ruckus, please enable the setting 'Ask for attention with name'.*
Step 4: Give the questions for the dataset to the users	*By giving the possible questions to the users the interaction will go much smoother.*
Step 5: Start the behavior	*Start the behavior and let the users ask the questions.*

- ***Users***

The user may ask for information from Zora.

Step 1: Stand in front of Zora	
Optional [1]: Say 'Zora'	*Zora will say: 'I am listening'.*
Step 2: Ask the (provided) question	*Zora will give the answer according to the dataset.*

[1]: This step must be taken only if the setting 'Ask for attention with name' is checked.

Behavior II.2 : Welcome

This behavior will make some gestures to attract attention and read the **first** response from the dataset. The used posture is the 'Sit'-posture.

Settings

Delay between 2 greetings (sec):	*Zora will speak the first entry in the welcome dataset as a greeting.*
Delay between drawing attention (sec):	*The time between when Zora will make gestures to call someone over.*

Dataset

Text	This input field contains the text Zora will say. Only the first entry will be used.

Procedure

- ***Owner***

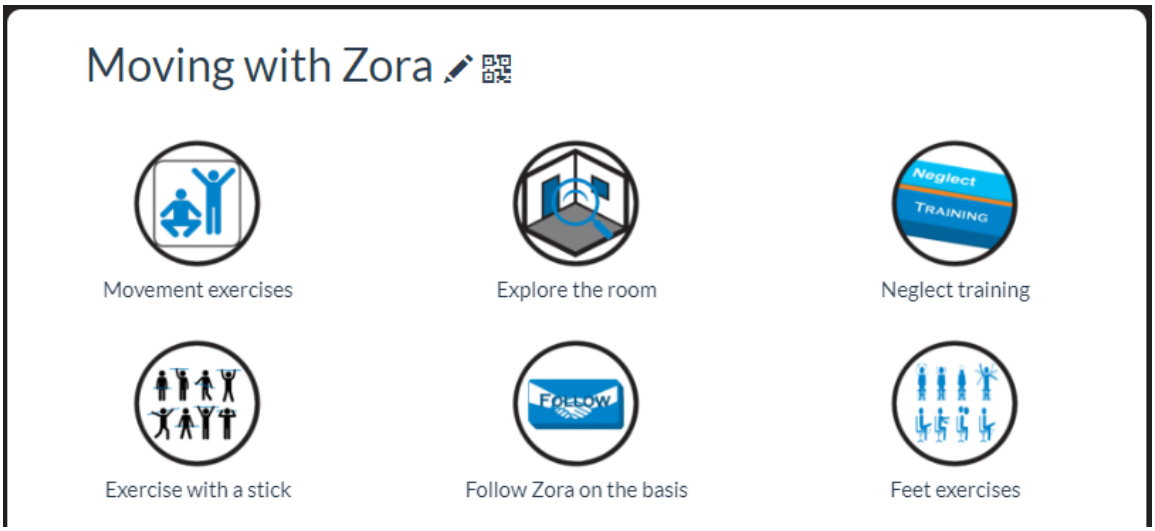
Create the greeting for Zora in a custom dataset.

- ***User***

Walk up to Zora, and Zora will greet the user if a human face is detected by the forehead camera.

Category III : Moving with Zora

This category contains behaviors designed to move Zora around. The user may join.



Behavior III.1 : Movement exercises

This behavior makes Zora do a series of exercises which you can choose to follow. The exercises can be stopped after each set and can be skipped as well.

Settings

Skip intro	*If this is enabled, the information of the sensors and their buttons will not be spoken aloud by Zora.*

Sensor list and actions

Front + Central head sensor	*Stop the behavior.*
Back head sensor	*Interrupt the exercise.*

Procedure

Step 1 – Put Zora in a free space	*Ensure Zora has enough free space available to move around freely.*
Step 2 – Change setting to suit environment	*Change the volume setting and voice pitch so Zora can be clearly heard and change the setting of the intro if needed.*
Step 3 – Start exercising	*Start the list of exercises by doing a warm-up exercise. The exercises can be freely skipped by saying 'Skip' when asked for the number of times the exercise should be done and interrupted by pressing the back-head sensor.*
Step 4 – Stop the behavior	*If there have been enough exercises, stop the behavior.*

Behavior III.2 : Explore the room

This behavior will have Zora move around the room in random directions, so Zora can explore the surroundings. This behavior uses datasets containing animations which Zora will perform at random times throughout the exploration. This behavior makes use of the sonars in the chest and the feet-sensors to detect obstacles in the way.

Settings

Animations on	*If this option is checked, Zora will play the selected animation from the dataset.*
Play animations randomly	*If this option is checked, the animations in the dataset will be played at random, instead of the order of the dataset.*

Sensor list and actions

Feet	*If the feet are off the ground, the behavior will be stopped.*

Dataset

Enable	*If this option is checked, this animation will be played.*
Animation	*This drop-down list contains the possible animations Zora can execute.*
Rest after animation (seconds)	*This field contains the time in which Zora will 'rest' after the animation has been executed and the exploration resumes.* *Note: If the inputted time is quite long, Zora will enter 'breathing mode' to stop the motors from overheating.*

Procedure

Step 1 – Place Zora in the middle of the room to start exploring.	*If Zora is placed too close to the walls, Zora will detect the obstacles and go around in circles.*
Step 2 – Create the dataset.	*If needed, select the animations Zora will execute during the exploration of the room.*
Step 3 – Change the settings.	*If needed, check the box for 'Animations on' or 'Play animations randomly'.*
Step 4 – Start the behavior.	*Start the behavior via the QR-code or Zora-Control to have Zora explore the room.*

WARNING: This behavior may cause Zora to fall if there are low obstacles which the sonar or the feet-sensor may not detect. Zora will try to stand up on its own.

DO NOT TOUCH ZORA while this is happening.

Behavior III.3 : Neglect training

This exercise will have you touch Zora's sensors in intervals that can be defined in the settings. The starting position is the 'Sit'-posture.

This exercise may take some time, so please insert the charging cable.

Settings

Skip intro	*If this is checked, the general information about the behavior will not be spoken by Zora.*
Exercise length (min)	*The total time for which this exercise will last.* *(From 1 minute to a maximum of 120 minutes).*
Time between exercises (sec)	*The time allotted for touching a sensor.* *(From 20 seconds to a maximum of 600 seconds).*

Procedure

Step 1 – Put Zora close by in 'Sit'-posture	*Make sure Zora is within arm's length.*
Step 2 – Change the settings	*Make sure Zora can easily be heard.*
Step 3 – Start the behavior and touch the asked for sensor.	*Adjust the settings for the behavior before starting the behavior.*
Step 4 – Relax for a while and jump when Zora asks to touch the sensor.	

Behavior III.4 : Exercise with a stick

This behavior will need a stick of foam. This behavior will move the stick up and down while Zora is standing up. The start-position is the 'Crouch'-posture.

Note: Be very careful not to overheat the motors in the hands.

Settings

Skip intro	*If this is checked, the information about the used sensors will not be spoken by Zora.*

Procedure

Step 1 – Put Zora in position	*Make sure Zora has enough free space to move the arms.*
Step 2 – Check settings	*Make sure Zora can easily be heard.*
Step 3 – Start behavior	*Zora will stand up and ask for the stick.*
Step 4 – Give the stick	*Put the stick firmly in Zora's hands and press the left foot bumper.*
Step 5 – Follow the exercises	
Step 6 – Take the stick back	*Keep the hand below Zora's hands and press the left foot bumper to take back the stick.*
Step 7 – Repeat the exercise or stop the behavior	*Check the temperature of the motors BEFORE repeating the exercise.*

Behavior III.5 : Follow Zora on the basis

This behavior will have the user lead Zora around by tilting the arm forwards. By tilting the arm straight up or further down, Zora will stop moving.

Settings

Skip intro	*If checked, the introduction text will be skipped.*
Left (Right) hand	*If this option is checked, Zora will react to changes in position of the **left** arm.* *If unchecked, the right arm will serve as controller.*
Encouragement while walking	*If this option is checked, Zora will speak encouraging texts while walking.*
Encouragement while resting	*If this option is checked, Zora will speak encouraging texts while resting.*

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora can easily walk.*
Step 2 – Check settings	*Make sure Zora can easily be heard.*
Step 3 – Take Zora's controlling hand	*Depending on the settings, the left or right hand will be lifted to indicate the controlling arm.*
Step 4 – Move Zora's arm up to start walking	
Step 5 – Move Zora's arm down to make Zora stop walking	
Step 6 – Repeat step 4 and 5 as needed to reach the destination	
Step 7 – Press the head sensors to stop the behavior	

Behavior III.6 : Feet exercises

This behavior requires the bench. Zora will start this exercise standing and will ask to be placed on the bench. This behavior shows a few exercises with the feet while Zora is seated on the bench. With each exercise, Zora will ask if they should be executed and if so, how many times the exercise should be done.

The order of the exercises is:

1. Right leg up	***2. Left leg up***	***3. Both legs up***
4. Right knee up	***5. Left knee up***	***6. Both knees up***

Each exercise will hold the joint in place for 5 seconds.

Settings

Skip intro	*If this is checked, the general information about the behavior will not be spoken by Zora.*
Counting while holding	*If checked, this option will have Zora count the seconds the posture is held (i.e. left leg up).*

Procedure

Step 1 – Place Zora in an open area, <u>NOT</u> on the bench.	*Make sure Zora can easily stand and lie back.*
Step 2 – Check settings	*Make sure Zora can easily be heard.*
Step 3 – Start behavior	*After Zora lies on the back, put Zora on the bench and press the left foot to start the exercises.*
Step 4 – Finish the exercises	*After the exercises are finished, move Zora off the bench and lie Zora on the back on the floor.* *Press the left foot to move Zora back to a safe position.*

Category IV : Sit'N'Dance

This category has Zora take on the role of a choirmaster. After **sitting down on the bench**, Zora conducts the audience to dance or sing along.

The name of the behavior lists the songs that will be played. These behaviors do not have settings nor datasets and require that Zora be put on the bench.

Behavior IV.1 : Great pumpkin waltz

iTunes link for the song:
https://itunes.apple.com/be/album/great-pumpkin-waltz/id299807334?i=299807384

Behavior IV.2 : Head shoulder knees and toes

iTunes link for the song:
https://itunes.apple.com/be/album/hoofd-schouders-knie-en-teen/id257507359?i=257509640&l=nl

Behavior IV.3 : Champs Elysées

iTunes link for the song:
https://itunes.apple.com/be/album/les-champs-%C3%A9lys%C3%A9es/id260903048?i=260903584

Behavior IV.4 : Diana

iTunes link for the song:
https://itunes.apple.com/be/album/diana/id265654390?i=265654494

Behavior IV.5 : La java bleue

iTunes link for the song:
https://itunes.apple.com/be/album/la-java-bleue/id479525065?i=479525623

Behavior IV.6 : Le petit vin blanc

iTunes link for the song:
https://itunes.apple.com/be/album/ah-le-petit-vin-blanc/id86722127?i=86721408&l=nl

Behavior IV.7 : Que Sera Sera

iTunes link for the song:
https://itunes.apple.com/be/album/que-sera-sera/id192699553?i=192700744

Behavior IV.8 : Thai Chi

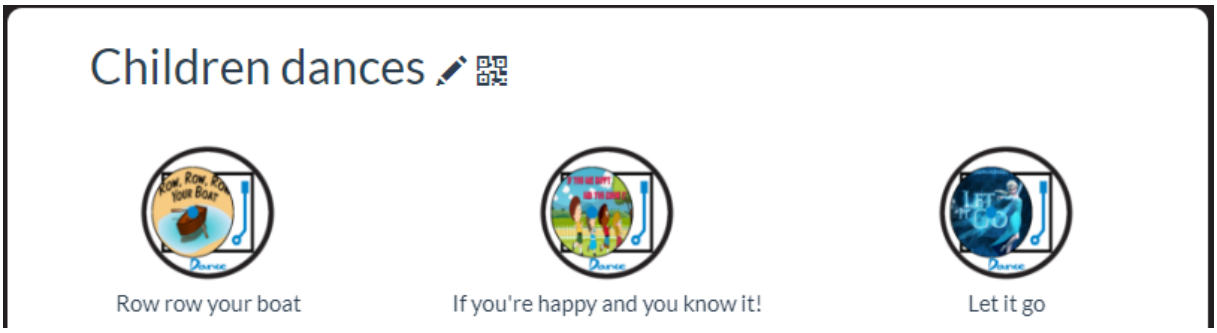
No copyright needed for this song

Behavior IV.9 : Twinkle Twinkle

iTunes link for the song:
https://itunes.apple.com/be/album/twinkle-twinkle-little-star-1/id1203081711?i=1203081817

Category V : Children dances

This category contains the dances for children. Zora will dance to the music and hopefully the children too.



The name of the behavior lists the songs that will be played. These behaviors do not have settings nor datasets and feature only a dance.

Behavior V.1 : Row row your boat

iTunes link for the song:
https://itunes.apple.com/be/album/row-row-row-your-boat/id155871183?i=155871250

Behavior V.2 : If you're happy and you know it!

iTunes link for the song:
https://itunes.apple.com/be/album/if-youre-happy-sing-along-version/189339579?i=189346182&l=nl

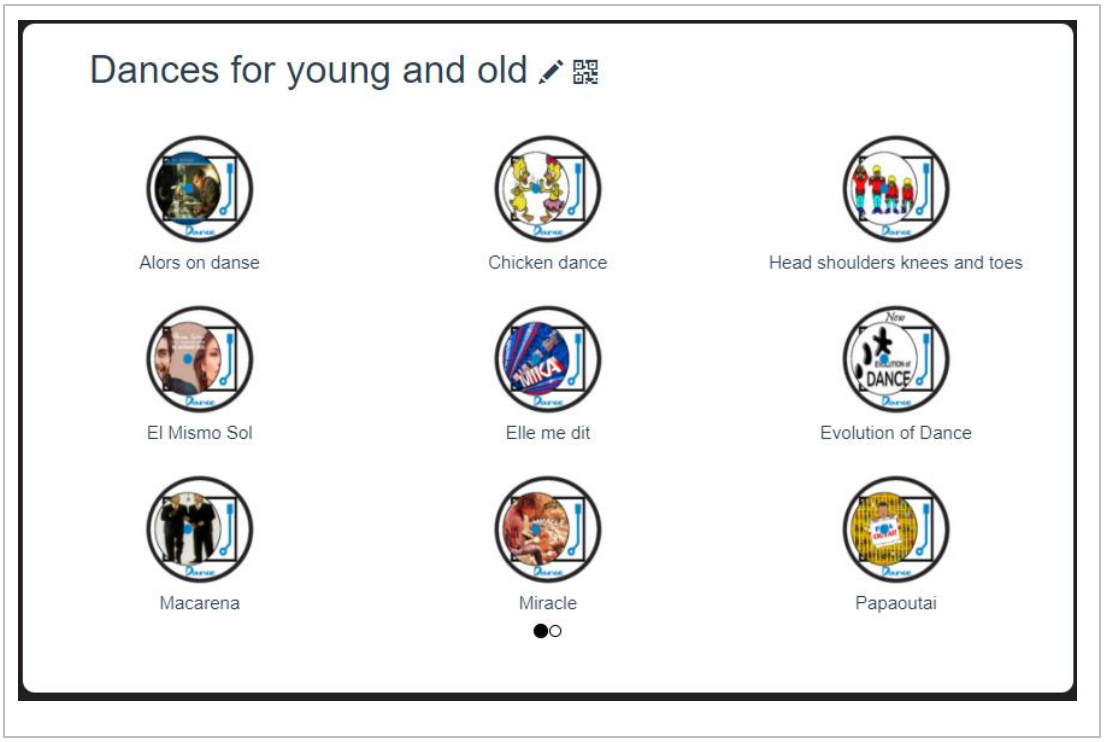
Behavior V.3 : Let it go

iTunes link for the song:
https://itunes.apple.com/be/album/laat-het-los-flemish-version/id852970905?i=852971123

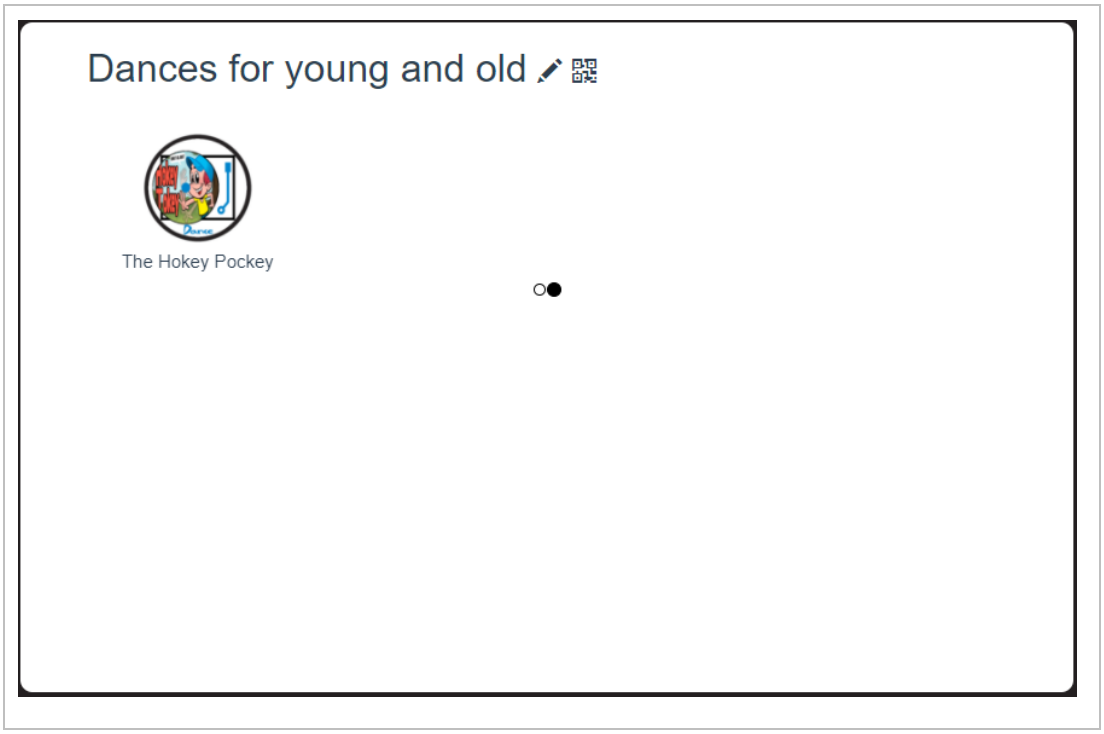
Category VI : Dances for young and old

This category contains behaviors with popular songs and dances for young and old.

Page 1:



Page 2:



The items in this category only contain songs and dances and contains no settings nor datasets.

Behavior VI.1 : Alors on danse

iTunes link for the song:
https://itunes.apple.com/be/album/alors-on-danse/id346492041?i=346492053

Behavior VI.2 : Chicken Dance

iTunes link for the song:
https://itunes.apple.com/be/album/vogeltjesdans/id313370958?i=313370962

Behavior VI.3 : Head shoulders knees and toes

iTunes link for the song:
https://itunes.apple.com/be/album/hoofd-schouders-knie-en-teen/id257507359?i=257509640&l=nl

Behavior VI.4 : El Mismo Sol

iTunes link for the song:
https://itunes.apple.com/be/album/mismo-sol-under-same-sun-feat-jennifer-lopez-b-case/id1083601019

Behavior VI.5 : Elle me dit

iTunes link for the song:
https://itunes.apple.com/be/album/elle-me-dit/id448943368?i=448943548

Behavior VI.6 : Evolution of Dance

No copyrighted song is used in this behavior

Behavior VI.7 : Macarena

iTunes link for the song:
https://itunes.apple.com/be/album/macarena-bayside-boys-remix/id258646894?i=258647008

Behavior VI.8 : Miracle

iTunes link for the song:
https://itunes.apple.com/be/album/miracle/id1076875333?i=1076875345

Behavior VI.9 : Papaoutai

iTunes link for the song:
https://itunes.apple.com/be/album/papaoutai/id645471005?i=645471008

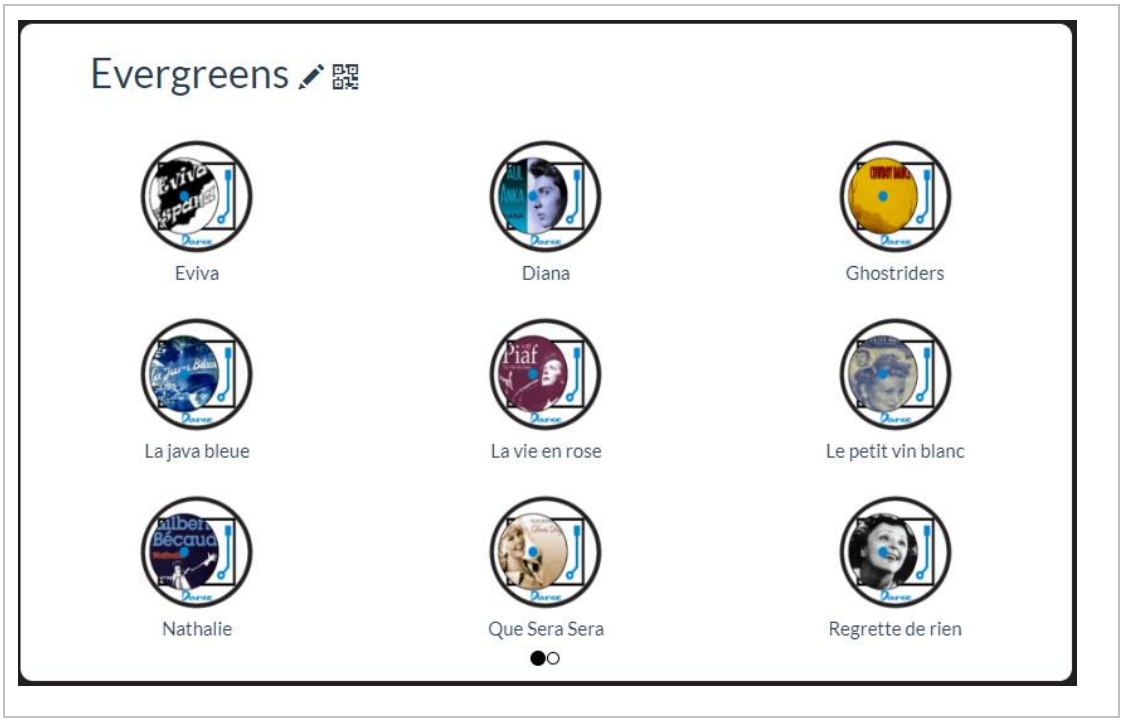
Behavior VI.10 : The Hokey Pockey

iTunes link for the song:
https://itunes.apple.com/be/album/hokey-pokey/id59285841?i=59285777

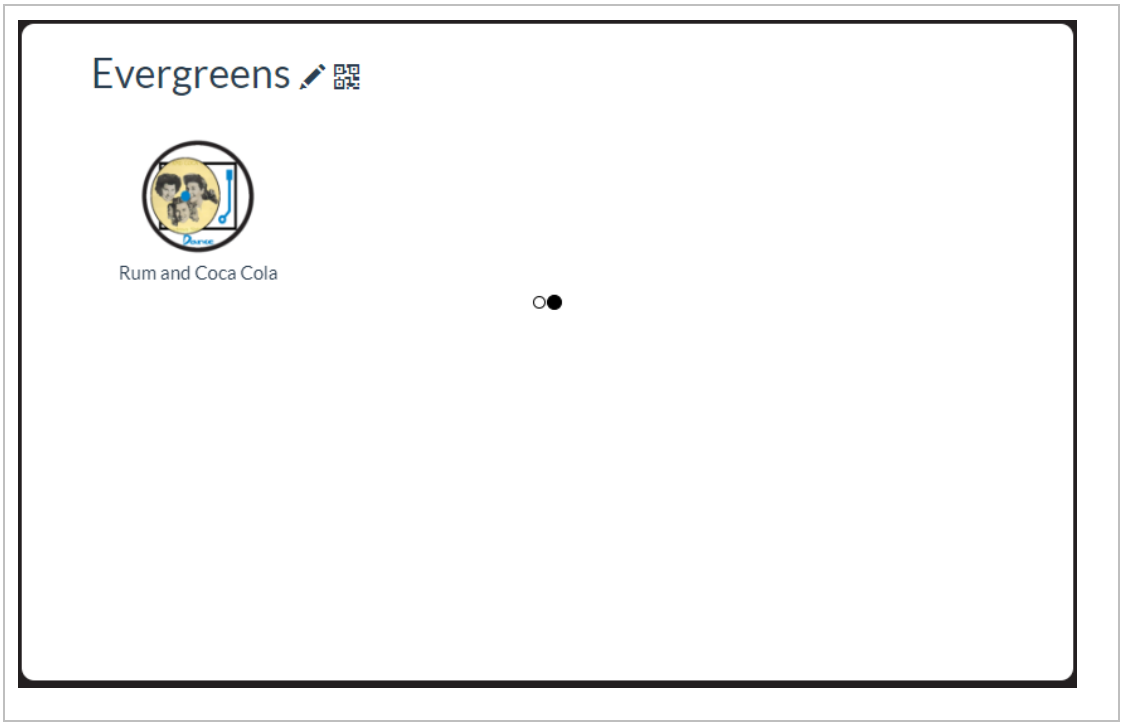
Category VII : Evergreens

This category contains classic songs that have somehow never lost their charm.

Page 1:



Page 2:



The items in this category only contain songs and dances and contains no settings nor datasets..

Behavior VII.1 : Eviva

iTunes link for the song:
https://itunes.apple.com/be/album/eviva-espana/id1155378896?i=1155379289

Behavior VII.2 : Diana

iTunes link for the song:
https://itunes.apple.com/be/album/diana/id265654390?i=265654494

Behavior VII.3 : Ghostriders

iTunes link for the song:
https://itunes.apple.com/be/album/ghost-riders-in-the-sky/id251001680?i=251003094

Behavior VII.4 : La java bleue

iTunes link for the song:
https://itunes.apple.com/be/album/la-java-bleue/id479525065?i=479525623

Behavior VII.5 : La vie en rose

iTunes link for the song:
https://itunes.apple.com/be/album/le-petit-vin-blanc/id379842476?i=379842478

Behavior VII.6 : Le petit vin blanc

iTunes link for the song:
https://itunes.apple.com/be/album/ah-le-petit-vin-blanc/id86722127?i=86721408&l=nl

Behavior VII.7 : Nathalie

iTunes link for the song:
https://itunes.apple.com/be/album/nathalie/id697340748?i=697341220

Behavior VII.8 : Que Sera Sera

iTunes link for the song:
https://itunes.apple.com/be/album/que-sera-sera/id192699553?i=192700744

Behavior VII.9 : Regrette de rien

iTunes link for the song:
https://itunes.apple.com/be/album/non-je-ne-regrette-rien/id479525065?i=479525587

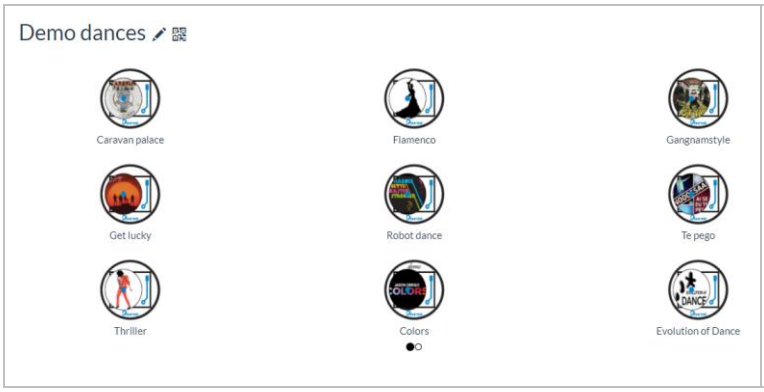
Behavior VII.10 : Rum and Coca Cola

iTunes link for the song:
https://itunes.apple.com/be/album/rum-and-coca-cola/id262555391?i=262555479

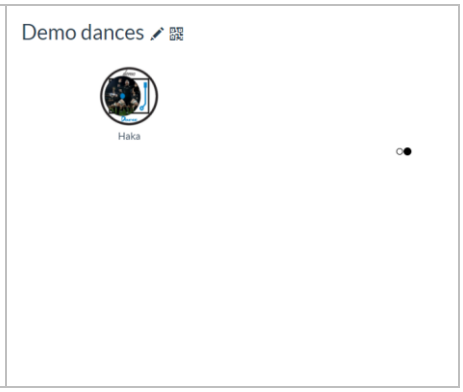
Category VIII : Demo Dances

This category shows some demonstrations of dance routines.

Page 1:



Page 2:



Behavior VIII.1 : Caravan palace

iTunes link for the song:
https://itunes.apple.com/be/album/jolie-coquine/id376152559?i=376152576

Behavior VIII.2 : Flamenco

Expired copyright for this song

Behavior VIII.3 : Gangnamstyle

iTunes link for the song:
https://itunes.apple.com/be/album/gangnam-style-%EA%B0%95%EB%82%A8%EC%8A%A4%ED%83%80%EC%9D%BC/id560409896?i=560409906

Behavior VIII.4 : Get lucky

iTunes link for the song:
https://itunes.apple.com/be/album/get-lucky-feat-pharrell-williams-nile-rodgers/id617154241?i=617154366

Behavior VIII.5 : Robot dance

iTunes link for the song:
https://itunes.apple.com/be/album/harder-better-faster-stronger/id697194953?i=697195787

Behavior VIII.6 : Te pego

iTunes link for the song:
https://itunes.apple.com/be/album/ai-se-eu-te-pego/id1103164738?i=1103164762

Behavior VIII.7 : Thriller

iTunes link for the song:
https://itunes.apple.com/be/album/thriller/id336643808?i=336644202

Behavior VIII.8 : Colors

iTunes link for the song:
https://itunes.apple.com/be/album/colors/1356224861?i=1356224875&l=nl

Behavior VIII.9 : Evolution of dance

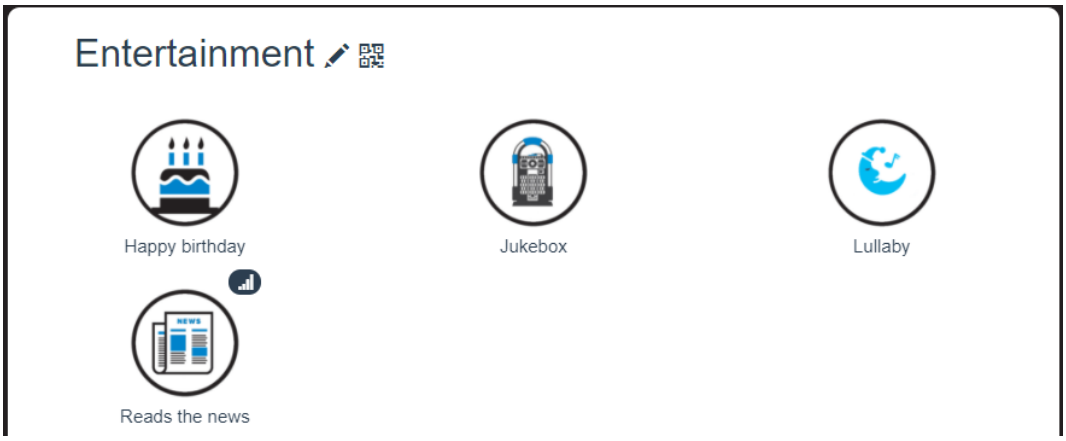
No copyrighted songs in this behavior.

Behavior VIII.10 : Haka

No copyrighted songs in this behavior.

Category IX : Entertainment

This category contains behaviors who can provide entertainment, like reading the news or playing music.



Behavior IX.1 : Happy Birthday

This behavior make Zora play the song 'Happy Birthday'. This behavior has no settings or dataset.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora can easily dance*
Step 2 – Start behavior	*Zora will wish the user a happy birthday and go to rest*

Behavior IX.2 : Jukebox

This behavior will play a list of songs from a dataset. It is also possible to make more than one dataset for this behavior.

Settings

Skip Intro	*If checked, no introduction will be heard*
Applause after each song	*If checked, Zora will applaud after each song*
Dance on	*If checked, Zora will dance during the songs*
Random playing	*If checked, the songs in the dataset will be played randomly*

Dataset

Enable	*This field enables the mp3-file in the record.*
Name	*This field is **required** and is used by Zora as introduction.*
Artist	*This field is **optional** and is used by Zora as supplementary information.*
Filename [1]	*This field contains the file that will be played.*

[1]: Only MP3-files are supported. The filename should only contain English letters and numbers (e.g. song01.mp3 and so on). The filename should only contain ASCII-characters. For more information on ASCII-characters, see the following link: https://www.asciitable.com/ .

Sensors and actions

Middle Head sensor	*Pause/Play the selected* [1] *song*
Front Head sensor [2]	*Next song in the list*
Back Head sensor [2]	*Previous song in the list*
Right Foot (on the outside)	*Turn Dancing off/on*

[1]: The selection of the song happens by pressing the front and back head sensors, to continue playing the current song do not press them.

[2]: These touch-sensors only become active if no song is playing.

Procedure

Step 1 – Create Dataset	*Add the songs to the playlist-dataset Take care to fill in the Name-field to hear the played song.*
Step 2 – Place Zora in an open area	*Make sure Zora can easily move around*
Step 3 – Check settings	*Make sure Zora can easily be heard*
Step 4 – Start the behavior with the wanted settings (random playlist, …)	*Relax while listening to your songs.*

Behavior IX.3 : Lullaby

This behavior will play a lullaby while being seated. Make sure Zora has enough free space to move about.

Procedure

Start the behavior while Zora is seated to listen to a very relaxing song.

Behavior IX.4 : Reads the news

This behaviors get the newsfeed from a website and reads the number of items out loud.

Settings

Skip intro	*Skips the introduction of the working sensors*
News channel [1]	*A list of possible news channels to listen to*
Include less good news	*Report the bad news as well*
News with arm movements	*Zora will move the arms around while reading the news*
Max news items	*The maximum number of news feeds to read*
News server	*The server which stores the RSS data* *Currently:* ***zoraserver.cloudapp.net***
Port	*The port on the server which sends the RSS feeds* *Currently:* ***3000***

[1]: The news will be read aloud in the language of the feed, so select a news server in the correct language. This list is also only filled in IF the settings for the news server and port are correct. If these settings are incorrect, fill them in correctly and close the popup for the settings and open the settings again. The list will be filled in with the correct information.

Sensors and actions

Head Sensor	*Stop the behavior*
Left foot	*Go to the next news article*
Right foot	*Go to the previous news article*

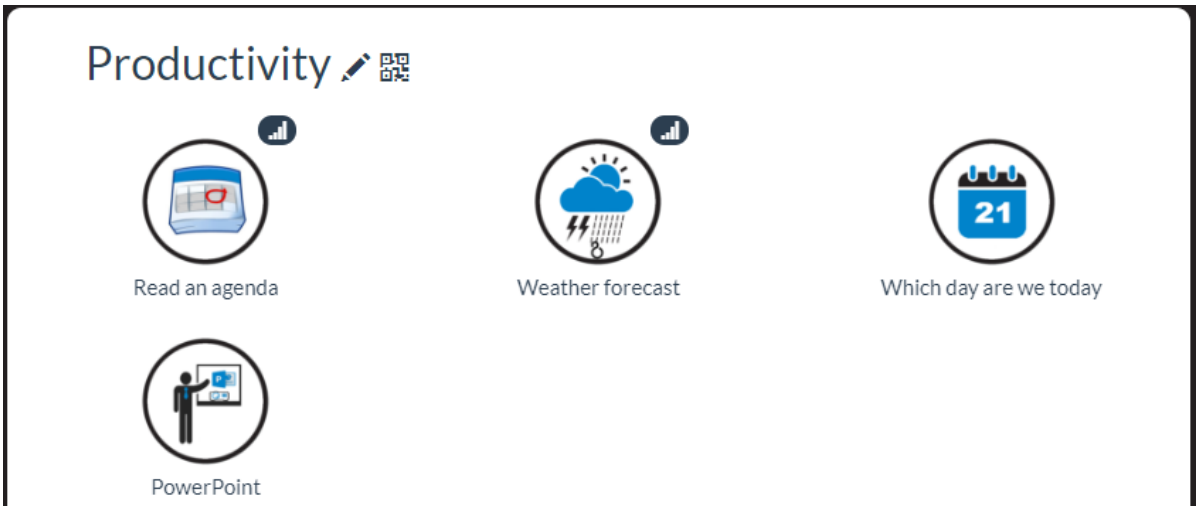
Procedure

Step 1 – Change the settings in Zora Control	*Select a news feed in the system language*
Step 2 – Place Zora in an open area	*Make sure Zora can easily move around*
Step 3 – Start the behavior	*Listen to Zora reading the news*

Note: If the settings for the news server are incorrect, the list will be empty. After correcting (and saving) the news-feed server data, the settings must be closed and opened for the list to be made available again.

Category X : Productivity

This category contains behaviors pertaining to daily functions (and Powerpoint)



Behavior X.1 : Read an agenda

This behavior reads an agenda based on credentials while Zora is seated. Only a **google calendar** is supported now, which means a Google Account is needed to create the calendar.

Settings

Skip intro	*If checked, no information about the head sensor will be read aloud*
Ask Permission	*If checked, before reading the agenda, permission will be asked*
Enable weather forecast	*If checked, the weather forecast for the selected city will be read out loud*
City	*The name of the city* [(1)]
Country code (2 digits)	*The 2-Letters ISO country code* [(1)]

[(1)]: This information is only used by the weather forecast to give the latest information for this location.

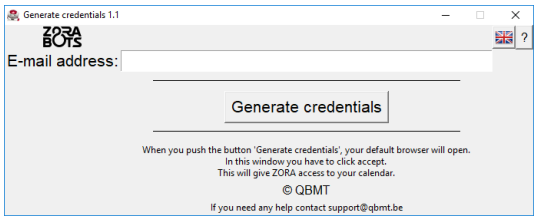
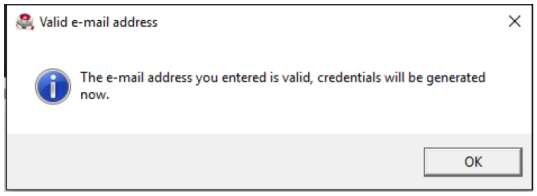
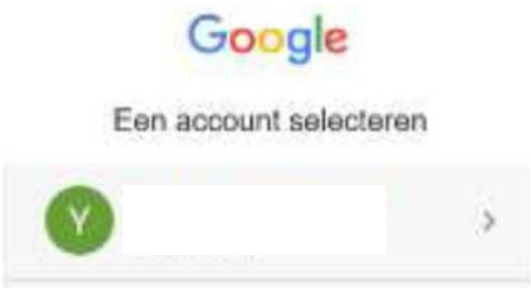
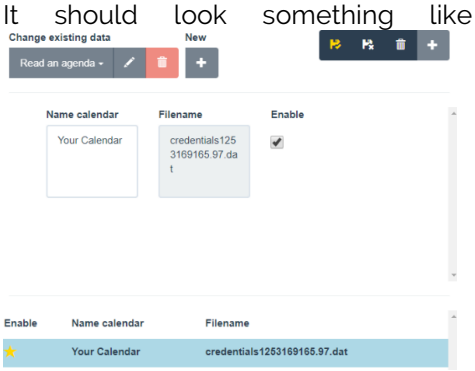
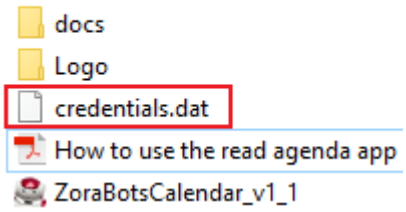
Dataset

Enable	*If checked, the record will be available*
Name calendar	*The name of the calendar*
Filename	*The credential file associated with the calendar*

Sensors and Actions

Left hand	*Stop the behavior*

Procedure

Step 1 – Create the credentials The file to create the credentials is available on the USB-stick and is called *ZoraBotsCalendar_v1_1.exe*.	
After entering a valid Google-account e-mail address, by pressing the 'Generate credentials' button, a first check is used:	
After confirming the check, a browser window will open to the google-account. Use the same account for which the credentials are needed.	
After logging in, a popup will appear with the request to **give Zora_Calendar access to your Calendar**.	Once permission is given, the .exe-file will give a message stating: "*The authentication flow has completed*". At this point, the file with the credentials is generated **in the same folder as the installer**.
Step 2 – Create a custom dataset with the generated credentials (How to create a dataset, see Manual chapter 2.6.4) It should look something like this: 	By selecting the credentials.dat file in the folder where the Calendar program is found in the dataset, the settings for the calendar are complete. 

Step 3 – Make sure Zora has enough space to sit down and has connection to the internet	
Step 4 – Start the behavior WITH the custom dataset.	Zora will say the appointments set for the day in the calendar

Note: The program to create the credentials only works on Windows-computers.

Behavior X.2 : Weather forecast

Zora will retrieve information from the internet about the weather in the selected location for the day and the day after.

Settings

Skip Intro	*If checked, information about the sensors will not be said.*
City for weather forecast	*The city for the weather forecast.*
Country code for weather	*The 2-letter ISO code for the country of the city.*
Choose unit for temperature	*Choose between Celsius of Fahrenheit as the temperature unit.*

Sensors and actions

Head sensors (all)	*Stop the current behavior.*

Procedure

Step 1 – Set the correct settings for the city in the settings for this behavior	*Set the city and temperature unit for the city.*
Step 2 – Create enough free space for Zora to move	
Step 3 – Start behavior	

Behavior X.3 : Which day are we today

This behavior plays a game to guess the day of the week. This behavior is made to help people with memory problems.

Settings

Skip Intro	*If checked, no introduction will be said aloud.*
Country	*If it is a holiday in the selected country, Zora will remind you.*
Difficulty level	*Hard or easy.*

Procedure

Step 1 – Set difficulty level	*Set the difficulty level appropriate for the user.*
Step 2 – Start behavior	*Find the date.*

Behavior X.4 : Powerpoint

Zora will read aloud the comments of a Powerpoint when using the corresponding plugin. The information and Powerpoint plugin is also stored on the USB stick

Procedure

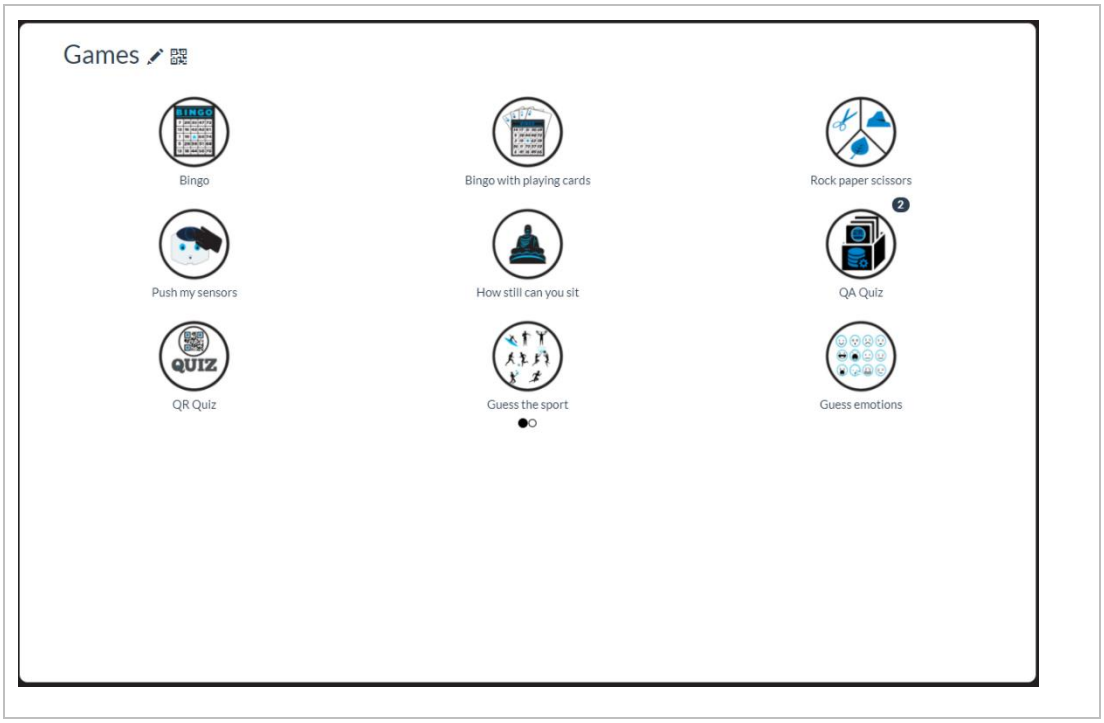
Step 1 – Create the Powerpoint on pc	*Create the presentation with the necessary comments.*
Step 2 – Install the plugin on pc	*The file is executable in Windows (not on MAC) and is Office 2016 compatible.*
Step 3 – Start the behavior on Zora	
Step 4 – Start the plugin and connect the plugin to Zora	*Fill in the correct network address.*
Step 5 – Start the Powerpoint	*Zora will read the comments out loud in the selected language in the plugin.*

For more information: See the document on the USB-stick

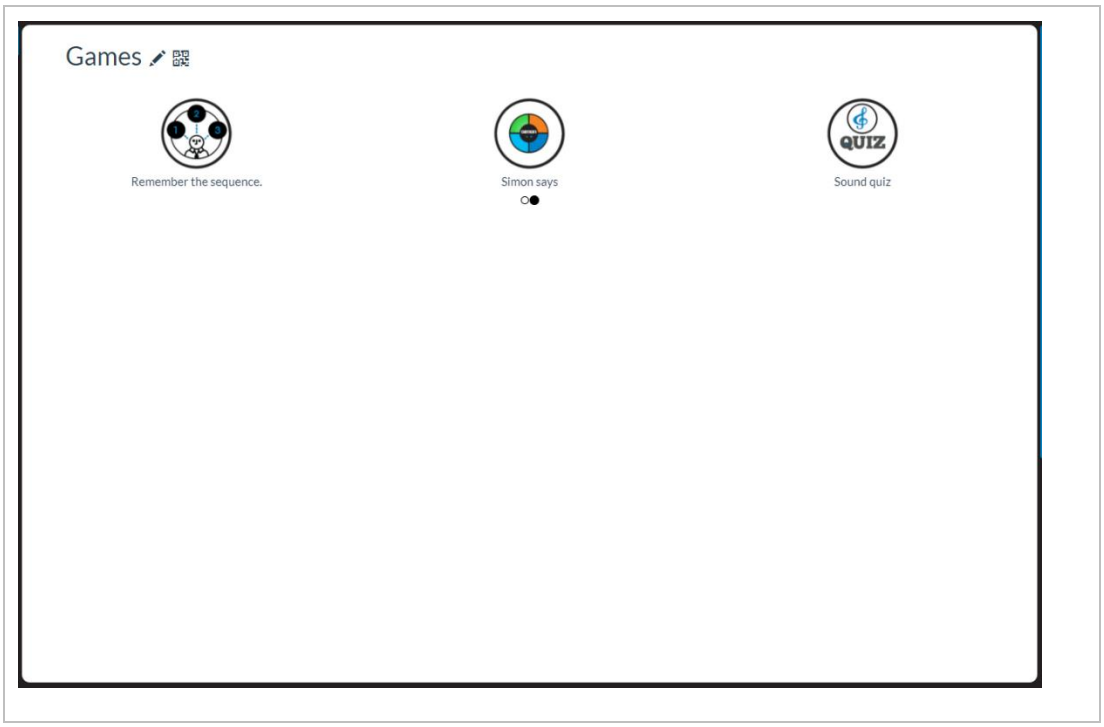
Category XI : Games

This category contains behaviors that emulate games.

Page 1:



Page 2:



Behavior XI.1: Bingo

This behavior will replicate the drawing of the balls in a game of Bingo. Zora will stay in crouch-position.

Settings

Skip intro	*If checked, skips the introduction.*
Minimum number	*The lowest number.*
Maximum number	*The highest numbe.r*
Move head during the game	*If checked, Zora will constantly look around.*
Character before number	*Will put a letter before the number (B-5 of A-5).*
Jokes	*Zora will tell a joke from time to time when using the human voice.*
Say automatic next number	*Automatically says the next number instead of pressing the left foot.*
Time between 2 numbers (sec) [1]	*If automatically select next number is checked, this value is the time between the readout numbers.*

[1]: Not to be confused with the repeat of the same number.

Sensors and actions

Left foot	*If the settings are correctly set, left foot will tell a new number.*
Left hand	*Stop the behavior.*
Right foot [1]	*BINGO!*

[1]: This pauses the drawing of the bingo balls, to start again press the left foot

Procedure

Step 1 – Check the settings	
Step 2 – Place Zora in the 'crouch'-posture [1]	
Step 3 – Start the game	*Press the right foot for Bingo if needed.*
Step 4 – Save the game if needed	*You can start this game by using voice command 'yes' or 'no' when asked.*

[1]: Make sure the head is positioned straight to the front.

Behavior XI.2 : Bingo with playing cards

This behavior will replicate the drawing of cards from a deck of cards in a game of Bingo. Each card will be pronounced twice. Zora will stand up during this behavior.

Settings

Skip intro	*If checked, skips the introduction.*
Play automatically	*If checked, the next card will be spoken automatically.*
Time between cards	*This field contains the time Zora will wait before saying a new card.*
Time between repeats of the card	*This field contains the time Zora will wait before repeating the card.*

Sensors and actions

Front head [1]	*By pressing this sensor, the next card will be spoken aloud.*
Rear head [1]	*By pressing this sensor, Zora will wait before asking for input.*
Right hand	*By pressing this sensor, Zora will say Bingo!*
Left hand	*By pressing this sensor, the game will be stopped.*

[1]: These sensors are only active if the option 'Play automatically' is not checked.

Procedure

Step 1 – Check the settings	*Check if the settings are correctly filled in.*
Step 2 – Place Zora in the 'crouch'-posture [1]	
Step 3 – Start the game	*Press the right hand for Bingo if needed.*

[1]: Zora will stand, so make sure the robot has enough room to move about.

Behavior XI.3 : Rock Paper Scissors

This behavior emulates a game of Rock, Papers, Scissors. The rules are: first to five victories wins. Zora uses the sit-posture and voice-recognition during this game.

Settings

Skip intro	*If checked, the introduction will be skipped.*
Zora talks first	*If checked, Zora will talk the draw first.*
Next game by pushing left foot sensor	*If checked, automatically advancing to the next round is disabled.*

Procedure

Step 1 – Place Zora in a free open space	*To be safe, put Zora in the sit-posture.*
Step 2 – Check the settings	
Step 3 – Start the game	*Try not to take advantage of a Zora that can't make the gestures.*
Step 4 – Say Rock, paper or scissors when asked.	*The first one with five wins is the victor.*

Behavior XI.4 : Push my sensors

This behavior will ask for a touch on the sensors. Zora will stand, so be careful not to overheat the motors.

Settings

Skip intro	*If checked, Zora will not introduce the game.*
In view of the robot (Left/Right)	*If checked, Left and Right will be defined by the robot's point of view. Otherwise, the user's point of view will be used.*
Without left and right	*If checked, no options of left and right will be given.*
Time to think (sec)	*This input field contains the time to give a valid answer.*

The buttons only act as receivers during the game, no other options are available via the sensors.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora can easily go to a 'stand'-posture.*
Step 2 – Check settings	*Make sure Zora can easily be heard and touched.*
Step 3 – Start behavior	*Play the game.*

Behavior XI.5 : How still can you sit?

This game will use facial recognition to track the user. The objective of this game is to sit as still as possible (like a statue). This behavior uses the sit-posture to start the game and will go to the crouch-posture when finished. Make sure Zora has enough space.

No buttons commands are available, the users shouldn't move during the behaviors anyway.

Procedure

Step 1 – Place Zora in an open area at eye level	*Zora will move from a 'sit'-posture to a 'crouch'-posture. Make sure Zora can safely move to these postures.*
Step 2 – Check settings	*Make sure Zora can be heard.*
Step 3 – Start the behavior	
Step 3a – If necessary, adjust head-position	*By using the steering-pane, it is possible to move Zora's head to detect a person from most positions.*
Step 4 – Answer with 'start' or 'ready' to start when asked	
Step 5 – Keep the head as still as possible	*Only the head will be tracked, everything else is not. Increased difficulty: move while keeping the head still.*
Step 6 – To play again, say 'yes' when asked	*Otherwise, say 'no' to stop the game.*

Behavior XI.6 : QA Quiz

This behavior plays a round of Questions and Answers. By inputting the data in the dataset, it is possible to define the questions and what the user must answer to score a point in the game. Zora may stand for this behavior, so please keep an eye on the temperature of the motors.

Settings

Skip intro	*If checked, Zora will not explain how the game works.*
Time for reflection (sec)	*Time between the question and the answer.*
How many rounds	*The number of rounds to be played in one session.*
Tune during thinking	*If checked, a song will play during the reflection time.*
How many questions per round	*The number of questions per round.*
How many times to try again	*The number of false answers that can be given (at least 1).*
Start position	• *Standing* *Use this option for short games.* • *Sitting* *Use this option for long games.*
Next question by pushing left foot sensor	*If unchecked, the questions will automatically continue to the end of the round.*
Random asking	*If checked, the list of questions will be read at random, otherwise.*

Dataset

Enable	*If checked, this data will be used.*
Question [1]	*This field contains the question Zora will ask.*
Answer [2]	*This field contains the word the user must speak for a correct answer.*

[1]: No need for a question mark, this is automatically added

[2]: To ensure a good possibility of a voice match, please use capital letters.

Sensors and actions

Left hand	*Stop the behavior*
Back head sensor	*Skip the current question*
Front head	*Scroll through a list of possible answers*
Middle head sensor [1]	*Confirm selection of the selected answer from the front head sensor*

[1]: This sensor only reacts when an input has been selected by the front head sensor.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has room to transition to the selected starting posture if needed*
Step 2 – Check volume-settings	*Make sure Zora can be heard*
Step 3 – Start behavior	*Play the game with the desired settings*

Note: When the game is stopped, and the game hasn't finished the completed rounds or questions, the user will be asked if the game should be saved. When starting the game in the next round, the user will be asked if the game should be loaded.

Behavior XI.7 : QR Quiz

This game asks for a QR code corresponding to a word. Please show the QR code as soon as possible once the input-method is selected. This behavior uses the 'stand'-posture, so please keep an eye on the temperature of the motors.

Settings

Skip intro	*If checked, the introduction will not be spoken aloud.*
Time for reflection (sec)	*This field contains the time between asking the question and showing the QR code.*
How many rounds	*This field contains the number of rounds to be played.*
Tune during thinking	*If checked, a sound will play during the time for reflection.*
How many questions per round	*This field contains the number of questions per round.*
How many times to try again	*This field contains the number of incorrect answers can be given until the question is validated as wrong.*
Next card by pushing left foot sensor	*If unchecked, Zora will automatically continue with asking the questions.*
Just the word as question	*If unchecked, Zora will ask the following question: 'Show me the card with the word'.*

Dataset

Enable	*If unchecked, the record will not be asked.*
Card	*This field contains the value which must be shown as QR code.*

Sensors and actions

Left hand	*Stop the behavior* [1].
Front Head	*Skip the question.*

[1]: When stopping the game by pressing the sensor before all questions and answers are asked, Zora will ask to save the game. If a previous game is saved, Zora will ask to load the previously saved game the next time the behavior is started.

📋 *Procedure*

- ***Owner:***

Step 1 – Create dataset	*If needed, create the custom data for this game.*
Step 2 – Print the QR codes from the dataset to non-reflective paper [1]	*Generate the QR codes [1] from the dataset.* *Make sure the minimum format of the QR image (25mm x 25mm) is respected.* *Distribute the QR codes (with the accompanying image if required) to the user.*

[1]: A possible website to generate the QR codes: http://goqr.me

[2]: If reflective paper is used, the camera may not view the QR code correctly.

- ***User:***

Step 1 – Place Zora in an open area	*Make sure Zora has the required free space to transition to the selected starting posture if needed.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Play the game with the desired settings.*

Behavior XI.8 : Guess the sport

This behavior will play a game where Zora displays a sport which must then be spoken by the user to score a point. Various postures are used in this behavior, so ensure Zora has a lot of space for moving around. Take care not to overheat the motors while playing this game. This game needs a lot of data to be loaded, so be patient if the behavior doesn't start immediately.

Settings

Skip intro	*If checked, the introduction will not be spoken aloud.*
Time for reflection (sec)	*This field contains the time between asking the question and showing the QR code.*
Tune during thinking	*If checked, a sound will play during the time for reflection.*

This game does not have actions associated with sensors or a dataset entry

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to freely move around.*
Step 2 – Check volume-settings	*Make sure Zora can be heard, sound will be played during the behavior. Some behaviors move very similar and are only distinguishable by sound.*
Step 3 – Start behavior	*Try to guess all the sports. 22 sports are available, but rounds will be split in sets of 10. Once all 22 sports are displayed, the list will be shown again in a random order.*

All possible answers are shown in the list below:

'Golf'	**'Ski'**	**'Volleyball'**	**'Car racing'**
'Horse riding'	**'Bowling'**	**'Archery'**	**'Rowing'**
'Tennis'	**'Body building'**	**'Baseball'**	**'Fishing'**
'Soccer'	**'Basketball'**	**'Weight lifting'**	**'Snooker'**
'Rugby'	**'Boxing'**	**'Swimming'**	**'Darts'**
'Clay pigeon shooting'			

Behavior XI.9 : Guess emotions

This behavior will show various emotion-animations, to which an answer must be given.

Settings

Skip intro	*If checked, the introduction will not be spoken aloud.*
Time for reflection (sec)	*This field contains the time between asking the question and showing the QR code.*
Tune during thinking	*If checked, a sound will play during the time for reflection.*

Sensors and actions

Left foot	*Turn hints on or off.*
Right foot	*Turn hints on or off.*
Left hand	*Stop the behavior.*
Front head	*Select between possible answers* [1].
Back head	*Select between possible answers (reverse order to the front head sensor).*
Middle head	*Confirm selection of possible answers.*

[1]: Three possible answers will be available. To continue with the game, the option 'exit' must be selected.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to freely move around.*
Step 2 – Check volume-settings	*Make sure Zora can be heard, sounds can be played during the behavior.*
Step 3 – Start behavior	*Try to guess the emotion associated with the animation.* *If the hints are turned on, Zora will say three possible answers.*

Behavior XI.10 : Remember the sequence

In this behavior, Zora will list items to take on holiday and the user has to repeat the items in the order spoken. This behavior starts in 'stand'-posture, so take care not to overheat the motors. No settings are used for this behavior.

Dataset

Enable	*If checked, Zora will use the data in the behavior.*
Phrase	*This field contains the phrase Zora will speak.*
Word	*This field contains the word the user must speak.*

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Try to guess as many of the answers as possible After the first answer, wait for Zora to say o.k. to continue listing the other items.*

Behavior XI.11 : Simon says

This behavior has the user touch Zora's sensors only if Simon says so. Zora will use the 'Sit'-posture, so make sure Zora has enough free room.

Settings

Skip intro	*If checked, Zora will not introduce the game.*
In view of the robot (Left/Right)	*If checked, Left and Right will be defined by the robot's point of view. Otherwise, the user's point of view will be used.*
Without left and right	*If checked, no options of left and right will be given.*

No dataset or actions associated with sensors are available for this game.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to sit.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*The game starts with 5 lives and plays 3 rounds with 10 orders. The time to respond shortens when the next round starts. If all lives are used up by responding incorrectly before the end of the third round, you lose.*

Behavior XI.12 : Sound quiz

This game will play a sound as set in the dataset to which the user has to respond in time. This response can happen by voice recognition or by showing a QR code. This behavior uses the 'stand'- and 'sit'-postures.

Settings

Skip intro	*If checked, the introduction will not be spoken aloud.*
Time for reflection (sec) [1]	*This field contains the time between asking the question and showing the QR code.*
How many rounds	*This field contains the number of rounds to be played.*
Tune during thinking	*If checked, a sound will play during the time for reflection.*
How many questions per round	*This field contains the number of questions per round.*
How many times to try again	*This field contains the number of incorrect answers can be given until the question is validated as wrong.*
Next sound by pushing left foot sensor	*If unchecked, Zora will automatically continue with the next sound.*

Dataset

Enable	*If checked, this record will be used by the behavior.*
The sound	*This field contains the values available for the speech recognition, separated by a **'/'**.*
Filename (.mp3)	*This field contains the MP3-file that must be uploaded.*

Sensors and actions

Left hand	*Stop the behavior.*
Left foot [1]	*Switch between 'stand'- and 'sit'-posture.*
Front head	*Skip the sound.*

[1]: **ONLY** during the intro. Otherwise, the current posture will transition to 'sit' or 'stand' based on the posture Zora is currently in.

Procedure

- ***Owner:***

Step 1 – Create dataset	*Create the list of sounds and their entries in the dataset.*
Step 2 – Print the QR codes from the dataset to non-reflective paper [2] **if needed**	*Generate the QR codes* [1] *from the dataset. The voice recognition system can also be used.*

[1]: A possible website to generate the QR codes: http://goqr.me

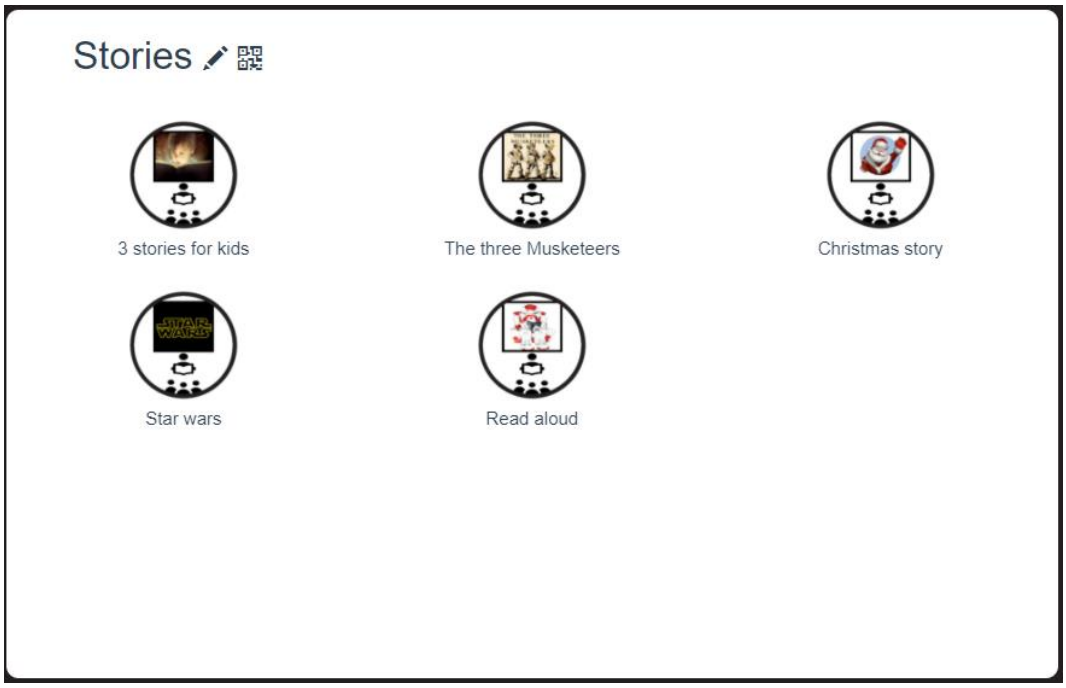
[2]: If reflective paper is used, the camera may not view the QR code correctly.

- ***User:***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to sit.*
Step 2 – Check settings	*Make sure Zora can be heard and select the desired posture:* - ***Sit*** *Choose this posture for a long game.* - ***Stand*** *Choose this posture for a short game.*
Step 3 – Start behavior	*Try to guess as many sounds as possible.*

Category XII : Stories

This category contains stories that Zora will read aloud.



Behavior XII.1 : 3 stories for kids

This behavior will read aloud one of the following 3 stories: "Goldilocks and the three bears", "The three little pigs' and 'The tortoise and the hare'. This behavior uses the 'stand'-posture, so take care not to overheat the motors. After telling the story, Zora will ask questions about the story.

This behavior has no settings or dataset available.

Sensors and actions

Head sensors (all): Press and hold for 1 second	*Stop behavior.*
Front head	*Select between possible answers* [1].
Back head	*Select between possible answers (reverse order to the front head sensor).*
Middle head	*Confirm selection of possible answers.*

[1]: The following options are possible: 1, Goldilocks and the three bears, 2, the three little pigs and 3, The tortoise and the Hare.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*After starting the behavior, select the story by using the head sensors or use voice-recognition:* ***Say*** — ***Story*** ***1*** — *Goldilocks and the three bears* ***2*** — *The three little pigs* ***3*** — *The tortoise and the hare*

Behavior XII.2 : The three musketeers

This behavior tells the story of the three musketeers. Zora will move around during this behavior.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Listen to the story of the three musketeers.*

Behavior XII.3 : Christmas Story

This behavior tells the story of 'Twas the night before Christmas' by Clement Clarke Moore.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to move around.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Listen to the Christmas story.*

Behavior XII.4 : Star Wars

This behavior briefly tells the story of Star Wars VI: Return of the Jedi.

Warning: During this behavior, Zora may fall **if the surface is slippery**.

Procedure

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Listen to the story of Star Wars.*

Behavior XII.5 : Read aloud

This behavior reads aloud a homemade story.

Settings

Skip intro	*If checked, Zora will skip the introduction.*
Next page by pushing left foot sensor	*If unchecked, Zora will automatically continue.*
Start position	• *Standing* *Use this option for short stories.* • *Sitting* *Use this option for long stories.*
Animated speech [1]	*If checked, Zora will move the arms while speaking.*
Move arm to turn the page	*This setting is not in use yet.*

[1]: It is not advisable to use this setting while seated due to collision hazards.

Dataset

Enable	*If checked, Zora will use this story in the dataset.*
The title	*This field contains the title of the story.*
The author	*This field contains the author of the story.*
Filename (*.txt)	*The filename of the story that has been uploaded.*

Sensors and actions

Left hand	*Stop behavior.*
Middle head sensor	*Pause current story.*
Front sensor	*Skip to next chapter.*

📋 *Procedure*

- ***Owner:***

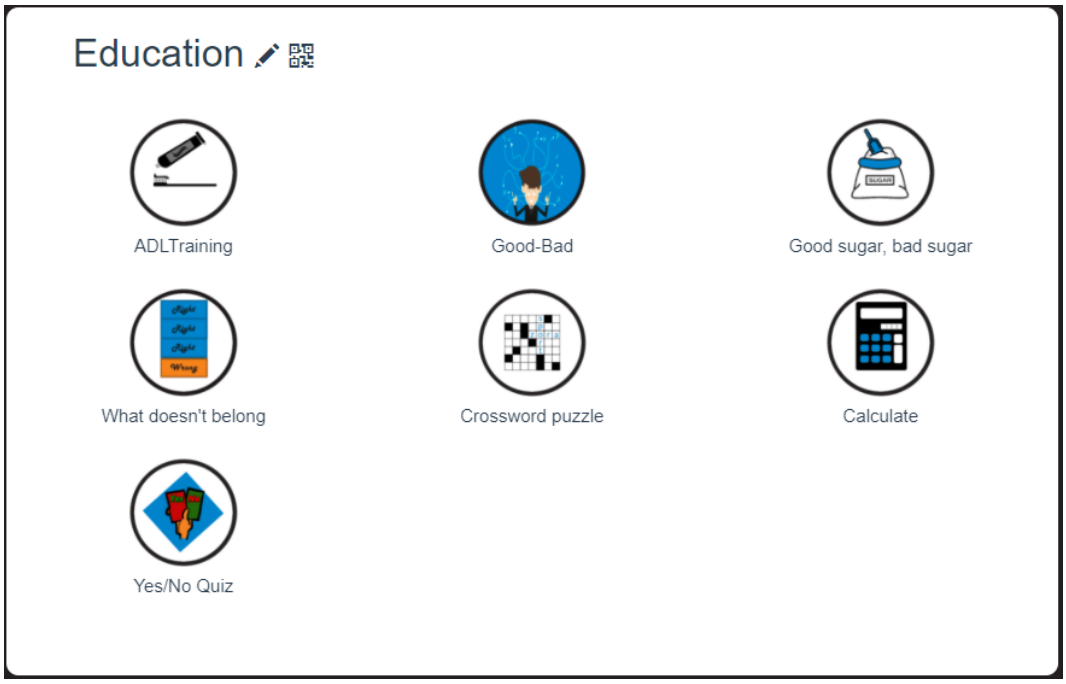
Step 1 – Write the story	*Write the story in a txt-file.*
Step 2 – Create dataset	*Create the dataset containing the txt-file.*

- ***User:***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand or sit depending on the setting.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Listen to the story of Star Wars.*

Category XIII : Education

This category contains behaviors with educational purposes



Behavior XIII.1: ADL Training

This behavior is designed to help people complete daily tasks. The caretaker can customise the dataset for the patient. The postures used by this behavior are the 'stand'- and 'sit'-posture. An automatic switch from 'stand' to 'sit' will occur if a task may take too long to complete before the motors overheat.

Settings

Skip intro	*If checked, the introduction will not be spoken.*
Patient may stop it	*If checked, the left hand of Zora can be used to stop the behavior.*
Give the explanation immediately	*If checked, the first explanation will be given.*

Dataset

Enable	*If checked, the record becomes available for Zora.*
Task	*This field contains the description of the task.*
Explanation	*This field contains the basic information that will automatically be said if the settings is checked. Otherwise, the right hand needs to be touched for this information.*
Extra explanation	*This field contains the extra information for the task. This field is used in the behavior by the right hand.*
Rank	*This field contains the **number** of the order in which the record will be said.*
Time	*This field contains the **number** of time the task will approximately take.*

Sensors and actions

Front head	*Answer 'yes' to a question.*
Back of the head	*Answer 'no' to a question.*
Left hand	*Stop the behavior (if setting 'Patient may stop it' is checked).*
Right hand	*Gives more explanation about a task* *By touching the sensor once, the explanation will be spoken, twice will be the extra explanation and thrice will say the default sentence: 'Please consult your caretaker for more information'.*
Left foot	*Skip the current task.*
Right foot	*Repeat the last spoken sentence by Zora.*

Procedure

- ***Caretaker***

Step 1 – Create a task list for the patient to follow	*Create a list of tasks for the patient to do when Zora is there to run the instructions.* *Also try to approximate the time the task will take.*
Step 2 – Create the dataset	*Fill in the list of tasks according to the list.*
Step 3 – Place Zora near the patient	*Place Zora in a place where it is easy to stand up and sit down and where the patient can easily hear the instructions.*
Step 3 – Start behavior	*Start the behavior when the patient should start the tasks.*

- ***Patient***

The patient must follow the tasks set by Zora and confirm when the task has been done, or when the task can be started.

Behavior XIII.2 : Good-bad

This behavior lists items that can belong to 2 solutions (e.g. fruit or vegetable). The objective of this exercise is to match the words to the categories. This behavior uses the 'stand'-posture, so take care not to overheat the motors.

Settings

Skip intro	*If checked, the intro will be skipped.*
Shorter interaction	*If checked, the interactions are shorter (and blunter).*
How many rounds	*This field contains the number of rounds.*
How many questions per round	*This field contains the number of questions per round.*

Dataset

Enable	*If checked, the record will be used by the behavior.*
Word	*This field contains the word to be matched.*
Solution	*This field contains the category to which the word belongs.*

Sensors and actions

Left Hand	*Stop the behavior.*
Front head	*Cycle through the possible categories.*
Back head	*Cycle through the possible categories.*
Middle head	*Confirm the selection from the front or back head sensors.*
Right foot	*Repeat the word.*
Left foot	*Skip the word.*

Procedure

- ***Owner***

Step 1 – Create dataset	*Create a dataset with 2 or more categories.*
Step 2 – Distribute the categories to the user	*QR codes and voice recognition are valid.*

- ***User***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand and wave the arms about.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Play the game.*

Behavior XIII.3 : Good sugar, bad sugar

This behavior analyses a QR code to determine if a product contains a lot of healthy sugars of unhealthy sugars. The QR codes must be made manually by the owner. This behavior uses the 'stand'-posture, so take care not to overheat the motors.

This behavior does not contain settings nor a dataset.

Sensors and actions

Left foot [1]	*Switches between 'sitting' and 'standing'-postures.*
Right foot	*Switched the animation ON or OFF.*
Head sensors (all)	*Stops the behavior.*

[1]: This feature is still in development

Procedure

- ***Owner***

Step 1 – Create a list of products	*Create a list of products containing both 'good' and 'bad' sugars.*
Step 2 – Create the QR codes based on the list of products	*The QR codes must be made manually in the following format:* *<name of the product>,1* *The code for <good or bad> is either 1 for good or 0 for bad.* ***Valid QR codes*** / ***Invalid QR codes*** *Apple,1* / *Apple/1*, *Apple|1* *Chocolate,0* / *Chocolate,'0'*, *Chocolate, 0*
Step 2 – Print the QR codes from the dataset to non-reflective paper[2]	*Generate the QR codes*[1] *from the dataset.* *Make sure the minimum format of the QR image (25mm x 25mm) is respected.* *Distribute the QR codes (with the accompanying image if required) to the user.*

[1]: A possible website to generate the QR codes: http://goqr.me

[2]: If reflective paper is used, the camera may not view the QR code correctly.

- ***Users***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand and wave the arms about.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Show the QR code when asked and guess what the value of the product could be:* *If the product could contain good sugar say 'good' If the product is less good say 'can better'.*

Behavior XIII.4 : What doesn't belong

This behavior list 4 words, with one of them not belonging in the same category. The used

Settings

Skip intro	*If checked, the introduction will be skipped.*
How many rounds	*This field contains the number of rounds that will be played.*
How many questions per round	*This fields contains the number of questions that will be asked per round.*

Dataset

Enable	*If checked, this record will be used.*
Word 1	*This field contains a correct word in the row.*
Word 2	*This field contains a correct word in the row.*
Word 3	*This field contains a correct word in the row.*
Wrong word	*This field contains the incorrect word in the row.*

Sensors and actions

Front head	*Repeat the question.*
Rear head	*Skip a question.*
Left hand	*Stop the game.*
Left foot	*Skip the question.*
Right foot	*Repeat a question.*

Procedure

- ***Owner***

Step 1 – Create dataset	*Create a list of words that belong and one that does not. Create the dataset necessary.*

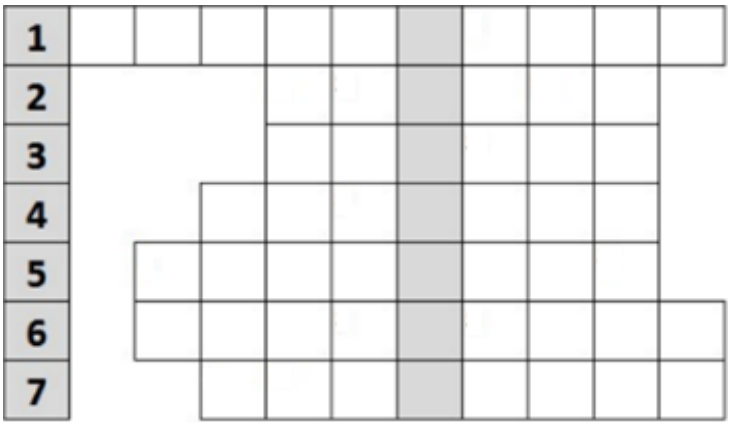
- ***User***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand and wave the arms about.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Play the game.*

Behavior XIII.5 : Crossword puzzle

This behavior asks for a letter from several words to form a key word at the end of the game. The type of crossword puzzle used in this behavior is a Filippine puzzle. This behavior uses the 'stand'-posture, so take care not to overheat the motors.

E.G:



Settings

Skip intro	*If checked, the introduction will be skipped.*

Dataset

Enable	*If checked, the record will be used in the behavior.*
Question	*This field contains the question Zora will ask.*
Solution	*This field contains the answer Zora will listen for.*
Position of the letter from the solution	*This field contains the position of the letter in the Solution-field.* *E.g.: in the word robot, the 3rd position of the letter would be "b".*
Position letter in the crossword	*This field contains the position of the letter from 'Position of the letter from the solution' in the final answer.*

Sensors and actions

Front head	*Repeat the question.*
Back head	*Skip to the next question.*
Left hand	*Stop the behavior.*
Left foot	*Skip to the next question.*
Right foot	*Repeat the question.*

📋 *Procedure*

- ***Owner***

Step 1 – Create dataset	*Create a dataset with words and key-letters according to the image above.*

- ***User***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand and wave the arms about.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Play the game.*

Behavior XIII.6 : Calculate

This behavior is used to do math calculations. This behavior uses the '*stand*'-posture, so take care not to overheat the motors.

Settings

Skip intro	*If checked, the introduction will not be played.*	
Exam mode	*If checked, no hints or skip or repeat will be available, and the results will be logged to a CSV-file which can be downloaded.*	
Ask to play again	*If checked, Zora will ask if the exercises may be continued.*	
Intro	*This text-field contains the custom introduction Zora will speak except during the exam-mode.*	
Class number	*This field contains the class number (only used in exam mode).*	
How many rounds	*This field contains the data of the number of rounds to play.*	
How many exercises per round	*This field contains the number of exercises per round.*	
Exercises from 0 till maximum	*This field contains the range of values that can result from the math operations.*	
Own feedback	*If checked, Zora will give the positive comment if the results are higher than the feedback%.* *If the results are lower, the negative feedback comment will be spoken by Zora.* ***Note**: This will also occur DURING the exam mode.*	
Feedback %	*The value needed to determine the good reply or the less good one*	
Positive feedback	*This field contains the text Zora will say if the result of the **round** is higher than or equal to the percentage set in the field "Feedback %".*	
Negative feedback	*This field contains the text Zora will say if the result of the **round** is lower than the percentage set in the field 'Feedback %".*	
What kind of exercises	*Multiplication tables* (1)	*Calculate* (2)
Which multiplication tables (1)	*By selecting the desired tables, these multiplication tables will be asked.*	
Minimum number of tables	*The minimum value for one number in the multiplication tables.*	
Maximum number of tables	*The maximum value for the other number in the multiplication tables.*	

Tables of multiplication (1)	• ***Multiply*** *Only multiplications will be available.* • ***Divide*** *Only divisions will be available.* • ***Random*** *Both types of exercises will be available.*

Which mathematical operator (2)	• ***Add*** *Adds two numbers together.* • ***Subtract*** *Subtract two numbers (Natural number result).* • ***Multiply*** *Multiply two numbers.* • ***Divide*** *Divide two numbers (Natural number result).* • ***Random Add or subtract*** *Randomly adds or subtracts two numbers.* • ***Random multiply or divide*** *Randomly multiply or divide two numbers.*
Animations	• ***Do not move*** *If this option is selected, Zora will not move when asking the question.* • ***Move*** *If this option is selected, Zora will move when asking the question.*
Download Rapport	*If exam mode has been taken before, the results are saved in a CSV-file that can be downloaded.* ***Note**: The results REMAIN on Zora, so when a new exam needs to start, the existing rapport is best downloaded and then deleted from the robot.*
Delete Rapport	*This deletes the currently available list of EVERY exam result so far.*

(1): These settings are only available if 'Multiplication tables' is selected.

(2): These settings are only available if 'Calculate' is selected.

Sensors and actions (not available in exam mode)

Front head	*Repeat a question.*
Back head	*Skip a question.*
Left hand	*Stop the behavior.*
Left foot	*Skip a question.*
Right foot	*Repeat a question.*

Procedure

Step 1 – Fill in the required settings	*Set up the desired questions for the robot to ask the students.*
Step 2 – Determine Exam mode	*The teacher or guide will determine if this is a valid exam or just exercises.*
Step 3 – Do the desired Exercises	*If it is an exam, the best of luck to you!*

Note:

*An error could occur when closing the behavior through the red button (**SetLEDs**). This is a known issue and may be **ignored**. This is currently under investigation and will be fixed as soon as possible.*

Behavior XIII.7 : Yes/No Quiz

This behavior asks (un)common questions to which the user must answer with Yes or No. This behavior uses the 'stand'-posture, so take care not to overheat the motors.

Settings

Skip intro	*If checked, the introduction will not be played.*
How many rounds	*This field contains the number of rounds.*
How many questions per round	*This field contains the number of questions per round.*
How many times to try again	*This field contains the number of times to try again.*

Dataset

Enable	*If checked, the record will be used in the behavior.*
Question	*This field contains the question Zora will ask.*
Correct?	*The answer to the question is either yes or no.*

Procedure

- ***Owner***

Create a dataset	*Create a set of Yes/No questions to entertain or train the user.*

- ***User***

Step 1 – Place Zora in an open area	*Make sure Zora has enough room to stand and wave the arms about.*
Step 2 – Check volume-settings	*Make sure Zora can be heard.*
Step 3 – Start behavior	*Play the game.*

APPENDIX 3 – COMPOSER

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1 Introduction

The composer has 2 modes of making compositions, specifically:

- ***Simple Composer***
- ***Advanced Composer***

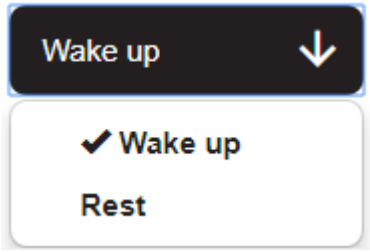
In this manual, both will be explained after explaining the types of settings that can be used by certain blocks and the actions that can be taken on a composition.

2 Types of settings

The following types of settings are used in the composer-blocks:

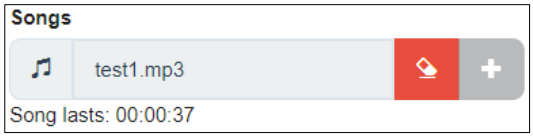
2.1 Dropdown lists

These fields contain a list of possible options. For example:

	*By clicking the top bar, the list of possible options appears.* *The currently active setting is marked by the ✔* *This choice is filled in on the top bar.*

2.2 Media files

This field is used to input music files which will play at the level set by the system volume.

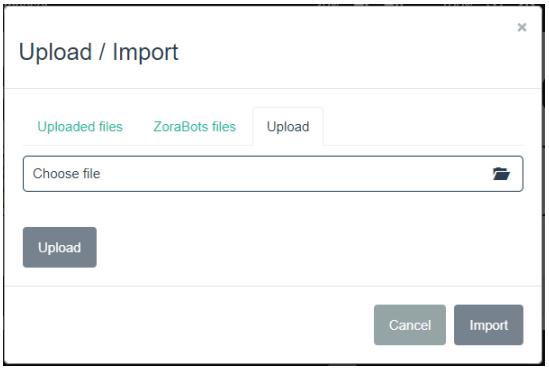
For example: 

This field contains the following defining options:

	*This icon shows the **type of file** that can be used* *On Zora, only music files in the MP3-file format are supported*
test1.mp3	*The **name** of the file*
	***Erase** the setting* *This erases the name of the file from the box and makes a new selection possible*
	***Add** a file* *This button adds a new file that will be used as setting of the block [1].*
Song lasts: 00:00:37	*The **duration** of the song* *This shows how long the selected file will play for*

[1]: This button shows a popup which contains the option of using previously used files or upload a new file to Zora. This button is only selectable if the filename is empty.

When selecting a music file, the following popup appears:

<table>
<tr><td rowspan="3"> 
</td><td>Uploaded files</td><td>This folder contains all previously entered files</td></tr>
<tr><td>QBMT files</td><td>This folder contains the supplied files from Zora</td></tr>
<tr><td colspan="2">Upload
By clicking the field containing 'Choose file', a window appears to select the file from the hard drive of the connected device.
After uploading the file by clicking the upload button (which may take a while, especially over Wi-Fi), by clicking the import button the file will be linked to the composition</td></tr>
</table>

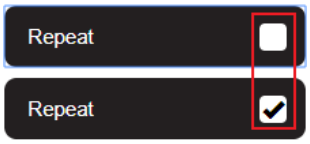
2.3 Sound settings

These settings only appear in the speech-block.

	This is an example of a volume setting. *By clicking the left icon, the volume is lowered by 5%.* *By clicking the right icon, the volume is raised by 5%.*
	This is an example of the voice speed setting. *By clicking the left icon, Zora will speak 5% slower.* *By clicking the right icon, Zora will speak 5% faster.*

2.4Checkbox

The check in the checkbox will determine if the setting will be applied or not. The following example is from a music block:

	*The song will only play once or until the next music-block with the setting 'Stop'.*
	The song will be repeated until the next music-block with the setting 'Stop' or until the composition ends.

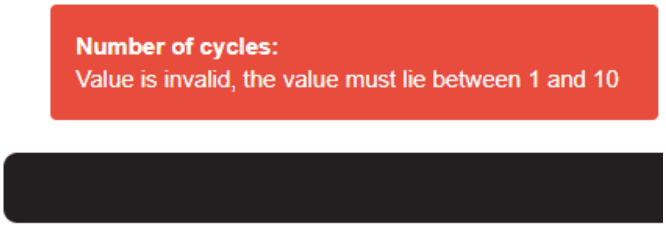
2.5 Input field

This type of settings is generally used by gym-blocks.

Number of cycles 9 ↓ ↑	*This type of setting has 2 possibilities to enter data.* - *A first method is to select the value and enter it manually* [1]*;* - *A second method is to use the arrows to increase or decrease the value by one. By using these arrows, the allowed range cannot be exceeded.*

[1]: This value can surpass the range set by the block. If an invalid entry is given, an error occurs, and a warning-field is shown.

An example of an invalid input:



3 Actions of the composers

This section describes the actions that can be taken on the compositions. These functions sometimes have some minor changes depending on the version of composer used.

A first group of buttons cause the composition to be executed or stopped.

	Play [1] This button plays the full composition from start to finish.
	Pause This button will pause the composition AFTER the current block finishes playing. This will NOT stop the robot from playing the music.
	Play selected This button plays only the selected block.
	Play from selected This button plays the composition from the selected block until the end.
	Stop[2] This button stops the currently playing composition. **Note**: *When a behavior is in the composition, the behavior must be stopped separately*.

[1]: When playing an advanced composition, if the played block is outside the workspace, the workspace will move to show the playing block.

[2]: In the advanced composer, it will stop the composition **after the current composition has stopped running.**

A second group of buttons allows you to copy, paste and delete a selected block.

	Copy to clipboard This button copies the selected block to the clipboard.
	Paste from clipboard This button adds a copy of the previously copied block at the end of the composition in the simple composer. In the advanced composer, the block will be added in the top left side of the screen.
	Delete selection This button removes the selected element from the timeline.
	Undo the last action This button undoes the last action taken by the user, in case a block has been accidentally deleted. Note: Only one action can be undone!

The last group of buttons handles the storage and management of the compositions.

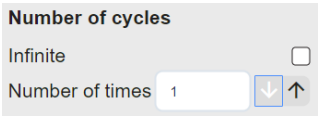
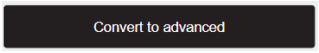
	Save This button saves the currently active composition in the set system language. *Note: If no filename has been provided, a popup will appear asking for a name, otherwise the current filename will be used.* This icon will turn yellow if changes have been made to a composition, but the composition has not been saved.
	Save as This button allows you to specify which filename should be used when saving the composition.
	Open [1] This button opens a selection of the currently saved compositions on the robot in the system language and fills the timeline with the saved blocks. *Note: The current blocks in the timeline will be erased. A warning popup will be shown IF the current composition has not yet been saved.*
	Clear timeline [1] This button clears all blocks from the timeline and closes the opened composition if necessary.
	QR code [2] This button generates a QR code which can be used to start the composition. To use a QR code, simply hold it in front of the forehead camera (in the correct position) while Zora is not running behaviors or compositions.
	Export [3] This button is used to export the currently saved compositions to the connected device. By selecting the desired compositions from the popup-screen, a zip-file will be created and downloaded to the connected device.
	Import [3] This button allows the earlier exported compositions to be re-installed on Zora. Please ensure the compositions in **z(a)cmp**-format are used and not the zip-archive.

[1]: If unsaved changes have been made to the composition, a warning-popup will appear to confirm erasing the current composition from the timeline.

[2]: This button is only available if the composition has been saved on Zora.

[3]: When importing files from a previously exported zip-file, the compositions must be extracted from the zip-archive in (z)cmp-format when re-importing them.

It is possible to run a composition for several times (even infinitely) instead of just once. To show this, the following options are shown when the mouse-pointer is over the icon in the timeline:

	**Number of cycles** In both versions of the composer, the timeline has an option to repeat the timeline a number of times. Note: If Infinite is selected, only by using the stop-button from the composer itself can the composition be stopped.
	**Convert to advanced** This option is only available in the simple composer and will convert a simple composition to an advanced composition, after confirming that the present composition in the advanced composer may be erased.

Notes:

1. *Importing a composition does not automatically load them into the timeline.*
2. ***A simple composition will open the simple composer; an advanced composition will open the advanced composer. The same principle is valid when saving a composition.***
3. *When playing a composition, the number of times the composition still has to be played will be displayed in the bottom right of the timeline.*

4 Simple composer

4.1 Blocks

Below is a summary of every available block in the composer-tab:

	Rest/Wake up This block puts Zora in a stand-posture or puts Zora in a rest-position.
	Postures This block selects the posture that Zora will take (see Postures).
	Speech This block makes Zora say a text in the selected language.
	Motion This block makes Zora move the head, hands or arms. In case Zora is sitting on the bench, the legs can also be moved. Each function is separated into sub-blocks.

Head:	**Hands:**	**Arms:**	**Legs:**

	Gym This block makes Zora do exercises.
	Natural This block shows actions that emulate natural behaviors, such as breathing or blinking with the eyes. Each function is divided into sub-blocks.

Blink eyes:	**Follow head:**	**Breathing**

	Wait This block temporarily stops the composition from playing until an input is detected or some time has passed. Each function is divided into sub-blocks.

Wait for x seconds	**Wait until a certain time**	**Wait for sensor**	**Wait for QR code**	**Wait for speech**	**Wait for face-recognition**

	Behaviors This block enables the active behaviors to be played in the composition.
	Music This block starts or stops music from playing.
	Loop This block creates a second timeline that can be repeated if needed.
	Animation This block makes Zora execute an animation.
	Bezonia This block is only available for specified users.
	Variables This block allows for the creation of variables in the composition.
	Composition This block allows for the composition to use another composition.

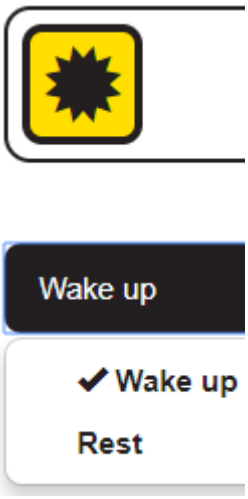
To configure the blocks, the space below the timeline is used. The available options appear once the block is selected in the timeline.

4.2 Settings

This chapter will detail the possible settings for the blocks.

4.2.1 Rest/Wake up

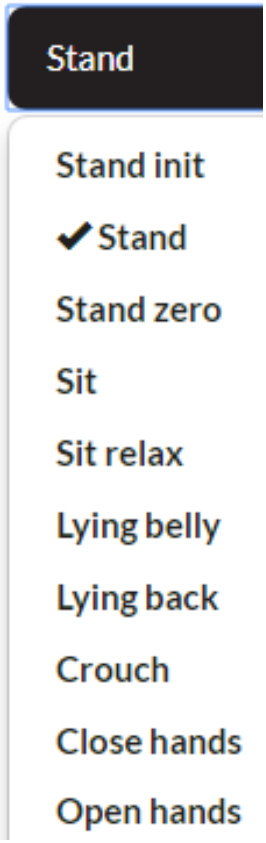
This block (dis)engages the motors of Zora.

	*After dragging this block from the menu to the timeline, the only available setting appears with 2 options:* - ***Rest*** *This setting will put Zora in a stable position ('crouch'-posture is used if Zora is standing) and turn the motors off.* - ***Wake up*** *This setting will turn the motors on [1].* *The icon of this block changes according to the selected setting.*	
	Wake up 	**Rest**

[1]: This option just turns the motor on, it does NOT put Zora in a standing position.

4.2.2 Postures

This block puts Zora in a certain posture. When using this block, make sure Zora has enough room to move around to the set position.

	*After dragging this block from the menu to the timeline, the only available setting appears with the following options:* - ***Stand*** *This setting will have Zora stand straight.* - ***Stand init*** *This setting will have Zora stand up, slightly hunched forwards.* - ***Stand zero*** *This setting will have Zora stand straight with the arms forward.* - ***Sit*** *This setting will have Zora sit down with the hands on the knees.* - ***Sit relax*** *This setting will have Zora sit down, leaning back on the arms.* - ***Lying belly*** *This setting will have Zora lie down on the belly.* - ***Lying back*** *This setting will have Zora lie down on the back, with one leg bent.* - ***Crouch*** *This setting will have Zora sit in a crouch-position.* - ***Close hands*** *This setting will have Zora close the hands.* - ***Open hands*** *This setting will have Zora open the hands.*

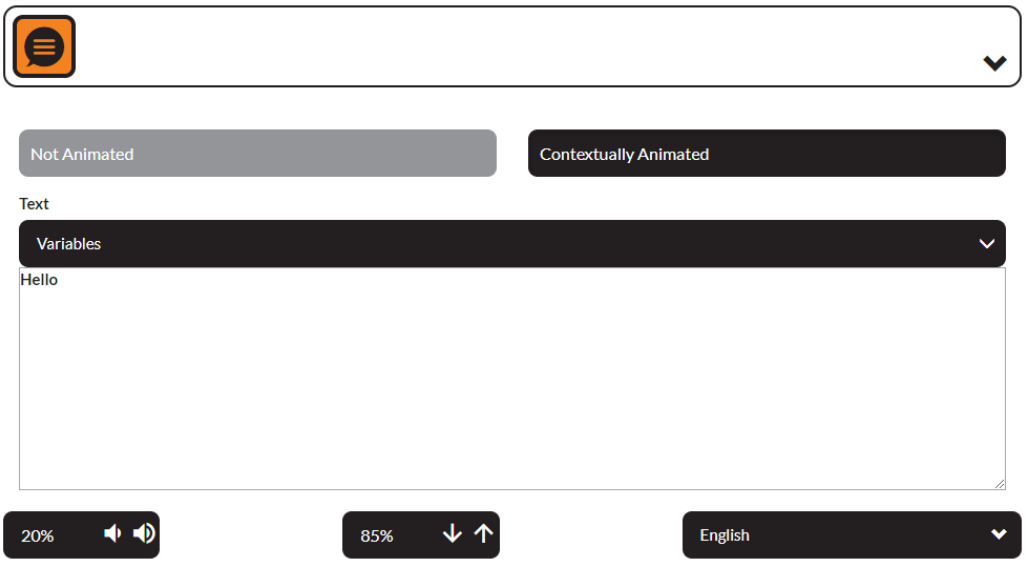
There are 4 *special* postures, that should only be used in special circumstances, specifically:

- **Prepare bench position**
  This posture has Zora lie down and wait for confirmation that the user has put Zora on the bench before continuing with the rest of the composition.
  To continue, the middle head sensor must be pushed.
- **Extract bench position**
  This posture has Zora release the motors when sitting on the bench. Once Zora has been untied from the bench and put on the ground, by pressing the middle head sensor Zora will transition to the 'sit'-posture.
- **Start stick exercises**
  This posture will have Zora put its arms in front and open the hands. Afterwards, by inserting the stick and pressing the **front** head sensor, Zora will close the hands and continue with the rest of the composition.
- **Stop stick exercises**
  This posture will have Zora put its arms in front with the stick. The user must hold the stick gently (just to keep it from falling) and press the **front** head sensor. Zora will then open the hands and go to the 'stand'-posture.

4.2.3 Speech

This block has Zora speak with or without gesticulations.

When dragging the block into the timeline, the following appears:



This block contains 3 categories of options:

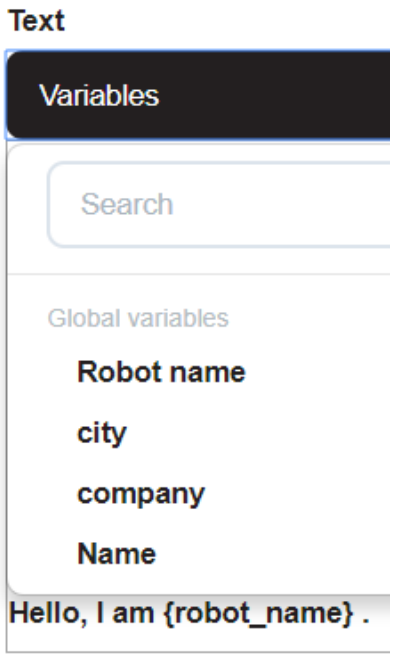
- ***Type of animation***

The selected type of animation is displayed in black.

Not Animated	*This option will have Zora stand still like a statue during the speech.*
Contextually Animated	*This option has Zora gesticulate during the speech.*

- ***Text to speak***

This element contains the text to be spoken. By clicking on the name of a variable from the dropdown list, it will be inserted into the text at the location of the cursor.

	*The text can be entered manually in the field, including the variables to be spoken aloud.* *It is also possible to enter it by clicking the desired value from the list. Pay attention though, as the variable will appear at the location of the cursor in the text-field.* *After importing the variable to the text field, normal typing can be resumed.* *If the option 'Contextually Animated' has been selected, the animations can also be added by using specific commands.* *For more information, see* ***Appendix 4 –Article VII. Using Animations in Text-fields****.*

- ***Output options***

These elements contain functions related to the output of the speech-module.

  - ***Volume settings***

The volume settings use the following symbols:

40%	*Current volume in percentages.*
	Decrease volume by 10% down to a minimum of 20%[1].
	Increase volume by 10% up to a maximum of 100%.

[1]: The minimum volume is set so it is always possible to hear Zora read out the IP address.

  - ***Speech speed***

The speech speed settings use the following symbols:

90%	*Current speech speed value in percentages.*
	Decrease speech speed by 5% down to a minimum of 50%.
	Increase speech speed by 5% up to a maximum of 150%.

Note: If Zora is not fully understandable when speaking, decrease the speech speed to better suit the text. The recommended setting to fully understand Zora's speech in English is about 80%.

Important: The settings for the volume and the speech speed can be altered ***during behaviors*** *or compositions to adjust the output of Zora's speech.*

  - ***Language***

The final setting contains the language to be used while speaking the text.

English Arabic Chinese Dutch Finnish German Japanese ✔ English French	*The default setting is the system language, but all the other languages installed on Zora are also available.*

4.2.4 Motion

	The motion-block in the menu contains a list of the possible motions, separated by category. By clicking this button in the menu, the list is shown or hidden. It is also possible to show this menu by hovering the mouse over it. However, without clicking the block the menu will be hidden if the mouse hovers outside the menu.

- ***Head***

	By dragging this block into the timeline, a grid is shown along with a view from the forehead camera of Zora.
	The grid represents the range of motion for the head from Zora's point of view. By dragging the eye from the centre-position of the grid to another position, the head of Zora will move to that position when this block is used in the timeline.

- ***Hand(s)***

	By dragging this block into the timeline, the hands of Zora will **open**, **close** or **stay** in their current position according to the setting that has been filled in.

- ***Arm(s)***

	By dragging this block into the timeline and selecting it, the arms of Zora can be moved. The arms have a lot more range of movement, therefore a lot more settings compared to the previous options.

This list contains the current positions the arms can take:

✔ Stay	*This option has Zora stay in the same position.*
Left side up	*This option has Zora move the left arm up.*
Right side up	*This option has Zora move the right arm up.*
Both sides up	*This option has Zora move both the left arm and right arms up.*
Left side down	*This option has Zora move the left arm down.*
Right side down	*This option has Zora move the right arm down.*
Both sides down	*This option has Zora move the both the left and right arms down.*
Left side wide horizontal	*This option has Zora move the left arm to the side of the body.*
Right side wide horizontal	*This option has Zora move the right arm to the side of the body.*

Note: If Zora already has the arms in the assigned position, the movement will just keep them there.

Both sides wide horizontal	*This option has Zora move both arms to the side of the body.*
Left side close horizontal	*This option has Zora move the left arm in front of the chest*[1].
Right side close horizontal	*This option has Zora move the right arm in front of the chest*[1].
Both sides close horizontal	*This option has Zora move both arms in front of the chest.*
Left side in front	*This option has Zora stretch the left arm in front of the body.*
Right side in front	*This option has Zora stretch the right arm in front of the body.*
Both sides in front	*This option has Zora stretch both arms in front of the body.*
Hands behind the head	*This option has Zora lift both arms on top of the head.*

[1]: Make sure not to use both at the same time, the hands will entangle.

Boxing with left arm	*This option has Zora move the left arm in a 90° angle to the torso at midriff-height*[2].
Boxing with right arm	*This option has Zora move the right arm in a 90° angle to the torso at midriff-height*[2].
Boxing with both arms	*This option has Zora move the left arm to the 'Boxing with left arm'-position and the right arm straight ahead.*
Waving hello with left arm	*This option has Zora wave hello with the left arm.*
Waving hello with right arm	*This option has Zora wave hello with the right arm.*

[2]: To have Zora actually box, the following combination is needed:
Boxing with left arm, left side in front, boxing with both arms.

- ***Legs***

	By dragging this block into the timeline, Zora's legs will move **if Zora is sitting down on the bench**.

This list contains the current positions the legs can take:

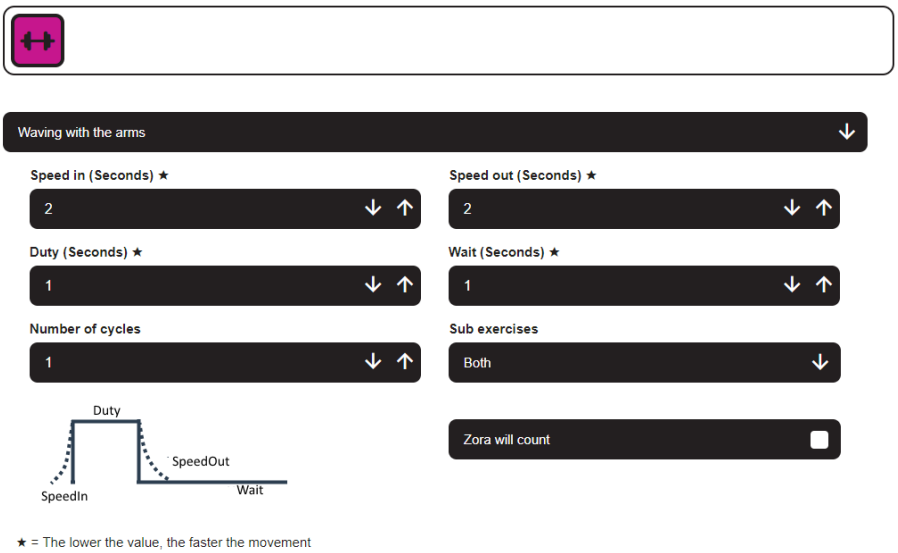
✔ Stay	*This option has Zora hold the legs in the same position.*
Left side up	*This option has Zora move the left leg up.*
Right side up	*This option has Zora move the right leg up.*
Both sides up	*This option has Zora move both legs up.*
Left side down	*This option has Zora move the left leg down.*
Right side down	*This option has Zora move the left leg down.*
Both sides down	*This option has Zora move both legs down.*

Note:

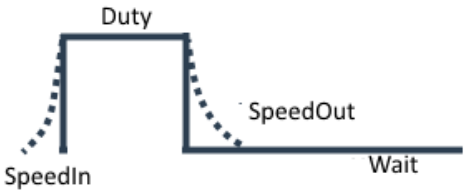
These motions of the legs are only available if Zora is sitting on the bench.

4.2.5 Gym

This block contains the data that emulates different types of exercises or sports. When dragging the block into the timeline, this appears:



These options are based on the following principle:



SpeedIn	*This is the time needed to move Zora from the previous position to the start-position of the main motion.*
Duty	*This is the time where the main motion is held in place.*
SpeedOut	*This is the time needed to move Zora from the main motion to the ending-position.*
Wait	*This is the time between repeats of the motions.*

Beside these 4 options, the following settings are also available:

Number of cycles	*The number of times the motion must be executed.*
Sub exercises	*Which part of the exercise Zora should do (i.e. only the left side).*
Zora will count	*Zora counts out loud the number of times the motion has been done.*

Important:

With each exercise, make sure Zora has enough **room** to move around to complete the motions.

When selecting the option for this block, a search field is provided to find the desired exercise quickly. The exercises are divided into several categories:

4.2.5.1 Miscellaneous exercises

- **Salute**

This option will have Zora perform a salute with the right hand.

- **High five**

This option will have Zora perform a high five with the right arm.

- **Clap and touch the knees**

This option has Zora lean to the left side a little, clap with the hands and touch the knees.

- **Open arm from the front to the side and back**

This option has Zora move the arms in front of the chest and move the selected arm to the front while Zora is moving the hips around.

Settings

Sub exercise	- ***Left*** *This option has the left arm move to the 'in front'-position.* - ***Right*** *This option has the left arm move to the 'in front'-position.*

- **Play the castagnettes**

This option will have Zora stand, turn the palms of the hands upwards and opens and closes the fingers.

Settings

Sub exercises	- ***Down*** *This option makes Zora pinch the air at waist-height.* - ***Up*** *This option makes Zora pinch the air above the head.*

- **Point to the side (upwards)**

This option will have Zora move both arms to one side slightly upwards and back to the middle again.

Settings

Sub exercises	- ***Left*** *This option makes Zora point to the left.* - ***Right*** *This option makes Zora point to the right.*

- **Point to the side (downwards)**

This option will have Zora move both arms to one side slightly downwards and back to the middle again.

Settings

Sub exercises	- ***Left*** *This option makes Zora point to the left.* - ***Right*** *This option makes Zora point to the right.*

- **To step**

This option will have Zora walk a number of steps or a certain distance (in meter) in a direction.

Settings

Steps/Meter	*This setting will choose between **steps** or **meters** to walk.*
Sub exercises	*This setting contains the directions in which Zora can walk (**Forwards, Backwards, to the Right or Left**).*
Distance (steps)	*The number of steps Zora will take or the distance Zora will walk.*

- **Waving hello**

This option has Zora wave hello.

Settings

Sub exercises	- ***Left*** *This option makes Zora wave with the left arm.* - ***Right*** *This option makes Zora wave with the right arm.*

- **To turn**

This option has Zora turn to the left (anti-clockwise) or to the right (clockwise).

Settings

Degrees (1-180°)	*The number of degrees Zora will move from the starting position.*
Sub exercises	- ***Left*** *Zora will turn anti-clockwise.* - ***Right*** *Zora will turn clockwise.*

- **Move the arm from the chest upwards to the side**

This option will have Zora move the arms in front of the body and move one arm to the side and up (think John Travolta in Saturday night fever).

Settings

Sub exercises	- ***Left*** *This option makes Zora move the left arm.* - ***Right*** *This option makes Zora move the right arm.*

- **Dab**

This option will have Zora dab.

- **Hold up a fist at shoulder height and slowly lower the arm.**

This option will have Zora lean to one side and move the arms up and down.

Settings

Sub exercises	- ***Left*** *This option makes Zora lean to the left and move the left arm.* - ***Right*** *This option makes Zora lean to the right and move the right arm.* - ***Left (mini)*** *This option makes Zora punch in a top left direction.* - ***Right (mini)*** *This option makes Zora punch in a top right direction.*

- **Shaking hands**

This option will have Zora give a handshake.

- **Russel movement**

This option will have Zora mimic the Russel-dance move.

- **Punching forward with the right hand**

This option will have Zora punch with the right arm.

- **Walking on the spot**

This option will make Zora march in place.

4.2.5.2 Exercises with the head

This category contains exercises where the movement emphasizes Zora's head.

- **Head going up and down with hands on the head**

This option makes Zora put the hands on top of the head and move both up and down.

- **Turning head from left to right**

This option makes Zora move the head from the middle to the left to the right to the middle.

- **Moving head**

This option has Zora move the head around in several possible directions.

Settings

Sub exercises	- ***Down*** *This option moves the head downwards.* - ***Upwards and downwards*** *This option moves the head down and up.* - ***Right*** *This option turns the head to the right.* - ***Up*** *This option moves the head upwards.* - ***Left*** *This option turns the head to the left.*

- **Touch head with arm(s)**

This option makes Zora touch the head with the arm(s).

Settings

Sub exercises	- ***Both sides*** *This option moves both arms.* - ***Right*** *This option moves the right arm.* - ***Left*** *This option moves the left arm.*

- **Rotating the head in a circle**

This option makes Zora move the head in a circular fashion.

4.2.5.3 Yoga-exercises

These exercises emulate some yoga-exercises.

- **Standing on one leg**

This option has Zora stand on one leg.

Settings

Sub exercises	*This option decides on which leg Zora will stand (**Left or Right**).*

- **Bridging**

This option will have Zora go to a '**lying on the back**' position and do a yoga-bridge.

- **Warrior-lunge**

This option will have Zora lunge forward with the arms spread wide.

Settings

Sub exercises	- ***Left*** *This option makes Zora put the left foot forwards.* - ***Right*** *This option makes Zora put the right foot forwards.*

4.2.5.4 Gym-exercises

This category contains motions that relate to gym-exercises.

- **Squat**

This option will have Zora do (half-)squats with(out) arms.

Settings

Sub exercises	- ***Half*** *This option makes Zora put the arms in front and does a half squat.* - ***Without arms*** *This option does a full squat exercise and keeps the arms to the side.* - ***With arms*** *This option does a full squat and moves the arms in front.*

- **Touch toes**

This option will have Zora bend down and touch the toes.

- **Flying**

This option has Zora make a 'flying' maneuver.

Settings

Sub exercises	*This option will select which leg starts at the back (**Left or Right**).*

- **Turn sideways and bend the knees**

This option will have Zora bend the knees, with the selected knee in front.

Settings

Sub exercises	*This option will select which leg is put in front (**left or right**).*

- **Push up**

This option will have Zora do some pushups. This will have Zora take the 'lying on the belly'-posture.

CAUTION: This exercise is quite taxing on the motors. Take care not to overheat them.

- **Stretching hamstrings**

This option will have Zora do the exercise of stretching the hamstrings. Careful: this will put Zora in the 'sitting'-posture if needed.

- **Touch the toes – with stretched arms and legs – while lying on the back**

This option will have Zora lie on the back and lift both arms and legs up until they touch.

- **Raise arms alternately while shaking the hips**

This option will have Zora move both arms up and down one after the other.

4.2.5.5 Exercises with the arms

This category contains motions that move the arms about.

- **Touch the opposite shoulder**

This option will have Zora use one arm to touch the opposite shoulder.

Settings

Sub exercise	*This option determines which arm will move (**Left OR Right**).*

- **Turn the arms around each other in front of the chest**

This option will have Zora move the arms in circles in front of the chest.

Settings

Sub exercise	*This option determines which arm will move (**Backwards or Forwards**).*

- **To turn the arms in circles in front of the body**

This option will have Zora move the arms in a circular fashion from the inside to the outside.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Turning the wrist(s)**

This exercise will move the wrist(s).

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **One arm lifted, and one arm stretched in front**

This option will put one arm in front and will lift the other arm straight up.

Settings

Sub exercise	- ***Left*** *This option puts the left arm straight to the front.* - ***Right*** *This option puts the right arm straight to the front.*

- **Lift the stretched arm(s) with the wrist(s) turned up**

This option will move Zora's arm(s) in front with the wrists up and move them up.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Lift the stretched arm(s) sideways up at shoulder height**

This option will have Zora move the arm(s) up sideways until shoulder-height.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Lift the arm(s) sideways up above the head**

This exercise will have Zora move the arm(s) up sideways until they are straight up.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Moving with the arms**

This option will have Zora move both the arms up and down.

Settings

Sub exercise	- ***High-middle*** *This option moves the arms from the chest upwards.* - ***High-middle-low*** *This option moves the arms from the toes to straight up.* - ***Low-middle*** *This option moves the arms from the toes to the chest.*

- **Finger movements**

This option will have Zora open and close the fingers of the hand(s).

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Cycle with the arms**

This option will have Zora move the arms like riding a bicycle.

Settings

Sub exercise	*This option determines in which direction the arms will turn (**Backwards or Forwards**).*

- **Waving with the arm(s)**

This option will have Zora move the arms up and (halfway) to the side.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Arm(s) up**

This option will have Zora move the arm(s) straight up and back down again.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Folding the arm(s) in front of the chest**

This option will have Zora move the arm(s) to the front of the chest, and open and close them.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Arms open horizontally - straight**

This option will have Zora open the arm(s) from in the chest to the side.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Movements with both arms**

This option will have Zora move the arms according to the setting.

Settings

Sub exercise	- ***Above head*** *This option will move Zora's arms in front of the chest and straight up.* - ***Touch the ears*** *This option will move Zora's arms in front of the chest and up to the ears.*

- **Arms open horizontally - bent**

This option will have Zora bend the arms in front of the body (like a boxing guard) and then open them to the side.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

4.2.5.6 Sport exercises

This category contains emulations of various sports. These do not have various settings like which arm to use, only these 3:

Number of cycles	*The number of times the motion will be repeated.*
Wait	*The time between the motions.*
Zora will count	*Zora will count out loud the number of times the motion has been done.*

There are 2 exceptions to this: boxing and kickbox.

The following list contains all behaviors in the category that don't have Settings

Basketball	**Tennis**	**Ski**	**Volley-ball**
Football	**Billiards**	**Weightlifting**	**Darts**
Baseball	**Skeet shooting**	**Fishing**	**Archery**
Rugby	**Rowing**	**Car racing**	**Bowling**
Icehockey	**Swimming**	**Golf**	**Bodybuilding**
Horseback riding			

- **Boxing**

This option will have Zora box with the arm(s).

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Kickbox**

This option will have Zora kickbox with the feet or the arms.

Settings

Sub exercise	*This option determines which type exercise will be shown. (**Kicks OR Punches**).*

4.2.5.7 Exercise on a bench

This category contains exercises for which Zora will have to be put on the bench.

- **Lift the hands in front of the shoulders and open and close the hands**

This option will have Zora move the arms up and open and close the hands while keeping the elbows close to the body.

- **Lift the arms up and tap the shoulders**

This option will have Zora move the arms over the shoulders.

- **Stretch the legs and spread them**

This option will have Zora stretch the legs and open and close them.

- **Rowing**

This option will have Zora emulate rowing.

- **Turn the feet inwards**

This option will have Zora move the ankle sideways.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Tap the opposite knee with the arm and lift it**

This option will have Zora move the hand from the opposite knee to a straight-up position.

- **Arm and opposite leg up**

This option will have Zora move the hand from the opposite knee to a straight-up position.

Settings

Sub exercise	*This option determines which **arm** will move (**Left OR Right**).*

- **Move the feet sideways one at a time**

This option will move Zora's legs to the side from right to left.

- **Knee(s) up**

This option will have Zora move the knee(s) up.

Settings

Sub exercise	*This option determines which knee will move (**Left AND/OR Right**).*

CAUTION:
When doing this exercise **with both legs**, make sure Zora is tightly secured on the bench, otherwise Zora will slide forward.

- **Turn the ankles up while keeping the heels on the ground**

This option will have Zora stretch the leg(s) and move the ankle(s) up and down.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

- **Turn the feet circularly**

This option will have Zora stretch the leg(s) and move the ankle(s) in a circular fashion.

Settings

Sub exercise	*This option determines which ankle will move (**Left AND/OR Right**).*

- **Lift the knees up and stretch the legs**

This option will have Zora bend the knees and stretch the legs up.

- **Boxing**

This option will have Zora put up a boxing guard and punch out with the left and right arm.

- **Leg(s) up**

This option will have Zora move the leg(s) up.

Settings

Sub exercise	*This option determines which arm will move (**Left AND/OR Right**).*

4.2.5.8 Dance exercises

This category contains the dance routines of the dance behaviors, split into sub-exercises. These exercises do not contain any music whatsoever.

- **Jingel Bells**

This dance has the following routines:

- Waving and waving a bell
- Banging with your hands
- Boxing and calling steps
- Waving the bell
- Waving the hands
- Christmas Steps

- **Papaoutai**

This dance has the following routines:

- Close fingers
- Bigger gestures
- Slap the table

- **Get Lucky**

This dance has the following routines:

- Shake
- Walk
- Punch to the side
- Salute
- Lateral Thrust

- **Moef**

This dance has the following routines:

- Party cheer
- Thrust in the air
- Ice skating
- Fly

- **Elle me dit**

This dance has the following routines:

- Turn arms in circle
- Shout hey
- Shake the hips
- Punch down
- Walk
- Turn circle arm

- **Chicken dance**

This dance has the following routines:

- Turn around

- **If your happy**

This dance has the following routines:

- Touching the nose
- Clapping hands
- Stretching the arms
- Stamping on the ground
- Touching the head
- Pointing to the feet
- Turn around
- Waving the hips

- **Hockey Pockey**

This dance has the following routines:

- Refrain
- Body In
- Left arm in
- Right leg in
- Right arm in
- Left leg in

- **Sinterklaas**

This dance has the following routines:

- Pushing with the hands
- Welcome
- Touch cheerleader
- Waving with hips
- Hello Hits
- Looking at there
- Waving and swinging

- **Special feeling**

This dance has the following routines:

- Point to the eye
- Applause
- Hot and cold
- Move both arms in an ark
- Bend the knees
- Throbbing heart
- Swing the hands left and right

- **Que Sera Sera**

This dance has the following routines:

- Cheer
- Swing
- Swing upwards
- Scatter
- Swing more

- **Head shoulders knees and toes**

This dance has the following routines:

- Wave breaking
- Nod
- Touch ear, eye and nose

- **La java bleue**

This dance has the following routines:

- Circle arms
- Open the arms
- Clap the knees
- Push down
- Punch to the side
- Circle the arms

- **El mismo sol**

This dance has the following routines:

- Punch downwards
- Pinch air
- Rope climbing
- El toro
- Clap the hands

- **Alors on danse**

This dance has the following routines:

- I donth now move
- Chicken wings move
- Swing the head
- Move the fists upwards
- Shake the arms up and down in front
- Move both arms in an ark

- **10000 balloons**

This dance has the following routines:

- Rainbow wave
- Gift to a general
- Air balloons
- Swing to the side
- Swing up and down
- Hop and bend the knee

- **Miracle**

This dance has the following routines:

- Point to someone
- You are a miracle refrain
- Shake the hips
- Push yourself out

- **Plop the Gnome dance**

This dance has the following routines:

- Plop dance
- Knee bounce
- Playing the flute
- Invitation to dance

- **Diana**

This dance has the following routines:

- Shake the shoulders
- Shake
- Shake the hands

- **Let it go**

This dance has the following routines:

- Hide face
- Up-down
- Scatter snow upwards
- Scatter snow around

- **Gangnam Style**

This dance has the following routines:

- Gangnam move
- Gangnam move dubstep

- **My sea captain Lucy Loes**

This dance has the following routines:

- Grab
- Salute
- To the side
- Shuffle your feet

- **Long Live Spain**

This dance has the following routines:

- Arms crossed and nodding
- Eviva move
- Shake the hips

- **Ghostriders**

This dance has the following routines:

- Horsebackriding
- Guitar
- Draw guns
- Lasso

- **Macarena**

This dance has the following routines:

- Wiggle the arms
- Macarena move
- Bend the knees

- **Airplane**

This dance has the following routines:

- Flying all around
- Safety instructions
- Taking off

4.2.5.9 Movements with a stick

This category contains the exercises that can be done with a stick. Before using these blocks, make sure the appropriate Postures have been used earlier in the timeline.

- **Lift the stick**

This exercise will have Zora lift the stick up and down.

Settings

Sub exercise	*Lift the stick above the head (**Fully**) or up to shoulder-height (**Half**).*

- **Lateral movements with the stick**

This option moves the stick to the left and right. This exercise can also be done while Zora is sitting on the bench.

- **Push and pull the stick**

This option will move the stick backwards and forwards at shoulder-height.

4.2.5.10 Exercises with the legs

This category contains exercises with the legs while Zora is standing.

- **Put leg(s) in front**

This option makes Zora put a leg in front.

Settings

Sub exercise	*This option determines which arm will move (**Left OR Right**).*

- **Put leg(s) in back**

This option makes Zora stand and move a leg to the back.

Settings

Sub exercise	*This option determines which arm will move (**Left OR Right**).*

- **Put leg on the side**

This option makes Zora move a leg to the side.

Settings

Sub exercise	*This option determines which arm will move (**Left OR Right**).*

4.2.6 Natural

	These blocks contain movements that emulate human traits (e.g. breathing and blinking the eyes. Each block has the following settings: • **Enable** • **Disable** These settings are best used when Zora is resting for a while, speaking aloud a long text or is idling.

- **Blink Eyes**

	By dragging this block into the timeline, Zora will start or stop blinking the eyes.

- **Follow head**

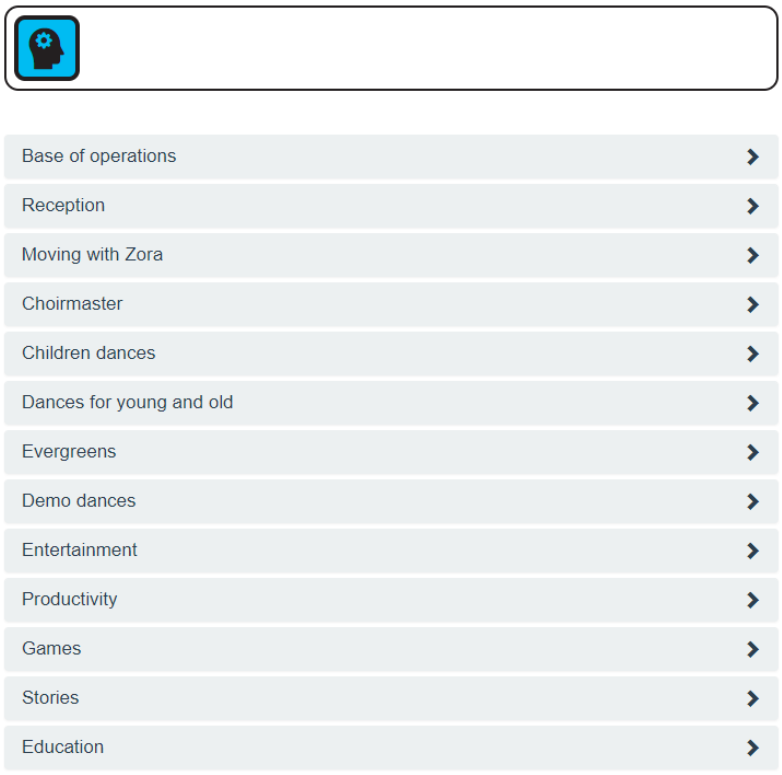
	By dragging this block into the timeline, Zora will start or stop following a human face if one has been detected.

- **Breathing**

	By dragging this block into the timeline, Zora will start or stop moving around a little.

Note: It is recommended to enable the 'Breathing'-mode whenever the robot could to remain idle for quite some time (e.g. during the 'Wait'-block-family).

4.2.7 Behaviors



This block shows all the available behaviors that can be used in the composer. For more information about the behaviors and the behavior-categories, see the manual.

Notes:

- This block contains a lot of data and may cause the integrity-check to take some time when loading the composition.
- The dance-behaviors stop automatically and can be safely used in a composition Keep in mind to use the 'bench'-position when using the dances in the 'choirmaster'-category.
- Keep in mind that some behaviors do not stop automatically. If these blocks are used in the composition, the composition may not only not continue, but the composition may not be stopped. Use these behaviors with caution.
- Keep in mind to use the 'bench'-position when using the dances in the 'choirmaster'-category.

4.2.8 Wait

These blocks were designed to provide interaction with the user.

By clicking the main wait-button (with the black triangle in the bottom right corner), the list of available options is shown. To close this sub-menu, the main wait-button must be clicked again.

By having the robot listen to commands, or wait for some time to pass, Zora can interact with the user before continuing with the composition.

Note: If simple decisions need to be made based on the input (such as deciding if the answer was correct), the input-blocks of the advanced composer are needed.

- **Wait for a period of time**

This block has Zora wait for a specific period of time (between 0 and 3600 seconds). If the robot needs to wait for a long time, activating 'Breathing' is recommended to something keep the motors from overheating.

- **Settings:**

Time (seconds)	The time Zora must remain idle.

- **Wait until a specific time**

This block has Zora wait until a specific time (e.g. 2 PM).

Warning: The set time is based on the time of the robot. To check the current time, the 'About'-page of the General Settings can be used.

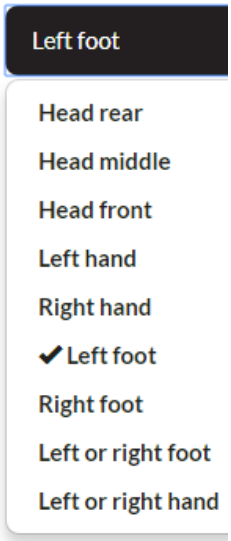
- **Settings:**

Format	This option selects the hour-format (**12/24 hours**)
Hours	The hours of the time when the robot must resume with playing the composition.
Minutes	The minutes of the time when the robot must resume with playing the composition.
AM/PM	If the 12 hour-format has been selected, this box is shown to set the option for AM/PM.

- **Wait for sensor**

This block has Zora wait until a specific sensor is pushed.

- **Settings**:



When selecting this drop-down list, all possible sensors are shown.

The selected sensor is shown at the top of the list and is indicated with a ✔-icon in the list.

It is possible to select a foot or a hand with the last options.

- **Wait for QR-code**

<table>
<tr><td></td><td>This option pauses the composition until a specific QR-code has been shown.

Warning: This code is case-sensitive (meaning a capital letter must be entered as a capital letter, spaces must be spaces and so on and so forth).

- **Settings:**
<table><tr><td>**QR code**</td><td>The QR-code that must be matched for the composition to continue.</td></tr><tr><td>**How many retries**</td><td>The number of times a wrong QR-code can be scanned before the composition will continue.</td></tr></table></td></tr>
</table>

- **Wait for speech-recognition**

<table>
<tr><td></td><td>This option pauses the composition until a specific word has been recognized. This word must be recognizable in the set system-language.

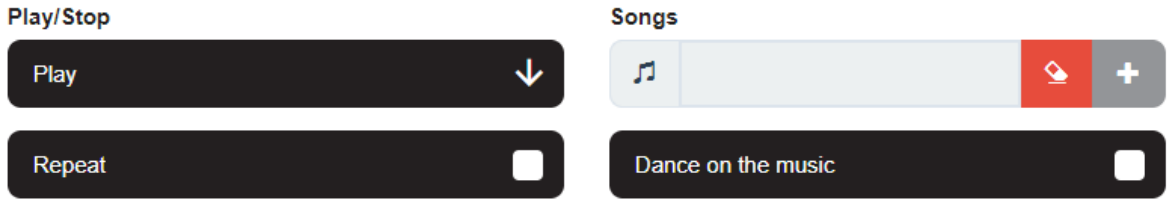
- **Settings:**
<table><tr><td>**Word**</td><td>The word the user must speak</td></tr><tr><td>**How many retries**</td><td>The number of times a wrong entry can be spoken before the composition will continue.</td></tr></table></td></tr>
</table>

- **Wait for face recognition**

<table>
<tr><td></td><td>This option pauses the composition until a human face has been detected by the front head camera.</td></tr>
</table>

4.2.9 Music

After dragging this block to the timeline, the following options are available:



Play | **Stop** [1] Play | Stop	• ***Play*** *This option starts a **new** song [2].* • ***Stop*** *This option will stop the playing songs.*
Songs Relax1.mp3 Song lasts: 00:06:17 If a song has been selected, the duration of the song is shown below this field.	*This field contains the selected song. By clicking the button, a new song can be selected **if** the field is empty.* *When selecting a song, you can choose from:* • ***Imported songs*** *This list contains earlier imported files from other compositions.* • ***Zorabots files*** *This list contains the default files supplied by Zorabots.* • ***Upload*** *This option opens a popup to select a file from the connected device.*
Repeat	*If checked, the song will be repeated until the next music block is found in the timeline or until the end of the composition.*
Dance on the music	*If checked, Zora will dance (randomly) while the music is playing.* *Note: if an animated speech block or any other block that has movement in it is detected in the timeline, Zora will **stop** dancing.*

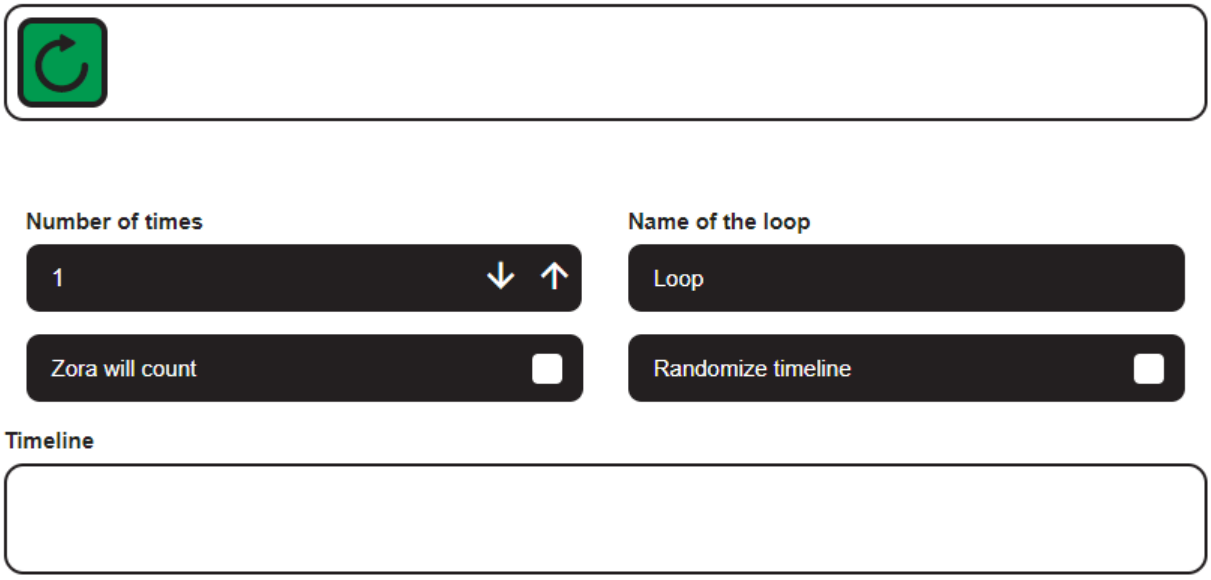
[1]: If this option is selected, the other options are unavailable.
[2]: The previously playing song will be stopped, and a new song will start (even if it is the same song).

***Note**: There must always be a 'Stop'-music-block in a composition if the 'play'-music-block is present in the composition.*

4.2.10 Loop

This block is only available in the simple composer, in the advanced composer, this has been replaced by a different function-block. The reason for this is simple, specifically it is not possible to create a new timeline in the work field.

After dragging this block from the menu to the timeline, the following options become available:



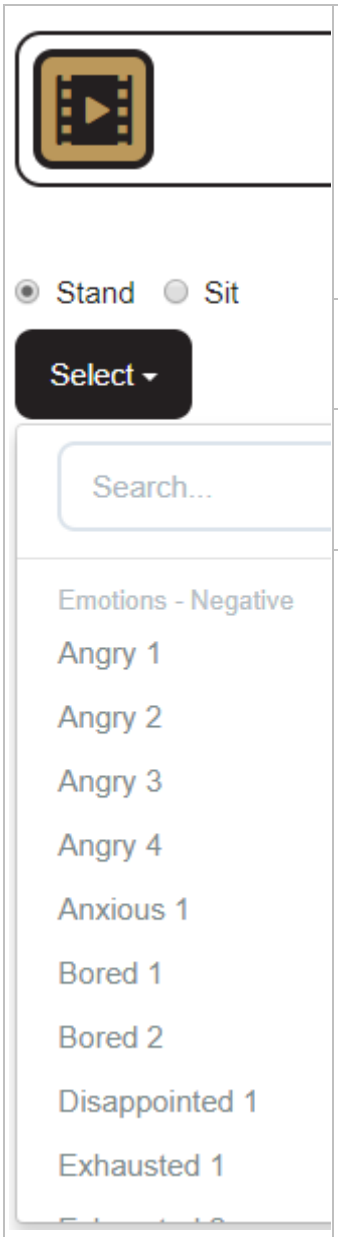
A second timeline that can be repeated and randomized appears. This timeline cannot run concurrent to the primary timeline. This block was designed to execute a number of blocks multiple times (in a random order).

Notes:

1. *It is not possible to drag a music-, rest/wakeup-, natural-, loop- or composer-block into a loop-block.*
2. *It is not possible to drag items to the primary timeline from the loop-timeline (or vice versa). The block(s) will be removed from the composition instead*
3. *The option 'Randomize timeline' should ONLY be used in a loop with Gym- and Behavior-blocks (specifically dances).*

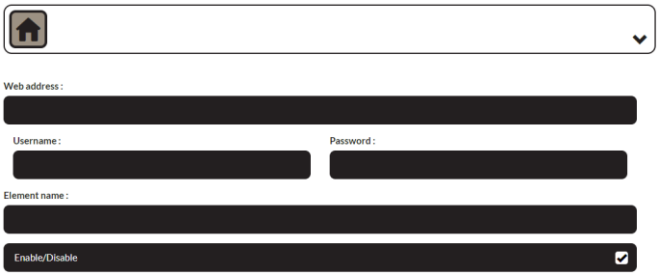
4.2.11 Animations

When this block is dragged into the timeline, the following options appear:

	The animations are split into 2 categories depending on the starting-position: • **Stand** • **Sit**
	By selecting the dropdown list, all the possible animations for the selected category are shown in the list.
	A search-field is available to save time on scrolling the entire list.
	All the emotions used in this block are shown in this list. By scrolling through the different categories, the desired animation can be selected.

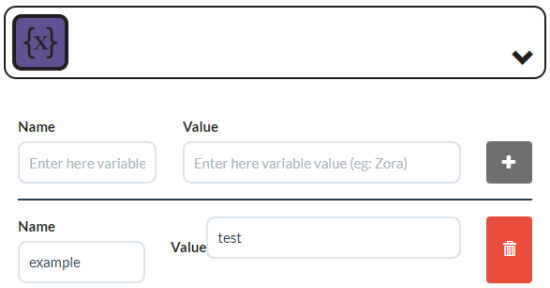
4.2.12 Bezonia

When this block is dragged into the timeline, the following options appear:

	This block is used to enable/disable elements available on a webserver. This block should only be used by certified personnel.

4.2.13 Variables

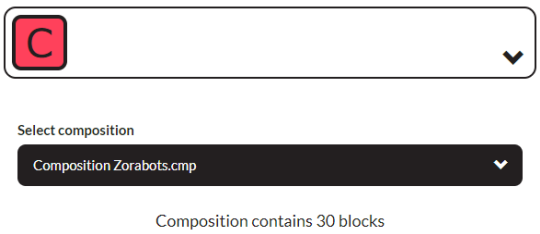
When this block is dragged into the timeline, the following options appear:

	By entering the **name** and the **value** for a variable and clicking on the ✚-icon, the variable is added to the list of variables. To delete a variable from the list, select the 🗑-icon next to the name. **IMPORTANT:** The name of the variable can only contain the character a-Z and the number 0-9. (e.g. Example02orsomething).

Note: Only numerical values should be used for variables that will be used in the 'mathematical operations'-block in the advanced composer.

4.2.14 Composer-in-Composer

When this block is dragged into the timeline, the following options appear:

	To select the composition to be used, the dropdown-list contains the compositions in the system-language on the robot. Below the selected composition, the number of blocks to be used will be shown. *Note*: It is not possible to manually enter the name of a composition that must be made.

Warning: Do not have the block select the composition it is used in, otherwise this creates an endless loop.

4.3 Creating a simple composition

By dragging a block from the menu to the timeline, a composition is created. A possible configuration for a composition would be:

4.3.1 Tips and tricks

The following tips should help make a stable composition:

- Always start the composition with a **Wake Up-**block and a default posture

	This combination makes sure Zora stands up, even if an old robot (with a slightly worn battery) is used

- If a **music**-block is used in the composition, make sure a **stop-music**-block is also in the composition.
  Also, time the composition to match the duration of the song(s) by using **Wait**-blocks

	If the stop-music-block is not detected, when playing the composition again, the music may not start.

- Keep the amount of **gym**- and **behavior**-blocks to a minimum of five per composition

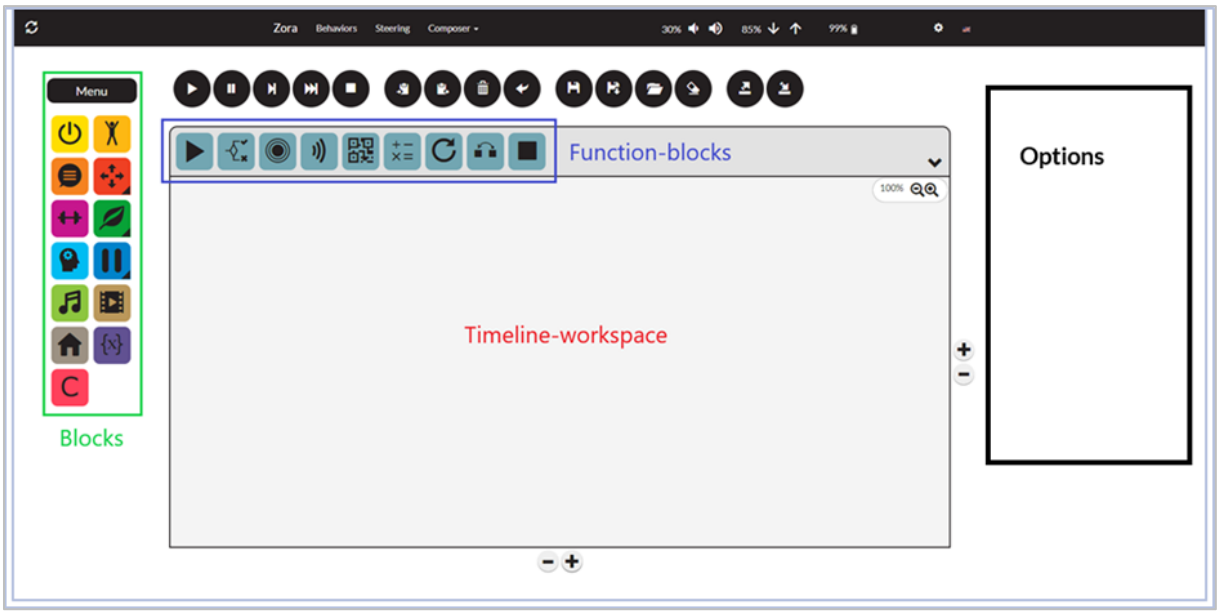
	These blocks contain a lot of data and may slow the loading-process of the composition

- Uncheck the 'Random movements'-option on a **music**-block IF this music block is followed by a **Gym**-block. This option may clash with the start of the exercise.
- Always add a **Stop-music**-block before a **behavior**-block
- Animation-block has 2 Settings **standing** or **sitting**, so make sure Zora can safely transition to these postures when using the specified animation-block.
- When using a **Loop**-block, use the 'Randomize timeline' ONLY when the loop contains just **gym**-blocks or **behavior**-blocks with dances in.

5 Advanced Composer

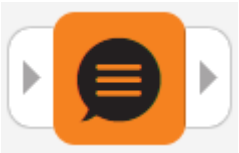
Besides the simple composer, an advanced composer is also included in this version of Zora. The advanced composer allows for a timeline to be split in branches. To accommodate this feature, the timeline is no longer linear, but must be made manually by connecting blocks together.

When selecting this option from the menu, the following screen is shown:



Most of the blocks and function-buttons from the simple composer are still present (loop has been removed). However, the timeline has been upgraded from a line to a workspace and a few new function-blocks are present as well. The blocks have a slightly changed took, specifically an 'Input Connector' and a 'Output connector' has been added to the blocks to create the timeline(s).

For example, the 'Speech'-block:

Simple Composer	**Advanced Composer**
	

(The black edge around the block indicates the block has been selected).

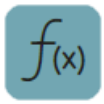
To maximize the timeline-workspace, the options for a block will now be displayed to the *right of the timeline*.

In case the number of blocks is too big for the timeline field, it can be expanded or shortened by using the + / − buttons at the side of the screen. The +-button on the right expands the field to the right, and the + on the bottom expands it to the button.

The Zoom-function ( ) should only be used to show the general outline of the composition, and not be used when moving blocks from the menu to the timeline.

5.1 Advanced Blocks

Above the timeline-workspace, the new function-blocks are shown.

	Start Composition This block will show where the timeline of the composition begins.
	If/Else Block By using variables, this block can separate the current timeline into separate branches. E.g.: if a specific sensor is (not) pushed, path 1 will be taken, else path 2.
	Wait for input via a sensor This block works the same as the Wait for sensor option in the simple composer, but the inputted value can be used in the If/Else block.
	Wait for input via speech recognition [1] This block works the same as the Wait for speech-recognition option in the simple composer, but the inputted value can be used in the If/Else- and speech-blocks.
	Wait for input via a QR code [1] This block works the same as the Wait for speech-recognition option in the simple composer, but the inputted value can be used in the If/Else- and speech-blocks.
	Mathematical Operations This block allows for mathematical formulas to be used on new or existing variables, including randomly generating a number between 2 values.
	**Math formula** This block allows for a variable to be defined by a mathematical formula of other variables (e.g. o = l*2 + b*2).
	Loop This block has replaced the loop-block and is based on the for- and while-loops of programming.
	Go to This block is used to exit a loop and to go to a designated block.
	Stop composition This block marks the end of a **branch of the timeline**.

[1]: Due to the way Zora is built, the value to be recognised must first be inputted manually in the block. Make sure some other values are in the list of possible words as well, in case a wrong answer is given.

5.2 Settings

This chapter will detail the possible settings for the new blocks:

5.2.1 Start Composition

When dragging this block to the timeline-workspace, the following appears:

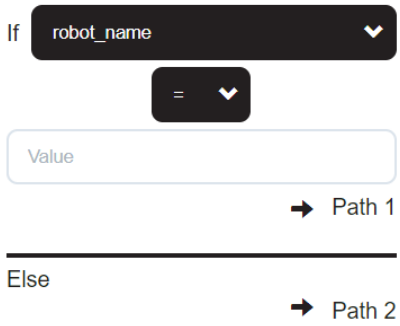
	This button has no settings and is used solely to indicate the start of the timeline. This block does not contain a 'Previous Element'-component, as there is no need for it.

5.2.2 If/Else

When dragging this block to the timeline-workspace, the following appears:

	As is shown from the image, the If/Else block can branch a timeline. To branch the timeline, a question must be formulated in the block. Using the principle of the If/Else statement from programming languages, an equation must be met to take path 1, otherwise path 2 will be taken.

The following options are available for this block:

	To make the equation, the following fields are available: • **Variable** [1] • **Operator** [2] • **Value** [3] A few examples of possible combinations are: • If robot_name = 'Zora' • If sensor ≠ 'Head front' • If speech = 'OK'

[1]: The list of variables is dynamically generated and includes all the prior options from the advanced blocks in the timeline.

[2]: Depending on the type of variable selected, the possible operator will vary (e.g. if a sensor is selected, = and ≠ are the options, when a pre-defined variable is selected, other operators can also be used like: ≤,<,> and ≥.

[3]: Depending on the type of variable used, the value can be inputted as a text-string or as an option from a list. The selected option will be marked with a ✔-symbol.

5.2.3 Wait for Sensor (advanced)

When dragging this block to the timeline-field, the following appears:

	This block has Zora wait for input by pushing a sensor, and the selected sensor can be used in the following If/Else-blocks.

To prevent confusion if multiple 'sensor'-blocks are used, each block can be given a name.

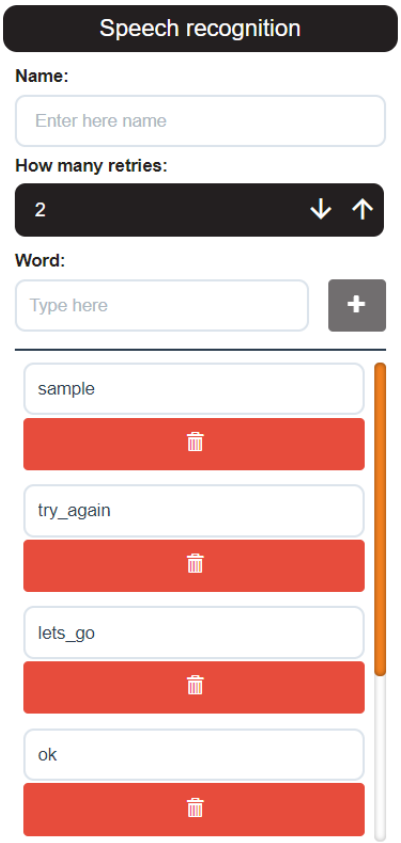
5.2.4 Wait for speech-recognition

When dragging this block to the timeline-workspace, the following appears:

	This block has Zora wait for input by microphone. As stated before, the words to be recognised must be entered manually into a list [1].

[1]: Only one of the items in the list can be used in the if/else statement.

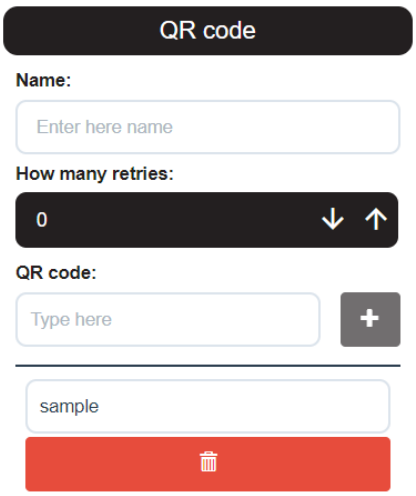
The following options are available for this block:

	The first option allows the block to have a name, to prevent confusion is the next If/Else-block.
	Due to many different accents and pronunciations, a few tries may be needed to speak the correct word. This field indicates how many times an answer should be listened to before continuing with the composition.
	The list of words Zora will listen to, must be made manually. To add words to the list, type the term in the 'Word'-field and click the ➕-button. To remove a word from the list, the 🗑-icon **below** the word must be clicked.

5.2.5 Wait for QR code

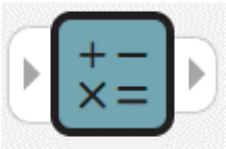
When dragging this block to the timeline-field, the following appears:

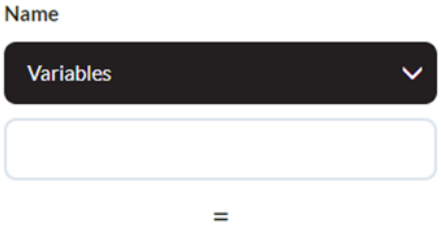
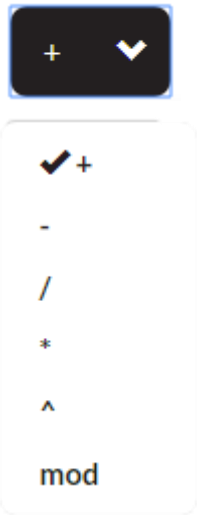
	This block has Zora wait until a QR-code has been scanned. Like the 'Wait for speech-recognition'-block, the possible options to listen to have to be entered into the list of known answers.

	The first option allows the block to have a name, to prevent confusion is the next If/Else-block.
	The number of retries for this setting can be adjusted to 0 if needed and increased if more explanation is needed about why the answer was wrong.
	Like with the speech-recognition, to add a new QR code to be recognised, fill in the provided field and click the ➕-button. To remove a QR code from the list, the 🗑-icon **below** the word must be clicked. Make sure the terms in the list do not contain special characters such as é,ç,è,etc.

5.2.6 Math

When dragging this block to the timeline-field, the following appears:

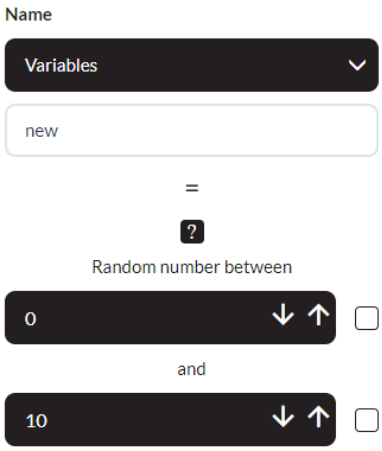
	This block can perform basic mathematical operations on known variables or can be used to create a new variable that can be used throughout the rest of the composition.

	This field contains the **name of the variable** to which the resulting value will be assigned. By clicking the option 'Variables', a list of known variables [1] will be shown along with a search-field.
The button ? can be selected to generate a random number between 2 values. The minimum and maximum-values can then be entered in the 2 fields below.	
	If the box to the right of **a value-field** is coloured black, the value of a known variable must be used from the drop-down list. If the box to the right of **a value-field** is coloured white, a numerical value must be entered. By clicking the box to the right, the 2 types can be switched.
	The mathematical operator determines the type of operation to be used on the 2 values. The possible options are: - **Add** - **Subtract** - **Divide** - **Multiply** - **Exponentiation** - **Modular arithmetic**

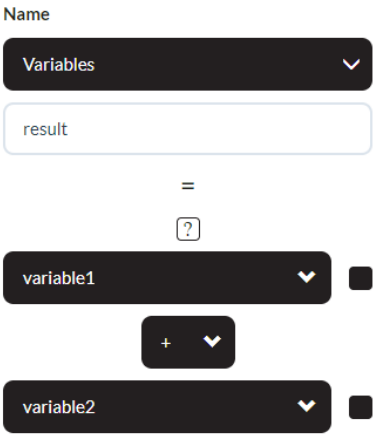
[1]: The variable-blocks must be made and connected PRIOR to this block.

Examples of Mathematical operations:

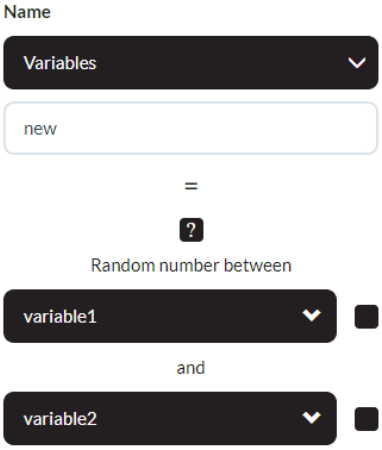
- **Generating a new variable containing a random number between 0 and 10.**



- **Modifying a known variable as the sum of two other variables.**

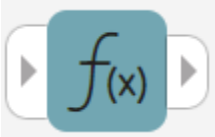


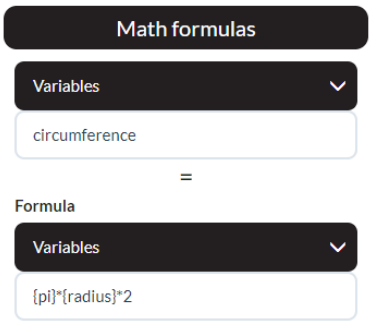
- **Defining a new variable as a random number between two known variables.**



5.2.7 Mathematical operations

WARNING: This field implies functionality that only advanced users may use. ZoraBots takes no responsibility if the entered formula causes a system crash. **Use at your own risk.**

	This block can be used to perform more advanced mathematical procedures on numerical variables. **Note:** All the variables used in the formula **must be created** before being used by the block.

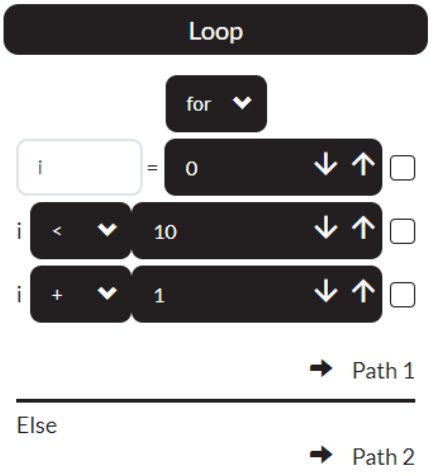
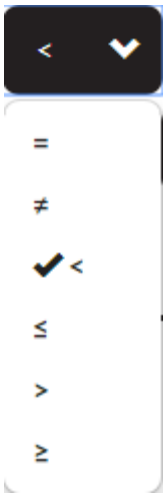
	The block assigns a value [1] to a variable (which can be selected from the list) based upon a formula. The formula must be entered manually, and the variables may be chosen from the dropdown-list in the block or entered manually. The formula's and operators that can be used by this block can be found here: https://www.tutorialspoint.com/python/python_basic_operators.htm in the chapter 'Arithmetic Operators'. **Note:** To use a variable into the formula, the brackets {} must be used when entering the value manually.

[1]: The resulted value is only calculated until 10 decimal places.

5.2.8 Loop

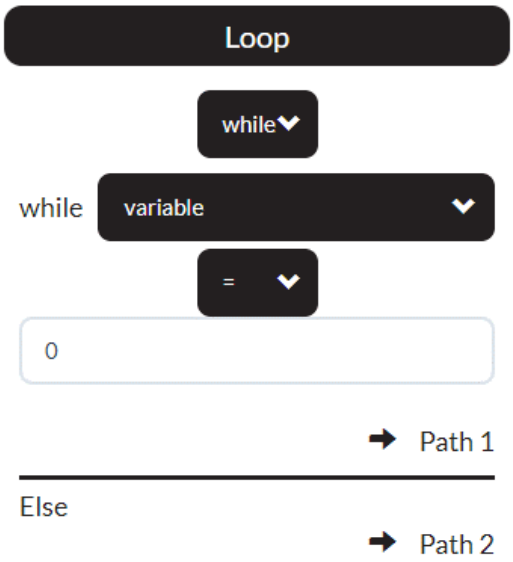
	This block is used to repeat the blocks connected to the output-connector 1 using a for- or while-loop. For more information on for- and while-loops, see the following website: https://en.wikipedia.org/wiki/For_loop and https://en.wikipedia.org/wiki/While_loop

- **For-loop**

	Like with the mathematical operations-block, it is possible to use both numerical values and variables. If the box to the right of a value-field is coloured black, the value of a known variable must be used from the drop-down list. If the box to the right of a value-field is coloured white, a numerical value must be entered. It is possible to enter the value directly into the text-field or to use the arrows up or down to increase or decrease the value by one. There are 3 statements for a for-loop, specifically: - Initial value of the variable <variable> = <start-value> - Conditional value of the variable <variable> = value? If so, path 1 will be taken, otherwise the loop will be stopped and path 2 will be taken. - Operational change to the variable <variable> increase/decrease after each loop
Operators for the conditional value 	Operators for the operational change to the value

Note: If the variable entered in the loop is used outside the loop, the value is the last known value assigned to it.

- **While-loop**

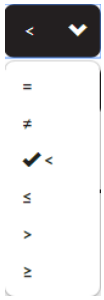


In comparison to the for-loop, the while-loop is much easier to understand.

The only parameter here is the conditional value, and as long as it is met, Path 1 will be taken.

Otherwise, the loop will be broken, and Path 2 will be taken.

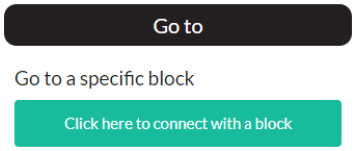
Operators for the conditional value



Note: If the variable entered in the loop is used outside the loop, the value is the last known value assigned to it.

5.2.9 Go To

This block is used to exit from a loop if certain conditions are met or to go to a block that is already connected in the timeline.



By clicking on the option 'Click here to connect with a block', any block in the timeline can be selected, from where the timeline will continue.

Unlike the normal connection, this connection is shown in a green dashed line.

5.2.10 Stop Composition

When dragging this block to the timeline-field, the following appears:

This block has Zora stop the current behavior and restart the current composition if needed.

Every branch of the advanced composition needs to have a Stop-block at the end.

5.3 Creating an advanced composition

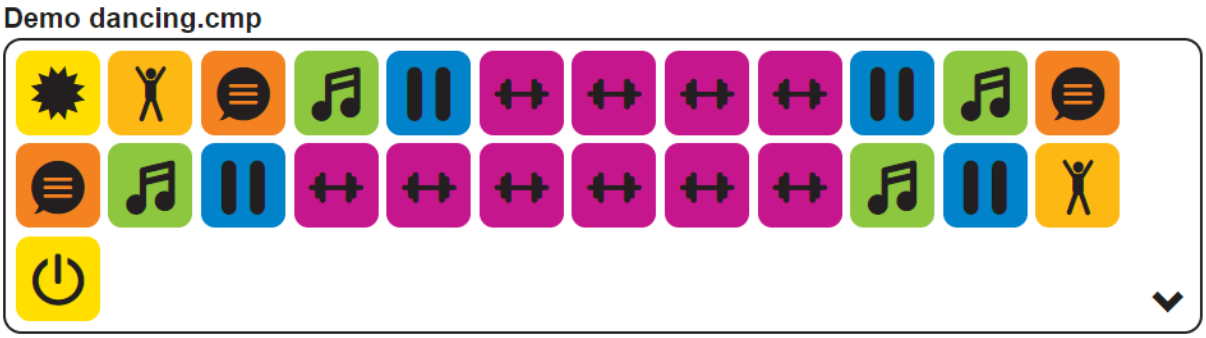
To create an advanced composition, there are 2 possibilities:

- Converting a simple composition
- Creating an advanced composition from scratch.

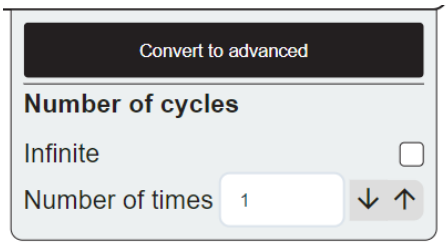
5.3.1 Converting a simple composition

The following composition is to be used as an example, and available as a default composition.

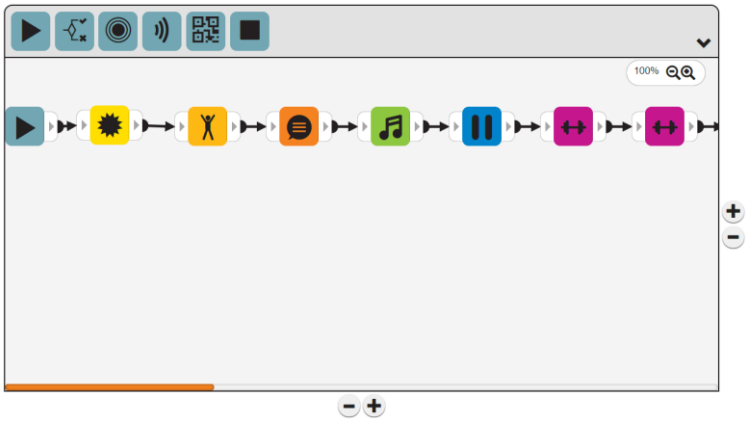
After loading the 'Demo dancing.cmp' in the simple composer, the following timeline will appear:



By hovering the mouse on the 'arrow down'-icon in the bottom right of the timeline, the following options appear below the timeline:

	By clicking the 'Convert to advanced'-button, the timeline will be converted to an advanced composition IF there is no composition in the advanced composer at the time. Otherwise, permission will be asked to overwrite the existing advanced composition.

Once the conversion is completed, the advanced composition page will be shown, and the composition will be loaded in the timeline in the new format. The example looks like this:



Warning: The current 'Simple' Composition will be **cleared** from the simple composer.

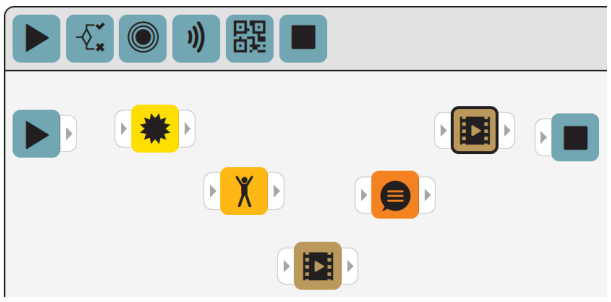
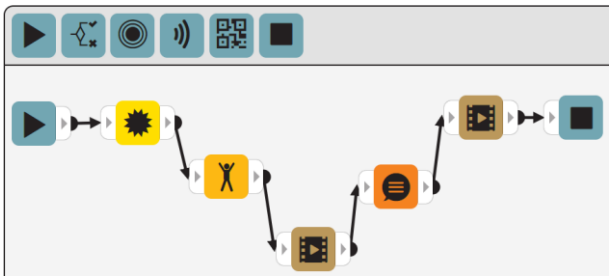
It is also not possible to convert an advanced composition to a simple composition.

5.3.2 Creating a new advanced composition

After clearing the timeline or just starting fresh, the following blocks must be used for EVERY composition: **Start timeline** (▶) and **Stop timeline**(s) (■).

5.3.2.1 A 'simple' composition

To create a composition in the timeline, the following steps must be taken:

Step 1: Drag the required blocks to the timeline-field. By dragging the blocks into the field, the timeline can be created. Make sure to include Stop-blocks for every branch	
Step 2: Link the blocks to one another By clicking the 'Output connector' of a block and the 'Input connector' of another block, a link will be created between them and a timeline will be created like a flowchart. To remove a link, click the arrow (which will turn red when mouse is hovering over it) and the link will be removed.	

Make sure no excess blocks are still present when playing the composition, a popup will remind you that all blocks present in the timeline-field need to be connected.

5.3.2.2 An advanced composition

So far, only the blocks from the simple composer have been used.
The following example will use the advanced blocks to create a composition.

The following composition will follow the flow as follows:

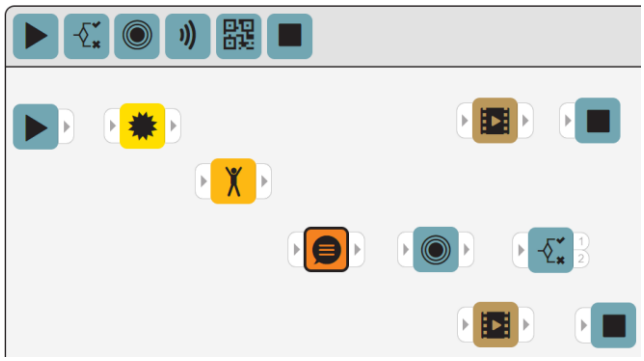
1) Zora will wake up, stand straight, speak an introduction and ask to be touched on the front head sensor.

2) If the front head sensor is touched, Zora will take a bow (path 1).
   If the front head sensor is not touched, Zora will be sad (path 2).

To create the composition, the same steps as before can be used:

Step 1: Drag the required blocks into the timeline-field.

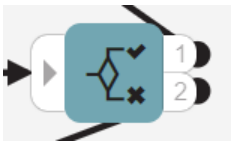
Do not configure the If/Else-Block yet, this is best done *AFTER the timeline has been fully established.*

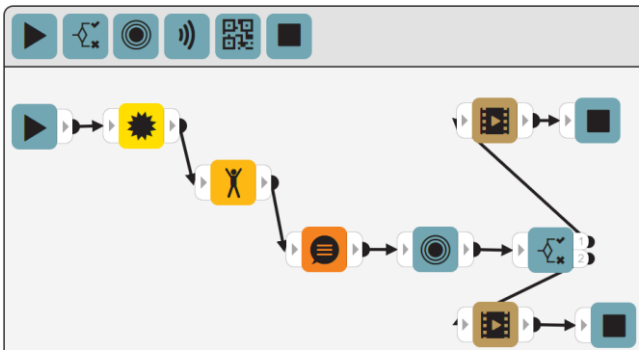


Step 2: Link the blocks to one another in the required order by clicking the 'Output connector'-Block of one block and clicking the 'Input connector'-block of another.

Take care to have the 'If/Else'-block AFTER the 'Wait for sensor (advanced)'-block.

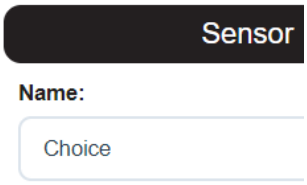
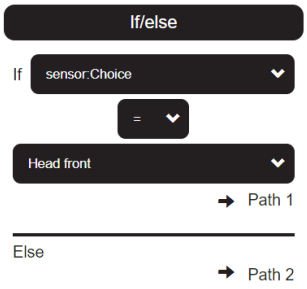
The If/Else block in more detail:





Step 3: Check the settings

If the name of the sensor has been altered after the blocks have been connected, the settings **of the if/else-block** need to be changed so the correct sensor has been chosen.

Sensor	If/Else
	

Things to note in the settings of the advanced blocks:

- Every advanced block should have a name, since ALL earlier advanced blocks will be used as a reference in an If/Else-block. The name should also be unique and easy to understand. In this case, the name **choice** has been used as a simple example.
- In the If/Else block, the list for variables is updated when the block is selected and the list of variables that can be used is divided into categories (speech recognition, sensors and QR code).

APPENDIX 4 – HOW TO

This appendix contains the user manuals for various accessories related to the robot.

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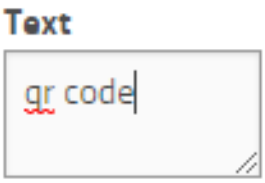
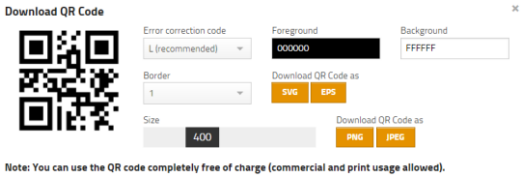
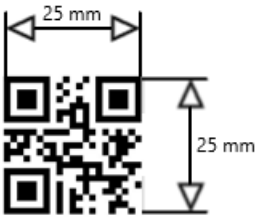
Article I. QR codes

This article will show how to use and create QR cards. A selection of system QR codes and QR cards for the animal card game are available in this chapter as well.

WARNING: Only QR-codes containing ONLY ASCII-characters are supported.

Chapter 01 Create QR code

To create the required QR Code manually, the following steps can be used:

http://goqr.me/	Surf to the following website
	Select the **text-type** QR Code
	Input the required text For example: Elephant This will create the QR code.
	Download the QR code to your device in **L-format**.
	When printing this code on a card, please make sure the dimensions of the QR code itself (not including the borders) are at least 25mm x 25mm.

Important: QR-codes must only contain characters from a-Z and numbers 0-9. Special characters such as 'é','è' or 'ç' are not supported.

Chapter 02 Showing QR codes to Zora

The front head camera is used to detect the QR-code (both during behaviors and while idle).

Step 1 – Create the QR code	See Chapter 01	
Step 2 – Hold the card to the robot's front head camera	Make sure the QR code itself is in the centre of the camera, and about 10 cm away.	
Step 3 – Move the card slowly and steadily backwards until a 'beep' is heard from the robot [1]		

[1]: The volume of the 'beep' is regulated by the system volume. To be able to hear the beep, the system volume should be at least 30% in a quiet room.

The distance the QR should be shown is dependent on the lighting of the room, the type of material used to print (glossy paper does NOT work) and of course the size of the QR code. Under normal circumstances the distance is about 10 cm.

Note:

To check if the QR is visible to the camera, the camera in the steering-tab can be used. When using an app to create the QR code on the smartphone, the output may look something like this:

Chapter 03 Types of QR codes

(a) System QR codes

By using system commands in the QR code, it is possible to control the robot (to a certain extent) via QR codes. These codes can also be found on the provided USB-stick. The robot will execute the behavior mentioned in the card.

These codes CANNOT be used DURING running behaviors (except Volume UP and DOWN).

Connect to SSID Zorarouter	**Connect to SSID ZoraHotspot_...**

USB connect 	**Reconnect**
Stop 	**Reboot**

Volume up	**Volume down**
Arabic	**Chinese**

Dutch	**English**
Finnish	**French**

German	Japanese

(b) QR codes for Behaviors and compositions

The QR codes generated in the steering- or composer-tab have their own specific code, similar to those used by the system-QR-codes.

Please do NOT use these codes DURING running behaviors or compositions.

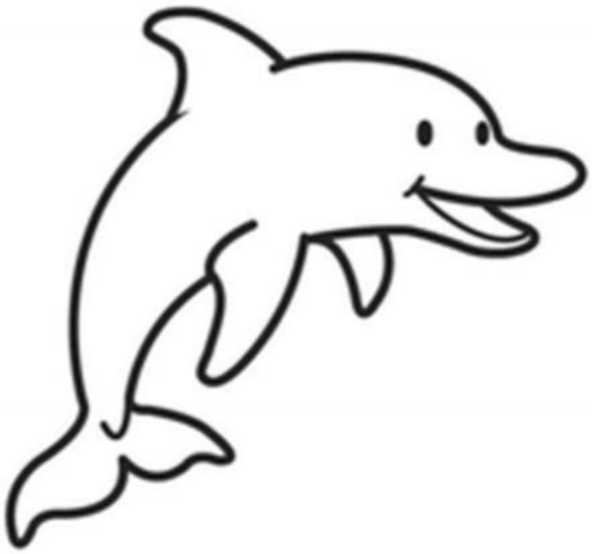
(c) Data QR codes

These cards just contain data, and can be used as a reply to questions from behaviors or as a reply to 'wait for QR code' in the composer.

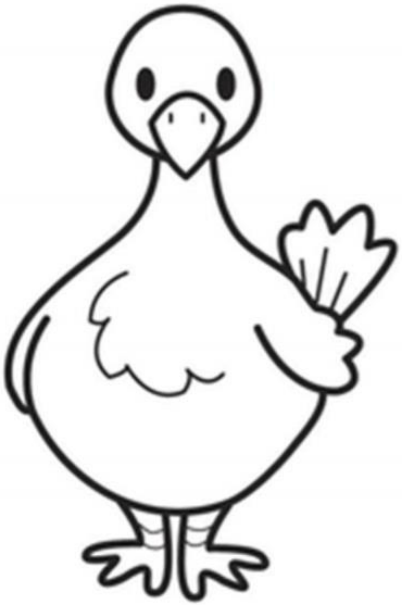
As an example, the cards to be used by the default Animal Quiz dataset of the QR Quiz behavior are shown below:

EN

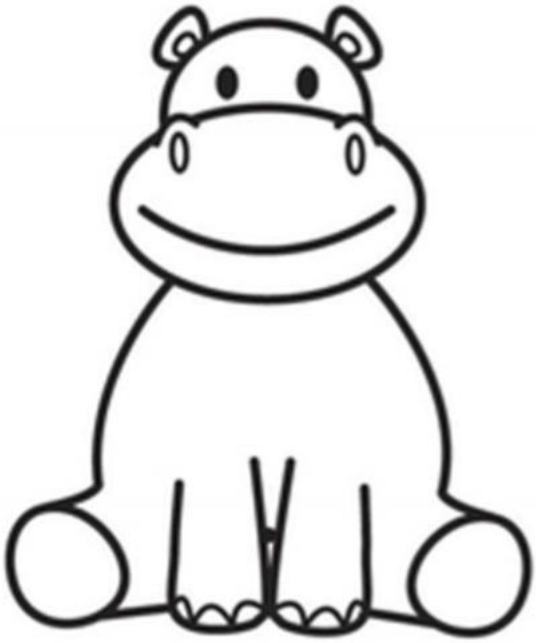
EN



EN



EN



EN

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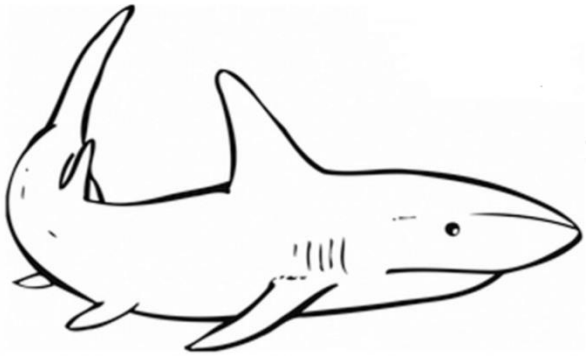
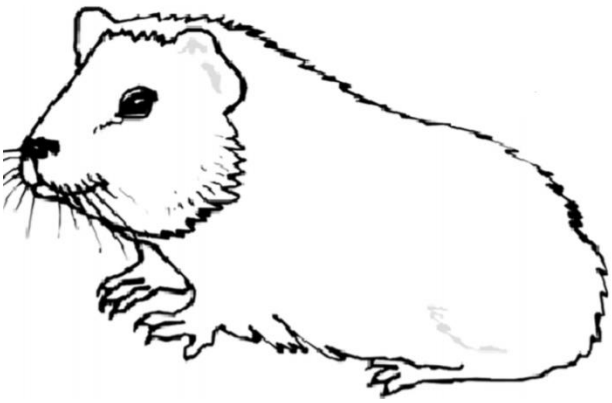
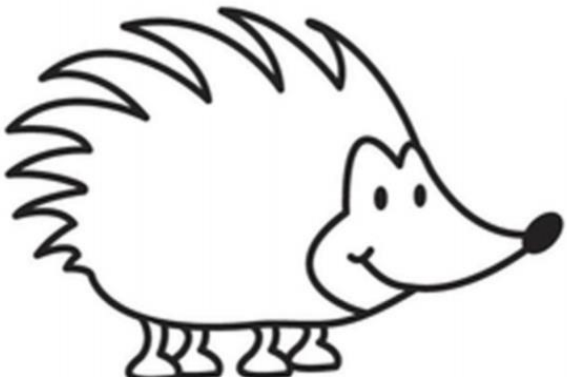
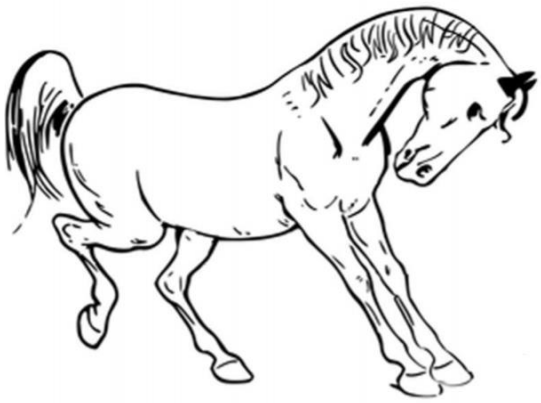
EN 	EN 
EN	EN 

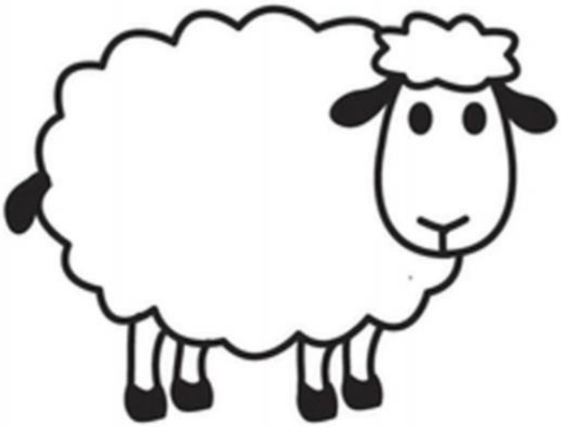
 EN	EN
EN 	EN

EN

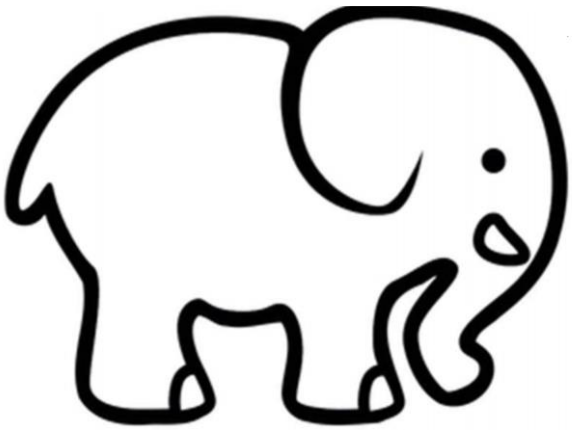


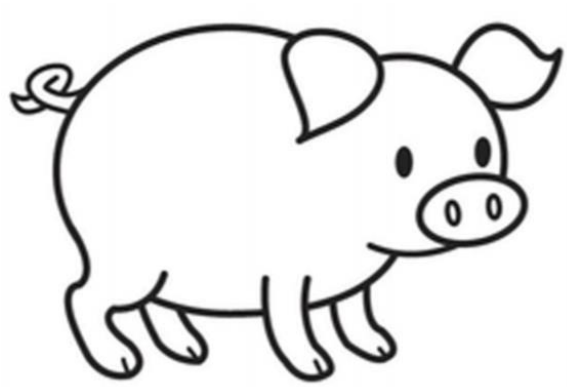
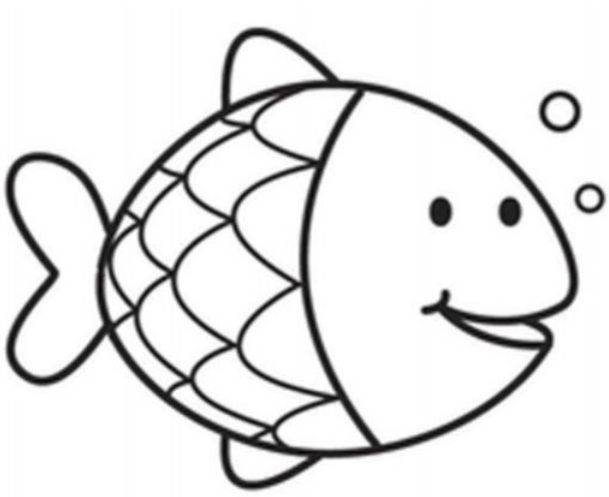
EN

EN



EN

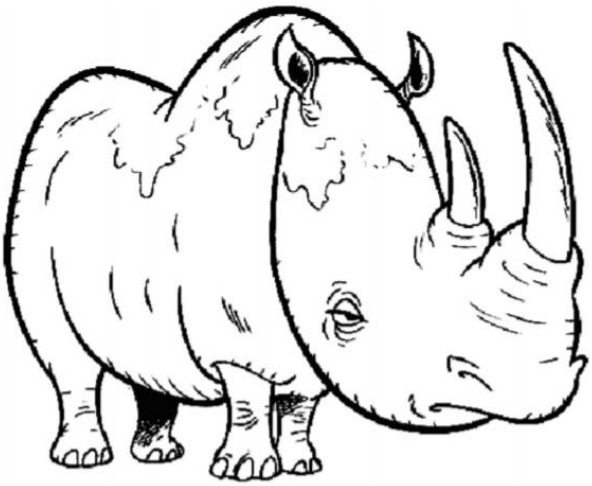


EN 	EN
EN 	EN

EN

EN

EN

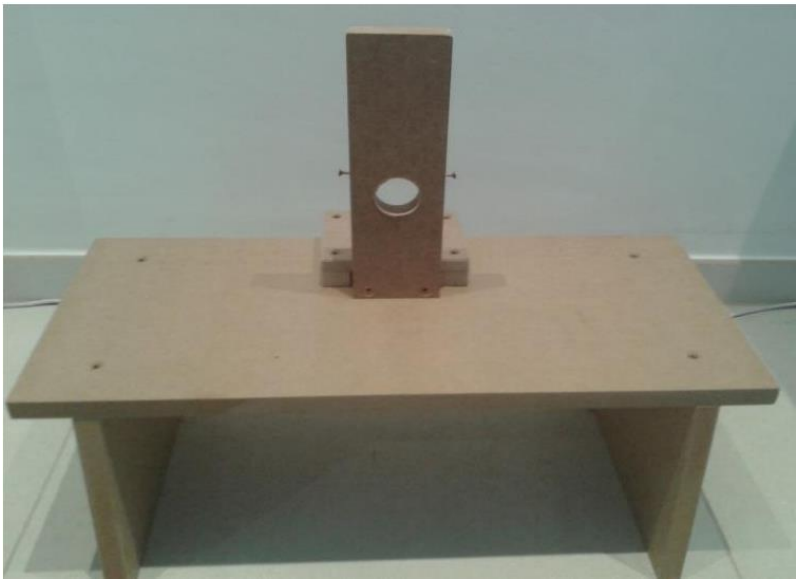


Article II. Bench

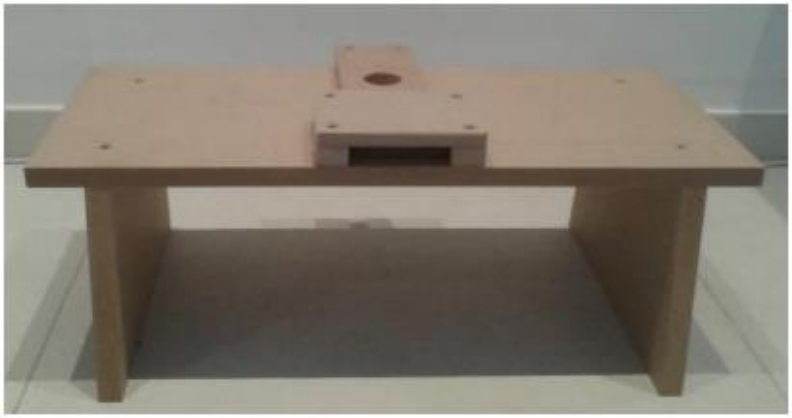
This article contains the measurements and procedures to use the bench for the robot. The bench is made from MDF and is **18 mm** thick.

The bench has 2 configurations:

- **With back holder in place:**



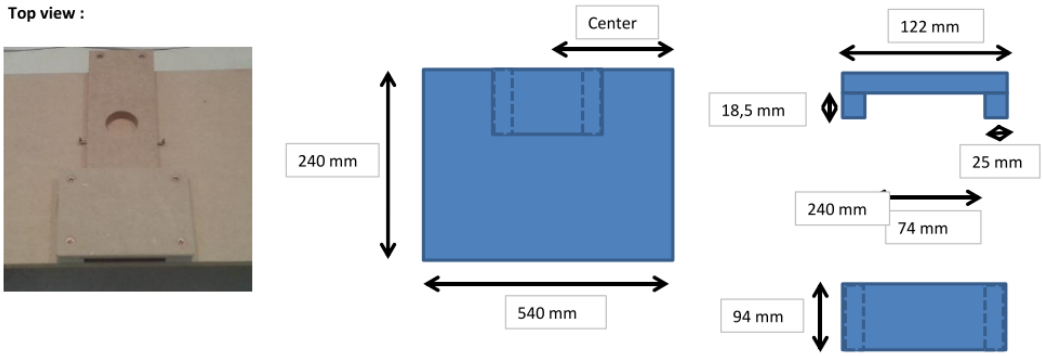
- **With back holder stored:**



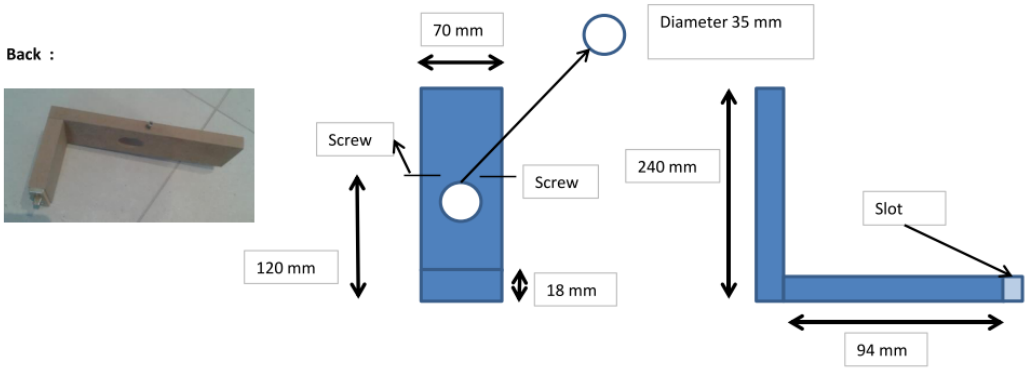
The robot should be placed while the back holder is in place:

Chapter 01 Measurements

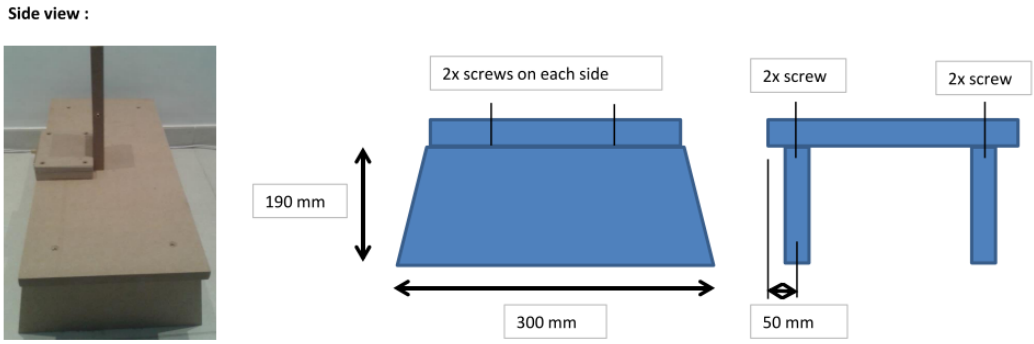
- The main board (with placeholder for the backrest) has these measurements:



- The back holder has the following measurements:



- The legs of the bench have the following measurements:



A rubber band should be bought locally and attached in the following manner to the robot:

	Ensure the elastic is tight enough, otherwise the robot may slide forwards a little if both legs are lifted during behaviors.

Chapter 02 How to use

BEFORE using the bench, make sure the following precautions are being used:

1. Ensure the bench is level
2. Make sure there is enough open space to make the robot lie on the back
3. Beware the pinching hazard zones (see Appendix 5 – safety)

To use the bench, the following steps are needed:

Step 1 – Put the robot on the bench	*The robot will go to the 'prepare for bench position'-posture.* *When using behaviors, this happens automatically* [1]*.* *Only for Gym-exercises in the composer, this must be done manually.*
Step 2 – Execute the behavior(s) or compositions	*Make the robot move the legs and/or arms as you see fit with the bench-exercises.*
Step 3 – Put the robot on the floor	*Once the behavior or composition is finished, the robot may be taken off the bench and laid on the back. By pressing the middle head sensor, the robot will go to a safe rest-posture.*

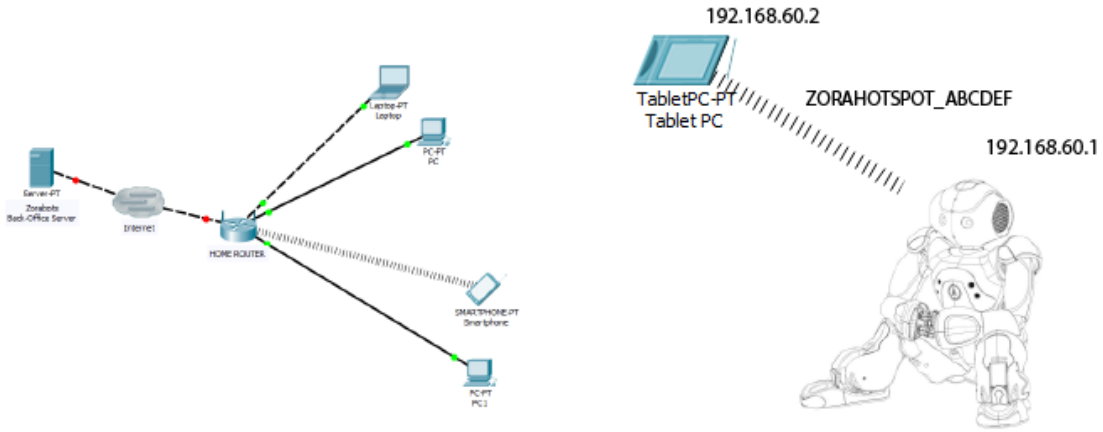
[1]: Make sure the robot is NOT on the bench when starting the behavior '**Feet exercises**'.

Article III. Zora and Network

This article will describe how to connect the robot to the home network or how to set up a home network yourself. The steps taken are dependent on the configuration used on Zora.

Chapter 01 Hotspot-mode

In this configuration (by default out-of-the-box), the robot has a network of its own and is disconnected from the home network and by association the internet.



Of course, it is possible to connect to the robot (see article IV of this appendix), but not the rest of the network, meaning the device must choose between the robot or the home network to connect to. To make the robot connect to the home network, there are 2 possible solutions, specifically:

- Insert a network cable from the home router in the back of the head of the robot
- **Switch** the robot from hotspot to Wireless mode
  Both cannot be active at the same time.
  By doing this, the IP address of the robot will change, and the hotspot-network will be disabled. To connect to Zora once more, the device must be connected to the same network as Zora. To hear the new IP-address of Zora, the chest-button needs to be briefly pressed once.

Note: When connected to the home-network through a network cable, it ALWAYS takes priority (when connecting to the Zora-Control or saying the IP address by pressing the chest button).

Chapter 02 Connect to the home network via cable

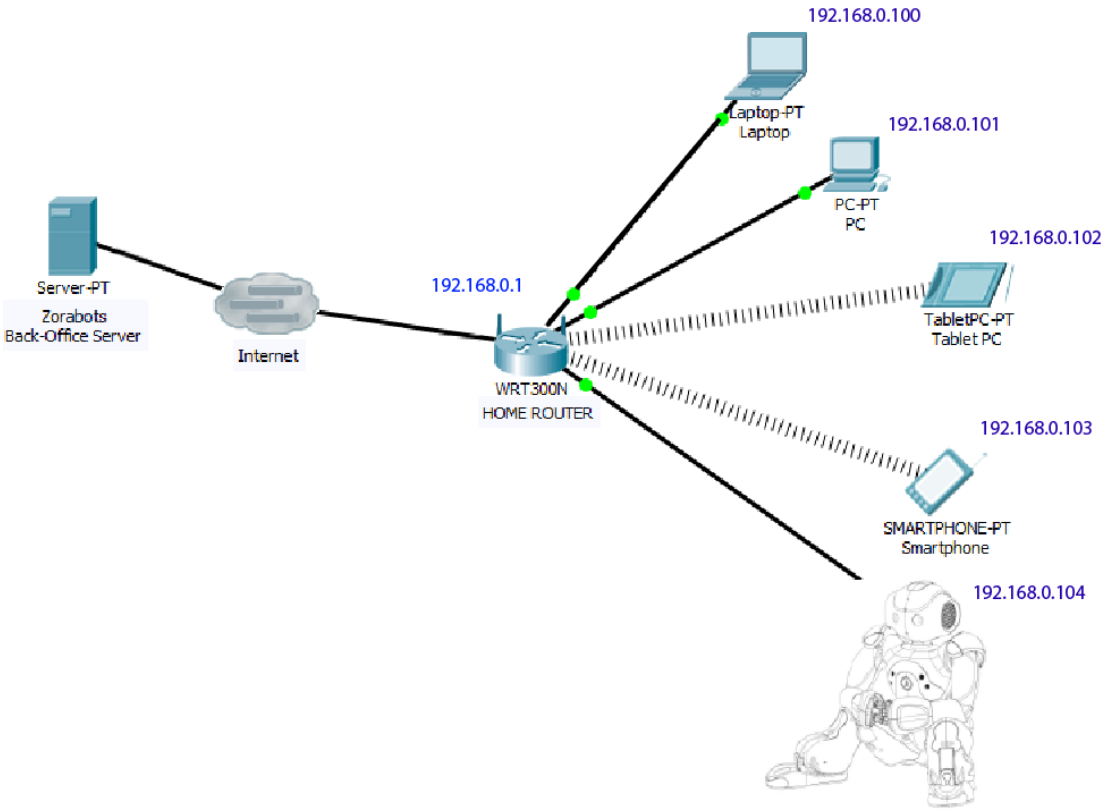
By opening the protective lid on the back of the robot's head, a USB slot and a network slot will become visible.

	By connecting the cable from the robot to the network, internet and connecting to and from the home network is easier. *BUT* *by connecting the cable, movability is severely reduced to a few meters and the risk of entangling in the cable is higher than with just the charging cable.*

After connecting the cable to the robot and the home router, by pressing the chest button after waiting for about 5 seconds, the IP address will be said if the connection is successful.

This configuration **takes priority** over the Wi-Fi or Hotspot-configuration.

The new configuration could look like this [1]:

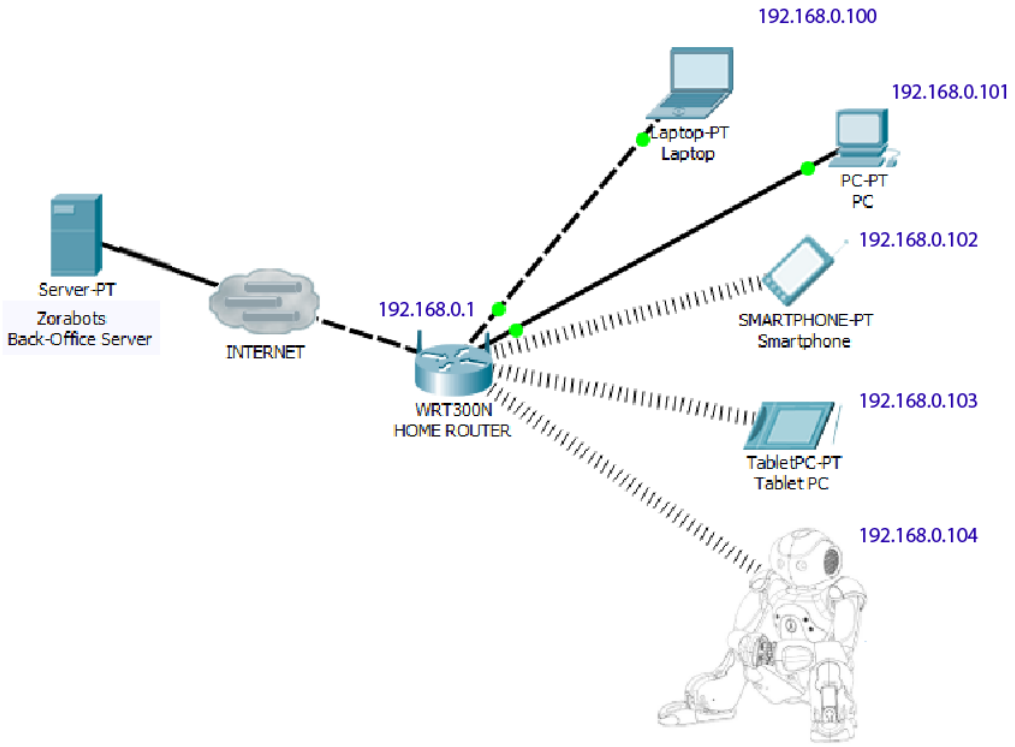


IMPORTANT: This setup is ***mandatory*** for updating to new versions of the software!

[1]: The numbers in blue are *possible* IP-addresses, this depends on the DHCP server of the home network.

Chapter 03 Connect to Zora to the home network via Wi-Fi

The desired setup could look like this [1]:



[1]: The numbers in blue are *possible* IP-addresses, this depends on the DHCP server.

To connect the robot to the Wi-Fi network, 2 options are available:

- **By using QR code:**

Step 1 – Create [1] a QR code in the following format, with network and pw changed to the settings of the home network	$wifi:connect:{"ssid":"***network***","password":"***pw***"} ***network*** should be changed to the name of the network ***pw*** should be changed to the password of the network *Valid example:* $wifi:connect:{"ssid":"*home*","password":"*$3cured*"}
Step 2 – Show it to the robot	*The robot will say: "Trying to connect to network" and if the connection has completed, the robot will state the new IP address.*

[1]: To create a QR code, the tool on the provided USB-stick can be used OR by inputting the data manually in an APP on the smartphone.

For more information about creating said QR code, see Article I - Chapter 1. Create QR code.

- **By using Zora-Control:**

If the robot is active as a hotspot, or connected to the network via cable, Zora-Control is accessible by the user on a smartphone or tablet. To connect to Wi-Fi by using Zora-Control, see the manual section Wi-Fi settings, or read the instructions on the Zora-Control Zora-tab.

Chapter 04 (Dis-)advantages of the types of connection

This chapter will describe some of the useful features of the type of network configuration, as well as the disadvantages this implies.

- **Hotspot**

Advantages	Disadvantages
The robot is always accessible	No internet-access (no news or weather forecast)
Only a tablet/laptop and the robot are required, meaning this configuration is building-independent and can be taken to appointments or demonstrations.	Limited work radius[1]

[1]: The tablet/laptop cannot leave the range of Zora

- **Cable**

Advantages	Disadvantages
No special configuration required	Configuration depends on router
Fast connection, almost no risk of lag to Zora Control	Very limited action radius (cable-length)
Internet access	Possibility of entanglement during dances

- **Wi-Fi**

Advantages	Disadvantages
One-time configuration	Limited mobility [1]
Access to internet	
Huge mobility [1]	
Access to Zora from any connected device	

[1]: Mobility is dependent on the configuration of the home router, and only usable within the building.

Caution:

To make full use of Zora's network capabilities, TCP-ports 22, 80, 1025, 3000, 3001 and 5560 must not be blocked for outgoing traffic on the router or computer.

Article IV. Connecting to the robot

Like in the previous chapter, the steps needed depend on the network-settings of the robot.

Chapter 01 Hotspot-mode

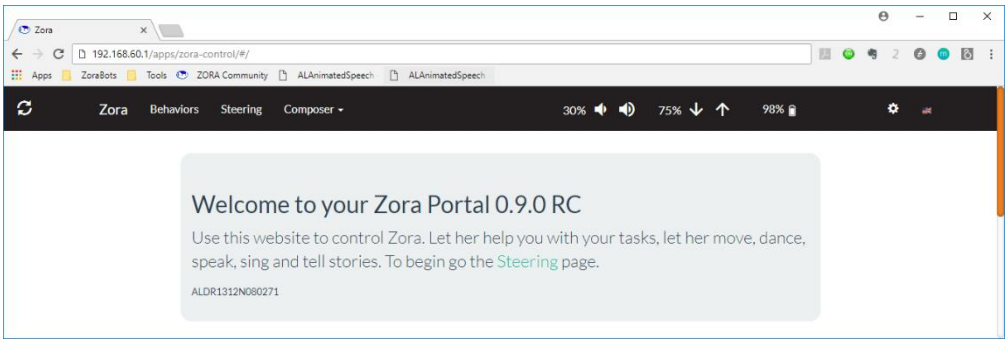
Note: The computer must NOT be set with a fixed IP when connecting to the hotspot.

If the robot is set-up as a mobile hotspot, connecting is quite easy.

Step 1 – Press chest-button of the robot once	The robot will greet you and say the name of the hotspot (by default zorahotspot_"serialnumber") and its IP address.
Step 2 – Connect a computer to the robot	By pressing the Wi-Fi-icon on the computer, a list of possible networks is shown. Select the hotspot, fill in the **password**[1] (not the PIN) and fill in the IP address (by default 192.168.60.1) in the address-bar of Google Chrome.

[1]: By default: zoranetwerk

The following site is shown, and the connection is complete.

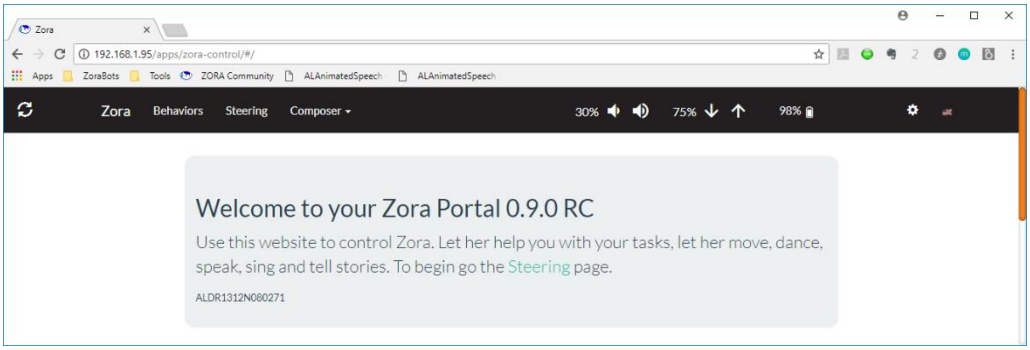


Chapter 02 Connected to home network (via cable or Wi-Fi)

Note: The router on the home network must serve as DHCP-server

If the robot is connected via Wi-Fi or cable to the home router, **and** the computer is connected to the same router, connection to Zora-Control is possible by using the following steps:

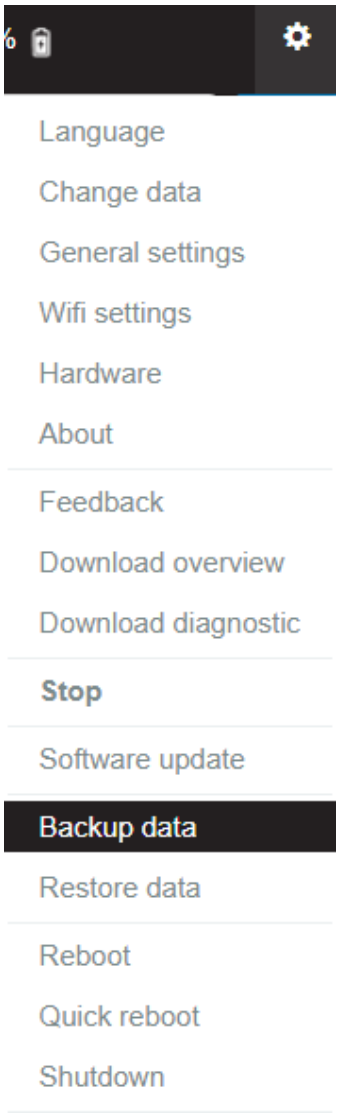
Step 1 – Press chest-button of Zora once	The robot will greet you and say its IP address.
Step 2 – Connect a computer to the robot's IP.	By entering the IP address into the address-bar of Google Chrome, the Zora Control will load.



Article V. Backup and restore data

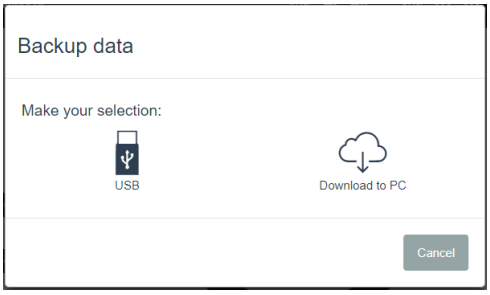
This article will describe how to take a backup of the user data and how to restore this data later. It is recommended to periodically take a backup, since Zorabots cannot be held accountable for any lost data.

Chapter 01 Backup Data



Step 1 – Select Backup Data from the admin-menu.
The location is shown in the image to the left.

Step 2 – Select where the backup-file should be sent to in the following **popup**:



Note:

BEFORE selecting USB-stick, ensure there is enough space on the FAT32-formatted USB-stick. If after inserting the stick into the backup-computer and the remaining disc space is zero, delete the current backup and free up some more room and create another backup.

Step 3a: **USB-stick**:

Plug the USB-stick in the back of the robot's head and wait for about 5 seconds.

Select USB from the **popup** to start the backup process.

Step 3b: **Download to PC**

This will download the file to the connected computer via the browser.

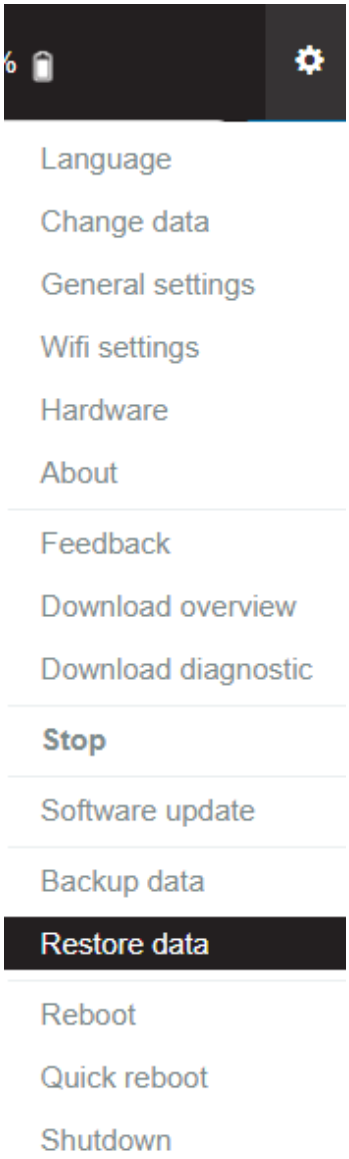
This (normally) uses the default download-folder to put the file in.

Note: A backup should be taken when:

- A new custom dataset has been implemented.
- A software update is available.

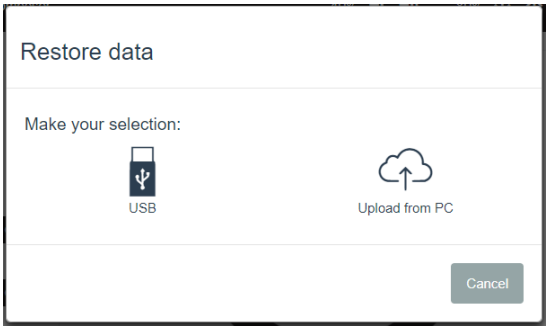
Chapter 02 Restore Data

This process is similar to the Backup Data process, only in reverse order.



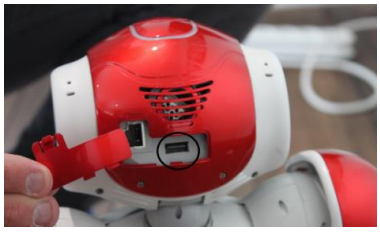
Step 1 – Select Restore Data from the admin-menu.
The location is shown in the image to the left.

Step 2 – Select where the backup-file should be copied from in the following **popup**:



Step 3a: **USB-stick**:

Plug the USB-stick **with the backup-file on it** in the back of the robot's head and wait for about 5 seconds.



Select USB from the **popup** to start the restore process.

Step 3b: **Upload from PC**

By selecting 'Choose file', the explorer-window of the PC will open.

Select the previously made backup-file from the connected device.

Select Upload to start the restore process

Note: The Restore Data could be used when:

- A clean install has been performed (which erases the user-data)
- To import other or older DATASETS (NOT compositions)
- When encountering an issue, the robot's support team can use this backup data to restore your system to a workable state.
- It should ONLY be used on the same system, it is NOT TO BE USED to transfer data from one robot to another, unless the new robot has been cleanly installed or reset to factory defaults from the general settings.

Article VI. Update Zora

Before updating Zora, it is recommended to take a backup. The procedure to take a backup is shown in article V, chapter 01.

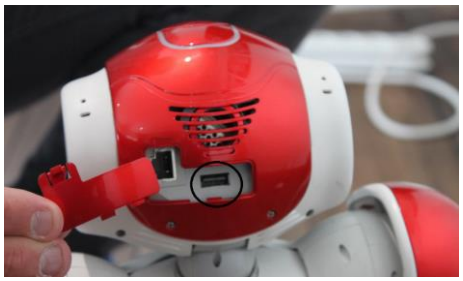
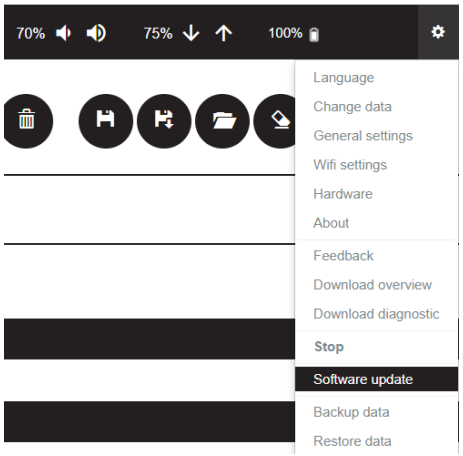
Note: Always connect a network cable (with an internet-connection) when updating Zora, including when updating via USB-stick.

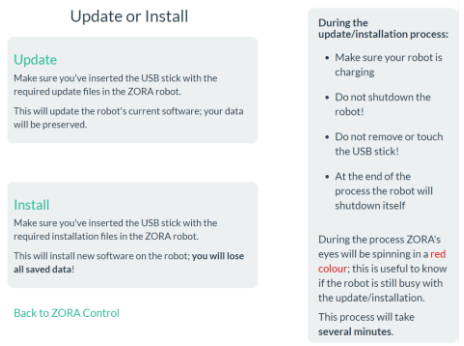
Note: Do NOT update Zora via USB stick while **in hotspot mode**, this may cause problems.

Chapter 01 Update by USB-Stick

An update via USB-stick requires the user to contact the robot's support team and is only an option of last resort when NO internet connection can be made.

To update the robot via USB-stick, the following steps should be taken **AFTER the files have been received from the robot's support team**:

Step 1 – Create USB-stick with only one FAT32-partition and **copy the files sent to you on it**	Format the USB stick if necessary. A guide is available here: http://www.makeuseof.com/tag/format-usb-drive/
Step 2 – Plug in the USB-stick in the slot in the back of Zora's head	
Step 3 – Select 'Software Update' in the Zora Control menu	

Step 4 – Select whether Zora should be reset to default settings (**Install**) or if the existing files and some settings should be kept (**Update**) Once the option has been selected, Zora Control may be closed.	

Note: Zora will shut itself down once the procedure has completed.

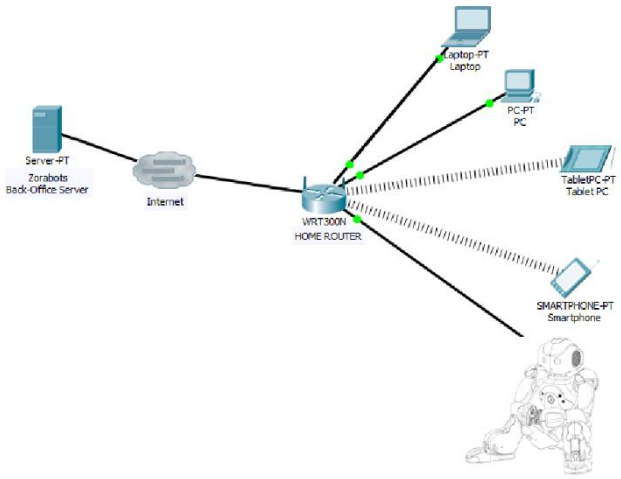
Chapter 02 Update via the installer and network

After receiving the installer (.exe file for Windows and .jar file[1] for MAC) and install files from **our support division** or downloading the required software from the Freshdesk website (https://zorabots.freshdesk.com), start the installer program and follow the steps:

Note: *This option only works if there is an internet connection to our back-office-website to download the latest versions of the installed files.*

Step 1 – Configuration of the home network

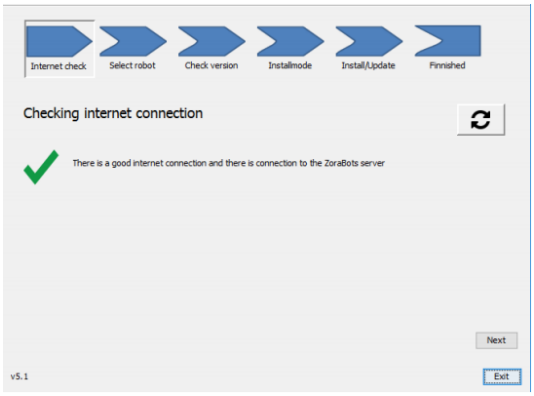
The following configuration must be used by the home network:

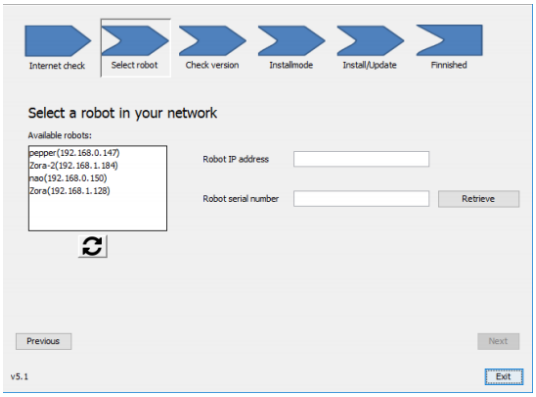
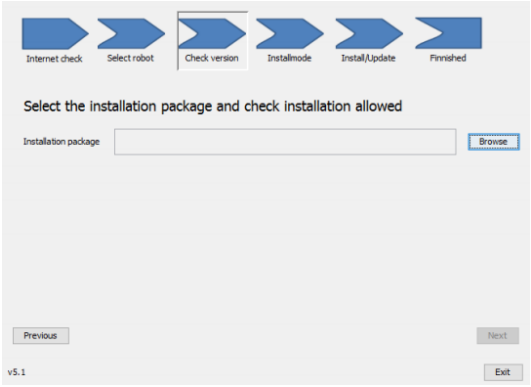
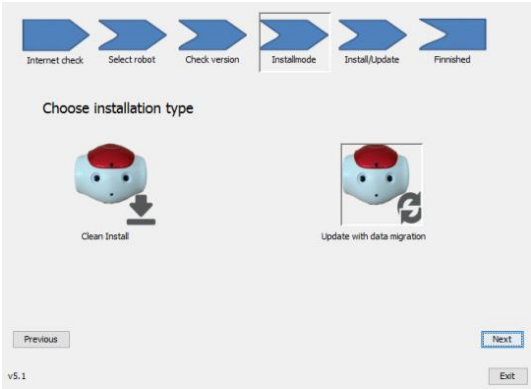
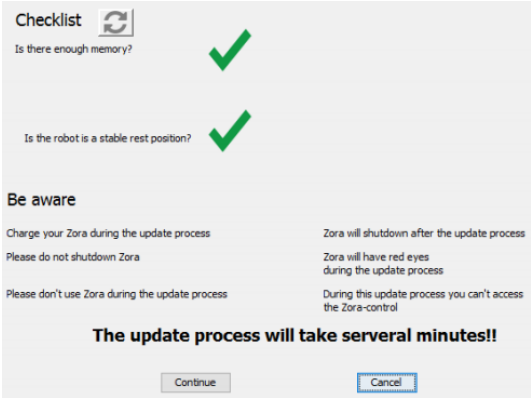


The things to note in this picture are:
1) The connection between the device running the software and Zora is the same network
2) The home router is connected via the internet to the Zorabots back-office server.
3) Zora is in a stable position and connected to the mains (preferably)
4) The computer with the installer and Zora are connected through a network cable.

Step 2 – Check internet connection

If a **green check** appears, go for it.
If a **red cross** appears, try again later.
Please check your internet connection and contact your IT service if the problem persists.
Press the refresh button to try to re-establish the connection.



Step 3 – Find your robot Enter the IP address (which can be found by pressing the chest-button on Zora once) in the field on the right or double click on your robot from the list on the left. By pressing the Retrieve-button the serial number is retrieved from the robot and used to download the latest modules. Click the **next**-button to continue	
Step 4 – Select version to install By browsing to the file (click the Browse-button) containing the version you wish to install, a check is performed to see if the installation of this version is registered and allowed by our team. A **green check** will appear if everything is in order. Please contact us if a **red cross** should appear. Click **Next** to continue	
Step 5 – Select type of installation Select 'Clean Install' to reset the settings to default. Select 'Update with data migration' to keep (most of) the settings and all files on the robot. Click **Next** to continue	
Step 6 – Final check If the robot is in a stable rest position and enough disk space is available for the download of data, the update-process will start if the button 'Continue' is clicked.	

Note: The robot will shut itself down when the process is successfully finished.

(1): For MAC-users: When running the JAR-file, make sure to install the latest version of Java, which can be found here: https://www.java.com/en/download/

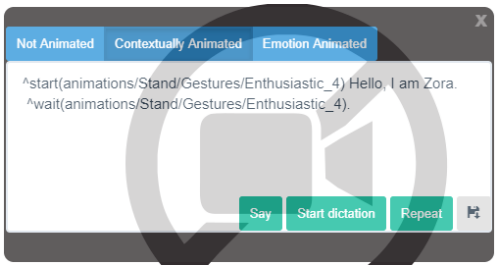
Article VII. Using Animations in Text-fields

It is possible to use specific markers to use (certain) animations in speech-fields. It is however, necessary to select the '**Contextually Animated**' option before these can be used.

This applies to:

- Text Snippets
- Text-To-Speech (NOT the translation module)
- Composer-block 'Speech'

For example, when having Zora read aloud a text by clicking the image of Zora with the text-balloon:



To use animations in the text-block, a specific animation can be chosen from the list at the end of this article. To use an animation in the text-fields, the following commands must be used (animation_name is the full name of the animation):

^start*(animation_name)*	*This command starts the selected animation WITHOUT stopping the speech-text*[1].
^stop*(animation_name)*	*This command stops the selected animation IMMEDIATELY.*
^wait*(animation_name)*	*This command finishes the animation*[1].

[1]: The animation will only be played WHILE there is text being spoken. If the text is not long enough for the animation to finish, the animation will be stopped halfway through as well. This can be avoided by using a ^wait*(animation_name)*-command.

WARNING: Be careful when selecting the necessary Animations, be sure the postures of 'Sit' and 'Stand' are respected. These can be found in the full name of the animation.
E.g.: animations/**Stand**/Gestures/Enthusiastic_4

An example would be:

- Hello, I am Zora. It is nice to meet you

```
^start(animations/Stand/Gestures/Enthusiastic_4)Hello
^wait(animations/Stand/Gestures/Enthusiastic_4).
^start(animations/Stand/Gestures/Me_1) I am Zora. It is nice
^start(animations/Stand/Gestures/You_1) to meet you.
^wait(animations/Stand/Gestures/You_1)
^start(animations/Stand/Gestures/BowShort_1)
^wait(animations/Stand/Gestures/BowShort_1).
```

Note: The reason why the animation 'You_1' is started while the sentence 'to meet you' is already being spoken is to make sure the animation is already pointing at the user, by the time the term 'you' is spoken. This may take a little trial-and-error to make sure the timing is correct, especially when customising the speech-speed.

The following list contains all animations that can be used in these fields:

Animation	Animation_name
BodyTalk_1	*animations/**Sit**/BodyTalk/BodyTalk_1*
BodyTalk_10	*animations/**Sit**/BodyTalk/BodyTalk_10*
BodyTalk_11	*animations/**Sit**/BodyTalk/BodyTalk_11*
BodyTalk_12	*animations/**Sit**/BodyTalk/BodyTalk_12*
BodyTalk_2	*animations/**Sit**/BodyTalk/BodyTalk_2*
BodyTalk_3	*animations/**Sit**/BodyTalk/BodyTalk_3*
BodyTalk_4	*animations/**Sit**/BodyTalk/BodyTalk_4*
BodyTalk_5	*animations/**Sit**/BodyTalk/BodyTalk_5*
BodyTalk_6	*animations/**Sit**/BodyTalk/BodyTalk_6*
BodyTalk_7	*animations/**Sit**/BodyTalk/BodyTalk_7*
BodyTalk_8	*animations/**Sit**/BodyTalk/BodyTalk_8*
BodyTalk_9	*animations/**Sit**/BodyTalk/BodyTalk_9*
BodyTalk_1	animations/**Stand**/BodyTalk/BodyTalk_1
BodyTalk_10	animations/**Stand**/BodyTalk/BodyTalk_10
BodyTalk_11	animations/**Stand**/BodyTalk/BodyTalk_11
BodyTalk_12	animations/**Stand**/BodyTalk/BodyTalk_12
BodyTalk_13	animations/**Stand**/BodyTalk/BodyTalk_13
BodyTalk_14	animations/**Stand**/BodyTalk/BodyTalk_14
BodyTalk_15	animations/**Stand**/BodyTalk/BodyTalk_15
BodyTalk_16	animations/**Stand**/BodyTalk/BodyTalk_16
BodyTalk_17	animations/**Stand**/BodyTalk/BodyTalk_17
BodyTalk_18	animations/**Stand**/BodyTalk/BodyTalk_18
BodyTalk_19	animations/**Stand**/BodyTalk/BodyTalk_19
BodyTalk_2	animations/**Stand**/BodyTalk/BodyTalk_2
BodyTalk_20	animations/**Stand**/BodyTalk/BodyTalk_20
BodyTalk_21	animations/**Stand**/BodyTalk/BodyTalk_21
BodyTalk_22	animations/**Stand**/BodyTalk/BodyTalk_22
BodyTalk_3	animations/**Stand**/BodyTalk/BodyTalk_3
BodyTalk_4	animations/**Stand**/BodyTalk/BodyTalk_4
BodyTalk_5	animations/**Stand**/BodyTalk/BodyTalk_5
BodyTalk_6	animations/**Stand**/BodyTalk/BodyTalk_6
BodyTalk_7	animations/**Stand**/BodyTalk/BodyTalk_7

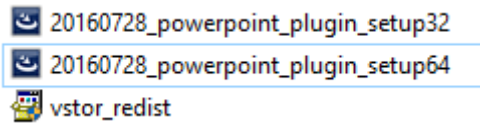
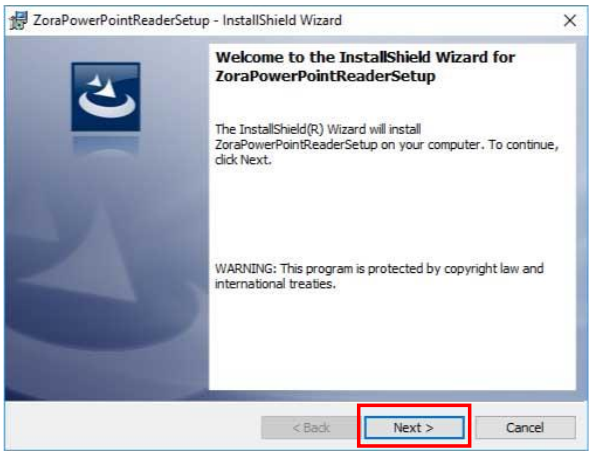
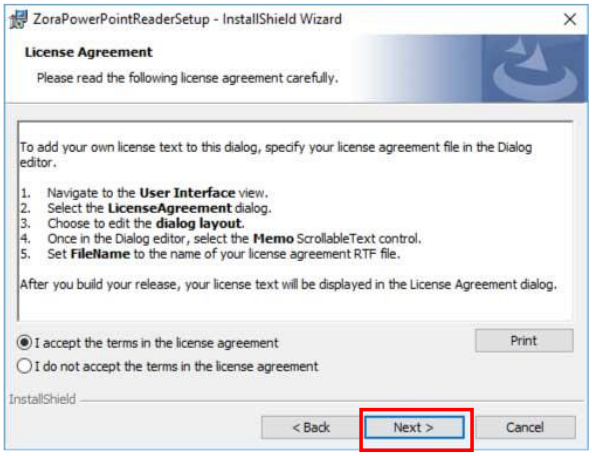
Animation	Animation_name
BodyTalk_8	animations/**Stand**/BodyTalk/BodyTalk_8
BodyTalk_9	animations/**Stand**/BodyTalk/BodyTalk_9
BowShort_1	animations/**Stand**/Gestures/BowShort_1
Enthusiastic_4	animations/**Stand**/Gestures/Enthusiastic_4
Enthusiastic_5	animations/**Stand**/Gestures/Enthusiastic_5
Explain_1	animations/**Stand**/Gestures/Explain_1
Explain_10	animations/**Stand**/Gestures/Explain_10
Explain_11	animations/**Stand**/Gestures/Explain_11
Explain_2	animations/**Stand**/Gestures/Explain_2
Explain_3	animations/**Stand**/Gestures/Explain_3
Explain_4	animations/**Stand**/Gestures/Explain_4
Explain_5	animations/**Stand**/Gestures/Explain_5
Explain_6	animations/**Stand**/Gestures/Explain_6
Explain_7	animations/**Stand**/Gestures/Explain_7
Explain_8	animations/**Stand**/Gestures/Explain_8
Hey_1	animations/**Stand**/Gestures/Hey_1
Hey_6	animations/**Stand**/Gestures/Hey_6
IDontKnow_1	animations/**Stand**/Gestures/IDontKnow_1
IDontKnow_2	animations/**Stand**/Gestures/IDontKnow_2
Me_1	animations/**Stand**/Gestures/Me_1
Me_2	animations/**Stand**/Gestures/Me_2
No_3	animations/**Stand**/Gestures/No_3
No_8	animations/**Stand**/Gestures/No_8
No_9	animations/**Stand**/Gestures/No_9
Please_1	animations/**Stand**/Gestures/Please_1
Yes_1	animations/**Stand**/Gestures/Yes_1
Yes_2	animations/**Stand**/Gestures/Yes_2
Yes_3	animations/**Stand**/Gestures/Yes_3
YouKnowWhat_1	animations/**Stand**/Gestures/YouKnowWhat_1
YouKnowWhat_5	animations/**Stand**/Gestures/YouKnowWhat_5
You_1	animations/**Stand**/Gestures/You_1
You_4	animations/**Stand**/Gestures/You_4

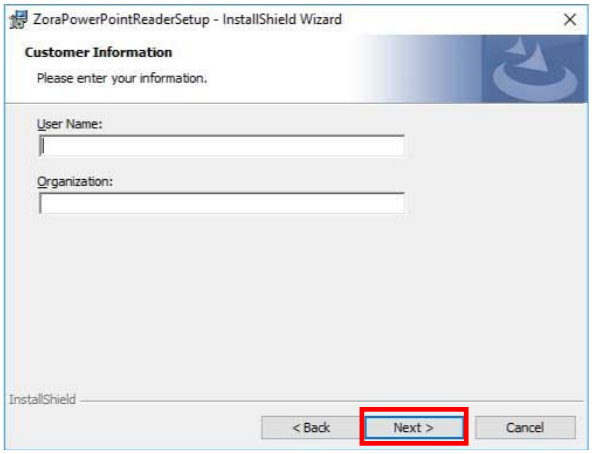
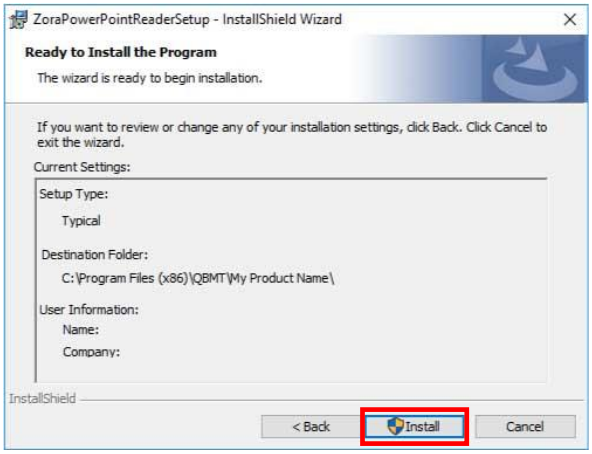
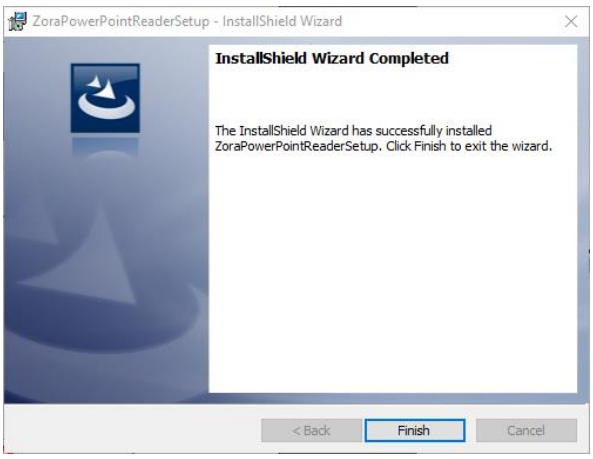
Article VIII.Powerpoint plugin

The Powerpoint plugin is designed to have Zora read the **notes** of a Powerpoint presentation out loud. The installer is included on the USB-stick or downloadable on the Freshdesk website: https://zorabots.freshdesk.com.

Chapter 01 Installing the plugin

This chapter shows how to install the plugin on **Windows** machines.
WARNING: Only install the vstor_redist.exe when using the Office 2010-packet. For newer versions (365 or 2016), do NOT install this.

Step 1 – Open the file on the USB-stick Select the installer according to the type of **Powerpoint** that is installed (32- or 64-bit)	 Select the *_setup64.exe to install the 64-bit version, and the *_setup32.exe to install the 32-bit version
Step 2 – Follow the steps of the installer Click **Next** start the installation	
Step 3 – Select 'I accept the terms in the license agreement' and click **Next**	

Step 4 – Fill in the username and the name of the organisation in the fields (blank fields can also be used). Click **Next** to continue	
Step 5 – Install the plugin (with a Windows-administrator-account) by clicking **Install** and entering the password of an administrator-account if needed.	
Step 6 – Close the installer by clicking 'Finish' of clicking the 'X' in the top right-hand corner	

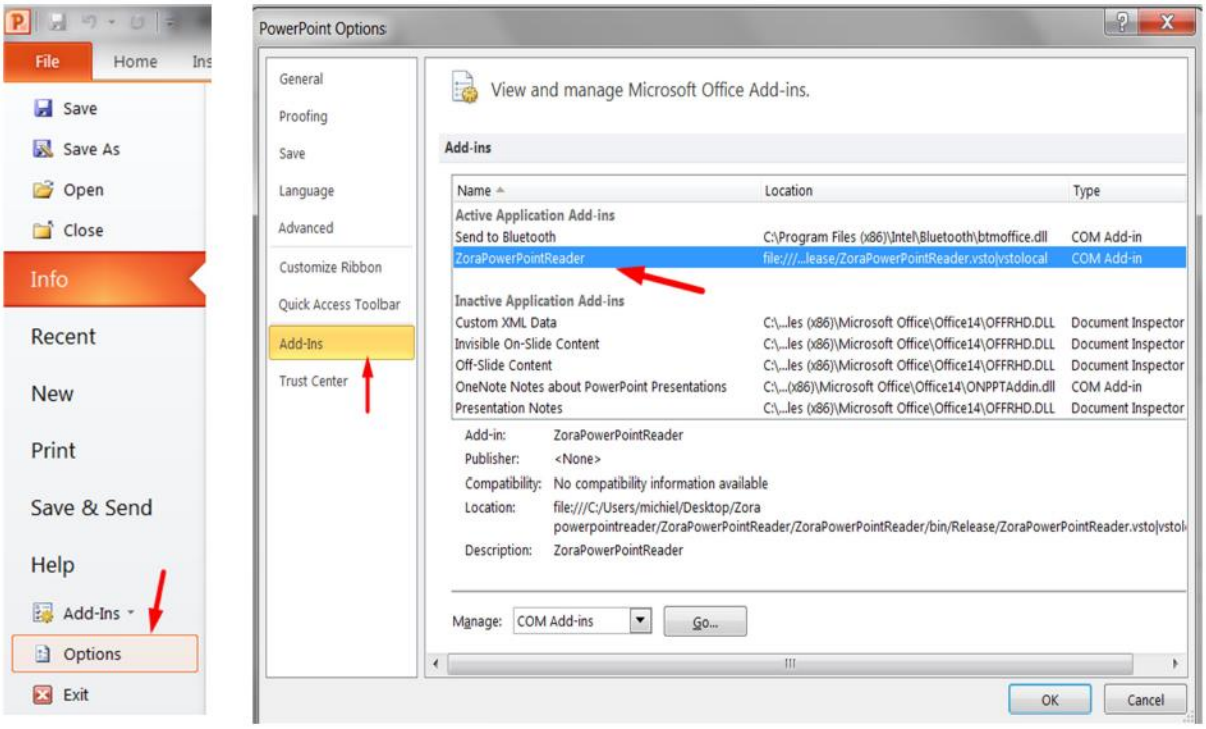
Note: Currently, the installer only works on:

- Windows 7 systems for Powerpoint 2010 and 2013
- Windows 10 systems for Powerpoint 2010 and 2013

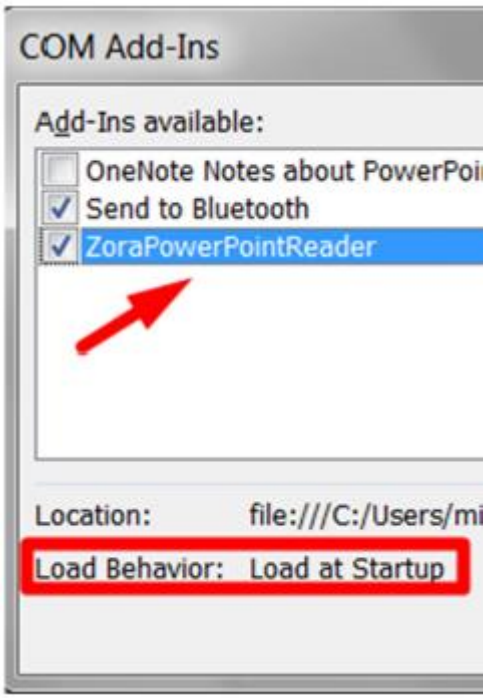
Chapter 02 Add-in setup

To check if the installation has succeeded correctly, close ALL Office-products (Word/Excel/Powerpoint/Access/…) and open Powerpoint.

By selecting File -> Options, a popup appears with possible settings. By selecting the Add-Ins tab, all available add-ins are displayed. In the category of COM Add-In, ZoraPowerPointReader should be shown as in the picture below:

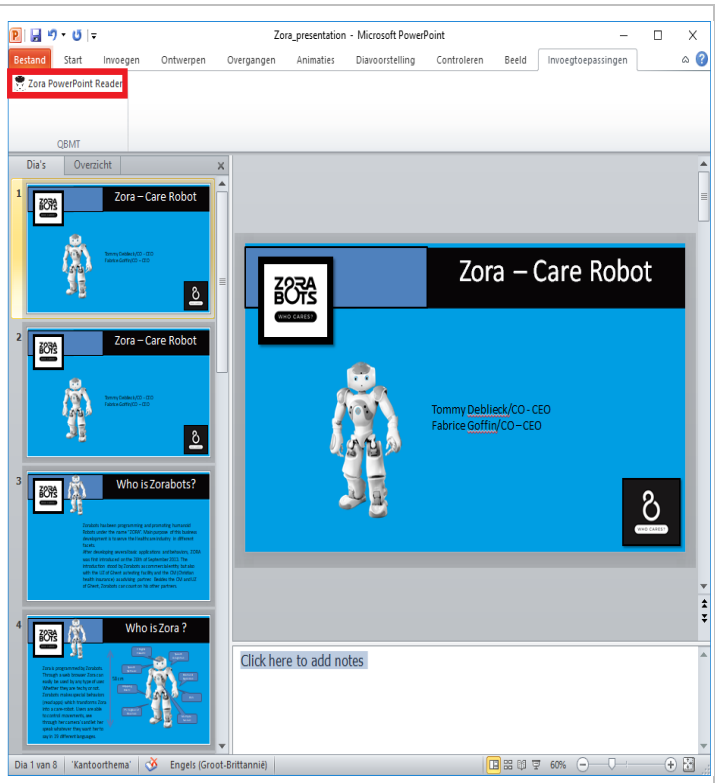


If this add-in is **not active**, by selecting the COM Add-ins in the 'Manage' field and clicking Go, a separate popup appears, which shows all the COM add-ins for Powerpoint

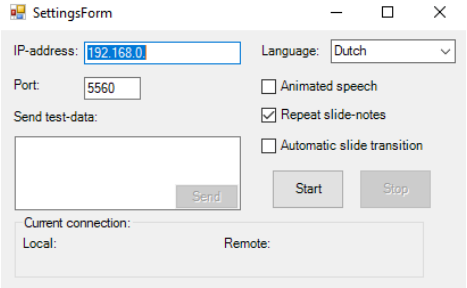


After checking the installation is in order, the following steps are needed to connect to the robot:

Step 1 – Open the Add-in tab on Powerpoint



Step 2 – Click the Zora Powerpoint Reader (top left of the tab)
The following screen appears:



Step 3 – Fill in the following settings:

Fill in the **IP address** of the robot (Port should be **5560**), the system language [1] and the other settings[2] and click **Start** to make a connection.

By filling in a test in the field

'Send test-data', the button 'Send' will be enabled.
Do this to check the output (volume, reading speed and voice pitch) after starting the add-in.

[1]: Only one language is available for the entire presentation, so try to match the language of the presentation to the language spoken by the robot.

[2]: Possible options for the settings:

Animated speech

If checked, the robot will gesticulate during the reading of the notes.

Repeat slide-notes

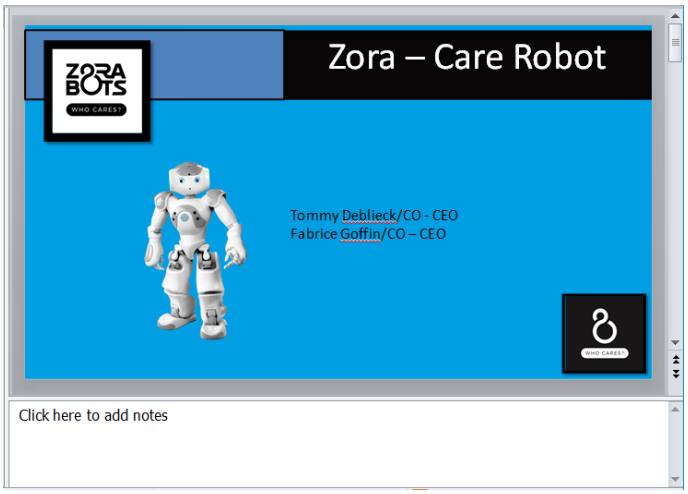
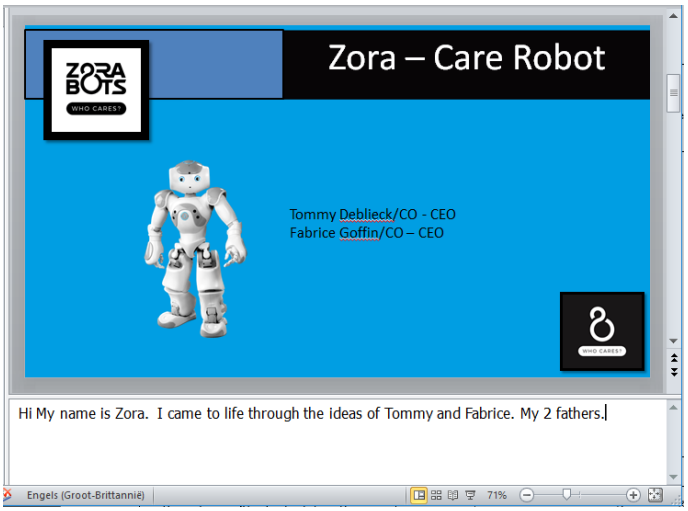
If checked, the robot will speak the notes of the presentation.

Automatic slide transition

If checked, then this option causes the Powerpoint to automatically transition to the next slide once the notes have been read. This will add some delays to your presentation.

Chapter 03 Powerpoint and Zora set up

To use the add-in, the following steps are needed:

Step 1 – Create the Powerpoint-presentation	Create the presentation with the notes to be spoken out loud by the robot. An example is supplied on the robot in the steering-tab, in the 'Files' section (below the camera-field).
An example of a Powerpoint-slide without notes:  	
An example of a Powerpoint-slide with notes:  	
Step 2 – Start the behavior 'Powerpoint' in the category 'Productivity' on the robot	Zora will say the behavior is running and will go to the 'crouch'-posture
Step 3 – Start the plugin on Powerpoint (see steps above)	
Step 4 – Work in concert with the robot for a perfect presentation.	Remember to stop the plugin and behavior - **in that order** - to place the robot back in a rest-position.

Chapter 04 Tips for this add-in

- Always do a dummy run of the presentation to see if the timing is correct.
- If you would like the robot not to read out immediately from the first slide (in order to say your own introduction for instance), it is useful to provide your first slide twice, but without notes-text on the first slide. That way, your first slide will just be shown without the robot "presenting" anything as the notes-field is empty. The second slide (which is the same as the first but WITH text in the notes-field) will be presented by the robot.
- Notice that if the option Automatic slide transition is checked, ZORA will automatically continue to the next slide when all the text of the notes-field has been read out: an empty slide without text will thus be skipped instantly. It is also important to remember that ALL text will be read out from the notes-field, meaning if a lot of text is present in the notes-field, it might take a while for ZORA to read it all out. A PowerPoint with many slides with a lot of text might take a long time to finish this way.
- If the option Automatic slide transition is unchecked, you can navigate between slides yourself: by doing this the current speech will be stopped, and the text of the new current slide will be read out – if the slide's notes-field contains text. You can use this functionality to stop the speech of a certain slide manually.

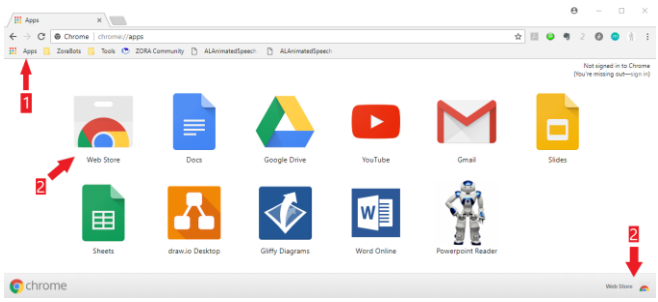
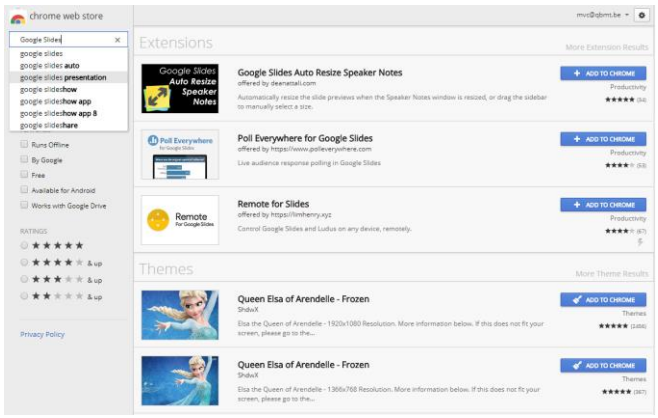
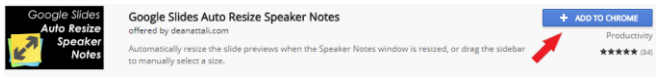
Article IX. Google Slides plugin

The Google slides plugin is designed to have Zora read the **notes** of a Google Slides presentation out loud. This requires two extensions in Google Chrome, specifically '**Google Slides Presenter**' (both an app and an extension)

Chapter 01 Installing the extensions for 'Google Slides Presenter'.

(a) App

This app communicates with the robot but does not offer any functionality in Google Chrome.
Note: This extension is only available for Google Chrome.

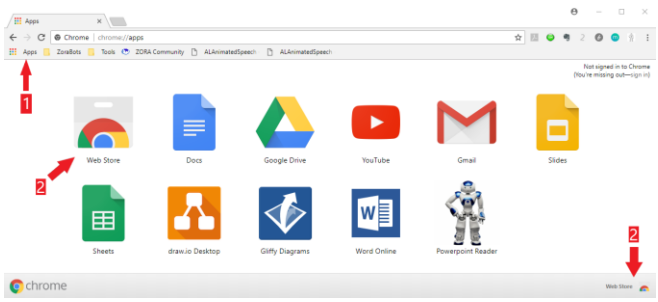
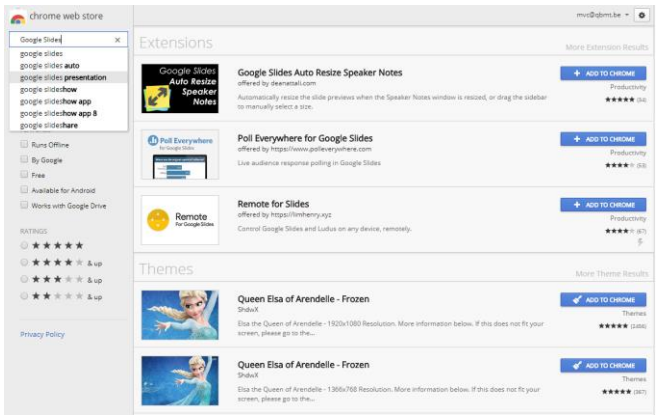
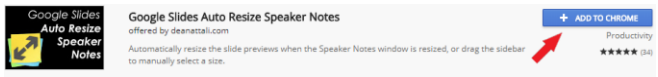
Step 1 – Open the webstore. Open the webstore for Google Chrome by using the following link https://chrome.google.com/webstore/category/extensions or open the webstore by selecting the option 'Apps' in the menu bar and selecting the option 'Webstore' (either from the link in the apps or in the bottom bar).	
Step 2 – Find the app in the store. Once the Web Store has been opened, enter the search term '**Google Slides Presenter**' in the field in the top right to find the application.	
Step 3 –Add the app to Chrome Click the button 'Add to Chrome' next to the plugin to add the app to Chrome.	

Once this app has been installed, the plugin-extension may be installed as well.

(b) Extension

This extension will allow the notes of a Google Slides-presentation to be spoken on a robot.

Note: This extension is only compatible with Google Chrome.

Step 1 – Open the webstore. Open the webstore for Google Chrome by using the following link https://chrome.google.com/webstore/category/extensions or open the webstore by selecting the option 'Apps' in the menu bar and selecting the option 'Webstore' (either from the link in the apps or in the bottom bar).	
Step 2 – Find the app in the store. Once the Web Store has been opened, enter the search term '**Google Slides Presenter**' in the field in the top left to find the application.	
Step 3 –Add the app to Chrome Click the button 'Add to Chrome' next to the plugin to add the app to Chrome.	

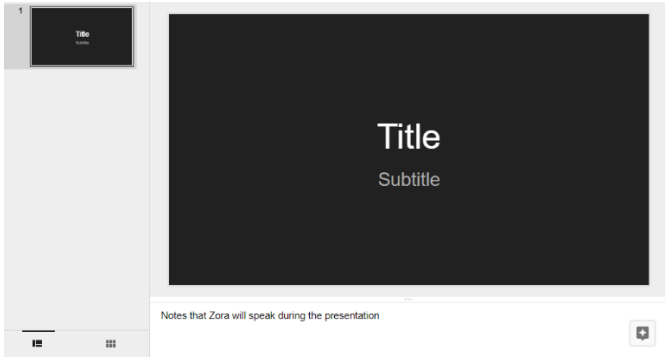
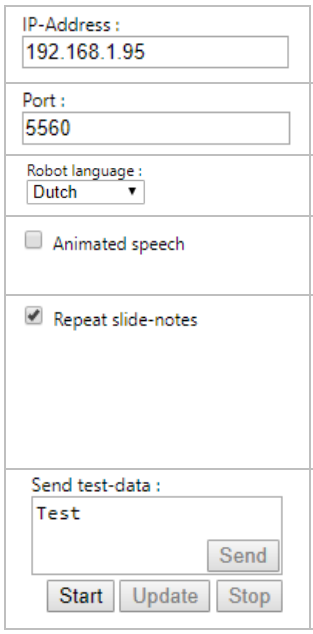
(c) Verifying the installation

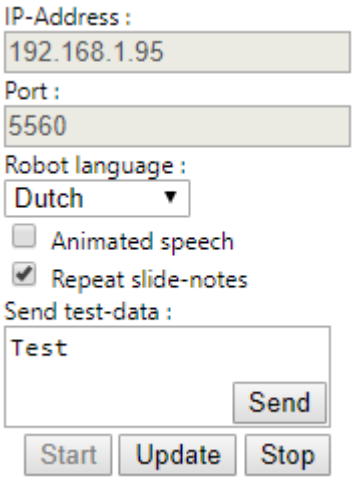
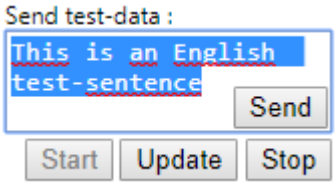
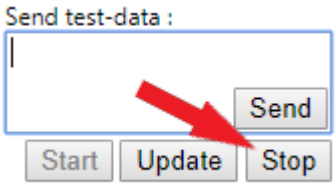
If the extension has been installed, the following icon will be shown next to the address bar of Google Chrome:	
By opening a Google Slides-presentation in Chrome, this icon will not be greyed out anymore, and option will be shown by clicking on it.	

Note: When clicking the greyed-out icon, only the information of the extension will be shown, not the possible options.

Chapter 02 Using the extension

Once both the app and the extension have been installed, the notes for a Google Slides presentation will be read aloud by the robot.

Step 1 – Create a Presentation Open Google Slides presentation and create a presentation. For more information on how to use Google Slides, see the following link: https://gsuite.google.com/learning-center/products/slides/get-started/#!/	
Step 2 – Open the Extension By clicking on the (enabled) icon, the following options will be shown:	 IP address of Zora Port must be 5560 The language for the notes If checked, Zora will move the arms If checked, Zora will speak the notes only once. The notes will not be repeated when returning to a previous slide. An input-field containing test-data that can be sent to the robot.
Step 3 – Start the behavior Connect to the robot and start the Powerpoint-behavior. Once the robot says: 'Powerpoint ready', a connection can be made from Chrome to the robot.	PowerPoint or Powerpoint

Step 4– Start the connection Once the settings for the 'IP-Address' and 'Port' have been filled in correctly, a connection can be made by pressing the 'Start'-button. Once the connection has been made, the IP-address and Port-number can no longer be changed except by breaking the connection (see **step 7**) and re-connecting to the robot. The other settings can be changed without breaking the connection to the robot by clicking the 'Update'-button.	
Step 5– Test the connection This step is optional but recommended. Once the connection has been made, fill in a sentence in the input-field and press the 'Send'-button.	
Step 6 – Play the entire presentation Once the test had been completed, the presentation can be played. If the option 'Repeat slide-notes' has been selected, the robot will say the notes. For more features on the notes, see the chapter Additional settings.	**Caution**: The notes will be spoken as soon as the slide is shown. Keep this in mind when creating the presentation.
Step 7 – Disconnecting from the robot Once the slideshow (or its testing-phase) has ended, the connection from Chrome may be stopped by selecting the 'Stop'-button. **Caution:** If the connection is lost, the robot will sit down.	
Step 8 – Stop the Powerpoint-behavior Once the connection from Chrome has been terminated, the Powerpoint-behavior may be stopped on the robot. This can be done by pressing the red button at the top in Zora-Control.	

Chapter 03 Additional settings

(a) Note-tags

By using specific tags in the notes, it is possible to (slightly) alter the output of the slides. This 'tag' must be shown at the beginning of the notes.

Tag	Function	Example
{norepeat}	The note will not be spoken.	{norepeat}this note is internal
{animode}	The note will be spoken with animations.	{animode}this text will be spoken while the robot will be moving.

(b) Automatic resting posture

If the robot does not say anything for 10 seconds, it will put itself in a resting posture to stop the motors from overheating.

(c) Timing

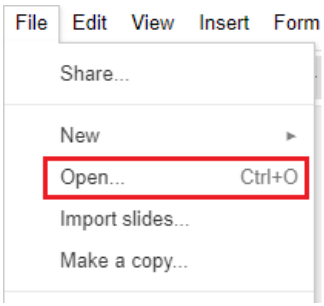
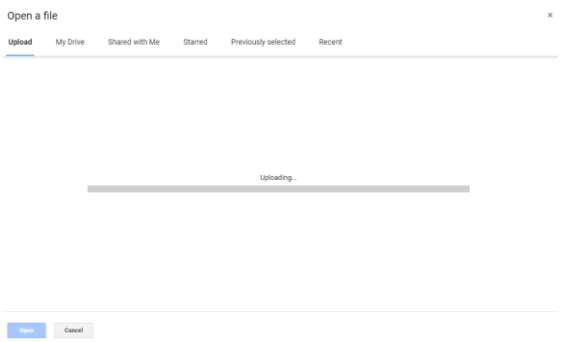
As stated before, the text will always be spoken the instant the text is read. It may therefore be necessary to duplicate certain slides to have the robot speak when it should.

If the system-language is different from the language set in the extension, it may take some time before the first note is spoken. This is due to loading the language pack. Once the pack has been loaded, the rest of the notes will be spoken smoothly.

Chapter 04 Importing a Powerpoint-presentation into Google Slides

To import a Powerpoint presentation into Google Slides, one of the following options can be used:

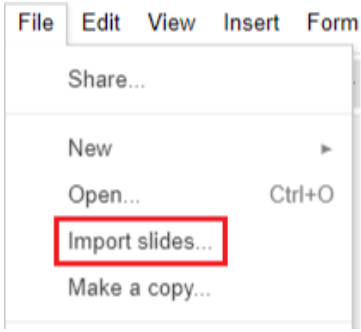
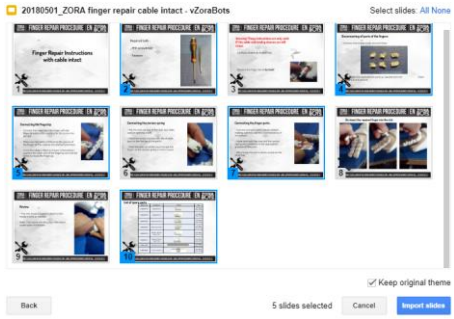
(a) Open the presentation

By selecting the option 'Open' in the menu of Google Slides, the presentation may be selected from either the Google Drive, or can be uploaded from the computer. ***Note***: When opening a file from the hard drive, a copy is automatically uploaded and stored on the Google Drive.	
By selecting the option 'Upload', an explorer window is opened to select the Powerpoint presentation. Once the file has been selected and uploaded, a new tab will open containing the presentation.	

(b) Import slides

It is also possible to import the slides from another presentation into the current one.

So, it is possible to start a new blank presentation and to import the Powerpoint into the blank presentation.

Select the option 'Import slides' from the menu 'File' in Google Slides. A popup opens to select the file from the Drive or from the connected computer. Once the selected file has been uploaded, it is possible to select which slides should be imported into the current project.	
In the example shown, only the even number of slides have been selected to be imported. It is possible to select the option 'All' in the top right corner to select all the slides of the presentation. Once the slides have been selected, the button 'Import slides' in the bottom right corner can be used to use the slides in the current presentation.	

Note: It is possible when importing a Powerpoint-file that some of the layout or transitions may have been lost. Double-check the presentation and correct this as needed.

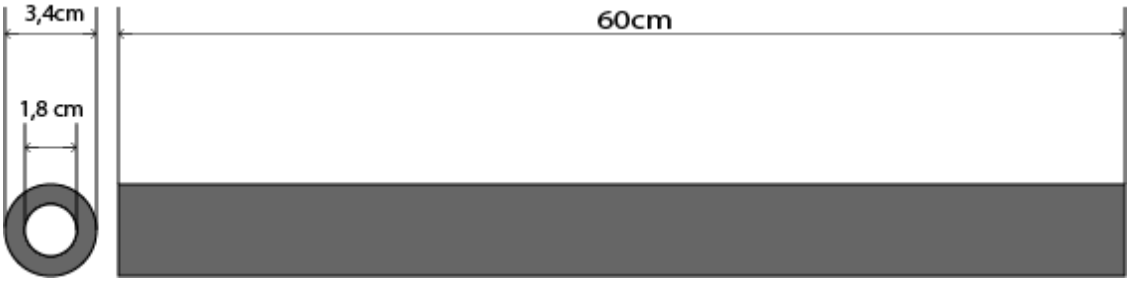
Chapter 05 Known issues

- When stopping the behavior - before closing the connection - if the system-language is different from the language set by the extension-plugin, the stopping-sentence will be spoken in the language set by the extension-plugin, not the system-language.
  To avoid any weird pronunciations, keep both language settings the same.
- When moving too quickly through the slides, the notes may be cut short.
- The robot will only begin to speak once it is standing up. Take this time into consideration when presenting.
- When connected to the Powerpoint-behavior, it is possible the robot will briefly start the motors and then go back to a resting posture.

Article X. Stick

To use exercises with the stick, a foam stick is needed to be purchased.

The dimensions of the stick are as follows:



Make sure the used material is very flexible and fits when Zora clenches the fists.

Article XI. Read agenda

On the USB-stick, a program to generate credentials for use in the Read Agenda behavior is also present. For more information on how to use this program (and the dataset), see **Appendix 2 – Chapter X.1 Read Agenda**

APPENDIX 5 – SAFETY PROCEDURE

This appendix contains the user manuals for various accessories related to the robot.

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A. General precautions 255

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D. Spilt liquids 258

PROCEDURES 258

I. MSDS Battery

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E-Mail: mail@bmz-gmbh.de · Internet: www.bmz-gmbh.de

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PRODUKTSICHERHEITSDATENBLATT
PRODUCT SAFETY DATA SHEET

Lithium-Ionen-Nickel-Cobalt-Aluminiumoxid-Batterie
Lithium ion nickel cobalt aluminium oxide battery

6S1P US18650NC1 Reihe

BMZ Artikel-Nr. / *Item No.* **9670-8**

Gemäß Verordnung (EG) Nr. 1907/2006 (REACH) muss ein Sicherheitsdatenblatt lediglich für Stoffe und Zubereitungen zur Verfügung gestellt werden. Batterien sind von den Anforderungen dieser Verordnung nicht betroffen.

According Regulation (EC) No 1907/2006 (REACH) a safety data sheet must be provided for substances and preparations only. Batteries are not affected by the requirements of this Regulation.

1. Bezeichnung des Produkts und Angabe des Herstellers
Identification of the substance and of the manufacturer

Identifizierung: *Identification:*	Produktkategorie *Product category*	Lithium-Ionen-Batterie *Lithium ion battery*
	Bezeichnung *Model name*	6S1P US18650NC1 Reihe
	Nennspannung *Nominal voltage*	21.6 V
	Nennkapazität *Nominal capacity*	2.9 Ah
	Nennenergie *Nominal energy*	62,64 Wh
	Chemisches System *Chemical system*	Lithium-NCA / Graphit *Lithium NCA / Graphite*
	Wiederaufladbar *Rechargeable*	☒ Ja *Yes* ☐ Nein *No*
Hersteller: *Manufacturer:*	Name und Adresse *Name and address*	Batterien-Montage-Zentrum GmbH Am Sportplatz 28-30 D-63791 Karlstein am Main
	Telefon / *Phone*	+49 (0) 6188 / 9956-0
	Telefax / *Telefax*	+49 (0) 6188 / 9956-900
	E-mail / *E-mail*	mail@bmz-gmbh.de

Karlstein, 28.03.2014

i.A. Dr. Jochen Mähliß (Dipl.-Chem.)
Richtlinienbeauftrager / *Compliance Officer*

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2. Mögliche Gefahren
Hazards identification

Gefahren:
Hazards:

Lithium-Ionen-Batterien können bei unsachgemäßer Handhabung Feuer entwickeln, explodieren oder chemische Verätzungen verursachen. Batterien keinesfalls kurzschließen, durchstoßen, in Feuer werfen, quetschen, in Wasser tauchen, erzwungen entladen oder Temperaturen aussetzen, die außerhalb der angegebenen Betriebsspanne des Produktes liegt. Bitte lesen Sie die Bedienungsanleitung sorgfältig.

Unter normalen Bedingungen treten keine gefährlichen Stoffe aus und es kann zu keiner Berührung mit toxischen Stoffen kommen. Ein Expositionsrisiko besteht nur im Falle unsachgemäßer Handhabung (mechanisch, thermisch, elektrisch), die zur Aktivierung der Sicherheitsventile und/oder zum Aufbrechen des Gehäuses führt. Auslaufen der Elektrolytflüssigkeit, Reaktion der Elektrodenmaterialien mit Feuchtigkeit/Wasser oder Batterieentlüftung/Feuer/Explosion können, abhängig von den Begleitumständen, die Folge sein.

Durch Berührung stromführender Bauteile kann es zu einem elektrischen Schlag kommen, der thermische oder muskellähmende Auswirkungen haben kann. Letztere können zu Herzkammerflimmern, Herzstillstand oder Atemlähmung mit tödlichem Ausgang führen.

Lithium-ion batteries may present a risk of fire or explosion or chemical burn when mistreated. Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Read instructions carefully.

Under normal conditions of use, the chemicals and metals are contained in a sealed can and are not exposed to the outside. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery housing. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/fire/explosion may follow, depending on the circumstances.

Touching live parts may cause electrical shock which may result in thermal heating or muscle paralyzing effects. The latter may cause ventricular fibrillation, sudden cardiac arrest or respiratory paralysis with fatal ending.

Toxizität:
Toxicity:

Brennt eine Batterie, so können Reizungen infolge von entstehendem Rauch oder entstehenden Dämpfen an Augen, Haut und Atemwegen auftreten.

If a battery burns, the vapors can irritate eyes, skin and the respiratory tract.

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E-Mail: mail@bmz-gmbh.de · Internet: www.bmz-gmbh.de

3. Reaktionsgleichung, Zusammensetzung und Angaben zu den Bestandteilen
Reaction equation, composition and information on ingredients

Oxidation: $Li_xC_6 \rightarrow Li_{1-x}C_6 + x\,Li^+ + x\,e^-$
Oxidation:

Reduktion: $Li_{1-x}Ni_aCo_bAl_cO_2 + x\,Li^+ + x\,e^- \rightarrow LiNi_aCo_bAl_cO_2$
Reduction:

Die folgenden Komponenten sind in der verschlossenen Zelle enthalten.
The following components are found inside the sealed Li-ion battery can.

Komponente / *Component*	**Chemische Bezeichnung / *Chemical name***	**CAS-Nummer / *CAS number***
Kathode / *Cathode*	Lithium-Nickel-Cobalt-Aluminiumoxid / *Lithium nickel cobalt aluminium oxide*	207803-51-8
Anode / *Anode*	Graphit / *Graphite*	7782-42-5
Elektrolyt / *Electrolyte*	Ethylacetat / *Ethyl acetate*	141-78-6
	Ethylencarbonat / *Ethylene carbonate*	96-49-1
	Dimethylcarbonat / *Dimethyl carbonate*	616-36-6
	Lithiumhexafluorophosphat / *Lithium hexafluorophosphate*	21324-40-3
Binder / *binder*	Polyvinylidendifluorid / *Polyvinylidene difluoride*	24937-79-9

4. Erste-Hilfe-Maßnahmen
First aid measures

Die unter Punkt 3 angegebenen Chemikalien befinden sich in einem abgedichteten Gehäuse, sodass sie bei normalem Gebrauch nicht austreten können.
Die Gefahr des Austretens besteht nur durch mechanischen, thermischen oder elektrischen Missbrauch.
The chemicals are contained in sealed cans. Upon normal conditions of use, risk of exposure occurs only if the battery is mechanically, thermally or electrically abused.

Sollten Chemikalien austreten, ist Folgendes zu beachten:
If chemicals leak attend these advices:

Einatmen: Austretende Gase können zu Atemwegsbeschwerden führen.
Inhalation: Sofort lüften oder an die frische Luft gehen, in schlimmeren Fällen sofort einen Arzt rufen.
Contents of an opened battery can cause respiratory irritation. Provide fresh air and call a doctor.

Hautkontakt: Es können Hautirritationen auftreten.
Skin contact: Haut mit Seife und Wasser gründlich waschen.
Contents of an opened battery can cause skin irritation.
Wash skin with soap and water.

Augenkontakt: Es kann zu Reizungen an den Augen kommen.
Eye contact: Sofort die Augen 15 Minuten lang gründlich mit Wasser spülen, dann einen Arzt aufsuchen.
Contents of an opened battery can cause eye irritation.
Immediately flush eyes thoroughly with water for 15 minutes and seek medical attention.

Sollte es zu einem Stromschlag gekommen sein, ist Folgendes wichtig:

- den Verletzten nicht berühren, bevor Spannungsfreiheit der Anlage sichergestellt ist;
- freiliegende, stromführende Kabel mit Hilfe nichtleitender Gegenstände vom Verletzten wegziehen;
- bei bewusstlosen Patienten ist die Sicherstellung von Atmung und Herz-Kreislauffunktion vorrangig. Gegebenenfalls ist die sofortige Herz-Lungen-Wiederbelebung einzuleiten;
- bei ansprechbaren Patienten sind Brandverletzungen zu kühlen und mit einer keimarmen, nicht flusenden Wundauflage abzudecken

If it should have come to an electric shock, your acting should be based on the following:

- *do not touch the injured person until you have ensured the absence of voltage;*
- *take away exposed live cables from the injured person by using non-conductive items;*
- *primary objective in the treatment of unconscious patients is the maintenance of their breathing and cardiovascular system. If necessary you have to give cardiopulmonary resuscitation.*
- *cool burn injuries and cover them with an aseptic and non-fluffy wound dressing.*

5. Maßnahmen zur Brandbekämpfung
Fire fighting measures

Im Brandfall: Verwenden Sie nur Feuerlöscher der Brandklasse D (Trockenpulver).
In case of fire: *Use dry chemical extinguishers.*

Achtung: Bevor Sie beginnen das Feuer zu löschen, stellen Sie sich bitte auf die Seite des Feuers, aus die der Wind kommt. So atmen Sie keine giftigen Dämpfe ein.
Caution: *Before starting to extinguish the fire, be sure, that you are at windward of fire. So you cannot inhale toxic vapors.*

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6. Maßnahmen bei unbeabsichtigter Freisetzung
Accidental release measures

Ausgelaufene Elektrolytflüssigkeit sollte mit einem saugfähigen Stück Stoff aufgewischt werden.
Wipe up leaked electrolyte fluid with an absorbent cloth.

Im Falle einer größeren Freisetzung sollte Schutzkleidung getragen werden:
If there is a lot of leaked electrolyte, you should wear:

- schützende Kleidung
  protective clothing
- Gasmaske gegen organische Gase
  gas mask for organic gases
- Schutzbrille
  safety goggles
- Schutzhandschuhe
  gauntlets

7. Handhabung und Lagerung
Handling and storage

Handhabung:
Handling:
Die Batterie nicht öffnen, zerquetschen oder zerlegen oder aus großer Höhe fallen lassen oder etwas anlöten.
Do not open the battery. Do not crush, disassemble, drop or solder.

Laden:
Charging:
Die Ladetemperatur muss zwischen 0 °C und +45 °C betragen.
Die Batterie darf nur mit dem dazugehörigen Ladegerät geladen werden.
Charge within limits of +32 °F to +113 °F temperature
Charge only with specified charger designed for this battery.

Entladen:
Discharging:
Das Entladen der Batterie darf nur zwischen -20 °C und +60 °C erfolgen.
Discharge within limits of -4 °F to +140 °F temperature.

Achtung:
Caution:
Falsche Handhabung kann zu einer Explosion führen oder einen Brand entfachen!
Wrong handling can cause fire or explosion.

Lagerung:
Storage:

Temperatur: -20 °C bis +45 °C
Luftfeuchtigkeit: 0 % bis 80 %
Das Lager muss gut durchlüftet sein.
Ein Kurzschluss kann einen Brand verursachen.
Die Batterien dürfen nicht mit anderen metallischen Gegenständen gelagert werden.

Temperature: -4 °F to +113 °F
Humidity range: 0 % to 80 %
Well ventilated area.
Short circuit can ransom burn.
Do not store with metal objects.

8. Überwachen der gelagerten Waren und Schutzausrüstung
Exposure controls and personal protection

Die Hinweise unter Punkt 7 müssen eingehalten werden. Es muss somit regelmäßig geprüft werden, ob die Lagertemperatur innerhalb der vorgegebenen Grenzen liegt. Ebenso muss eine angemessene Durchlüftung gewährleistet sein, um Staunässe zu vermeiden.
Für den normalen Umgang mit den Batterien ist keine Schutzausrüstung erforderlich.

Advices under Point 7 must be observed. You have to check continuously that storage temperature is within the specified limits. Additionally, you have to ensure that there is a suitable ventilation in order to avoid water logging.
For normal use you don't need any protective equipment.

9. Physikalische und chemische Eigenschaften
Physical and chemical properties

Aussehen:
Appearance:

12 Zellen in schwarzem Kunststoffgehäuse.
12 cells in black plastic housing.

Gewicht:
Weight:

349 g

Chemische Eigenschaften:
Chemical properties:

siehe Punkt 3
see Point 3

10. Stabilität und Reaktivität
Stability and reactivity

Durch lange Lagerung wird die Kapazität der Batterie reduziert und die voraussichtliche Funktionsdauer wird verkürzt.
Das Gehäuse kann durch auslaufenden Elektrolyt von innen beschädigt werden.
During a long storage the capacity will be reduced and the lifespan of the battery will be shorter.
The plastic housing can be damaged by leaking electrolyte.

11. Toxikologische Angaben
Toxicological information

Im normalen Umgang treten keine gefährlichen Stoffe aus der Batterie aus und es kann somit zu keiner Berührung mit toxischen Stoffen kommen.
Upon normal use there will be no leaking and, hence, there will be no contact with toxically ingredients of the battery.

12. Umweltspezifische Angaben
Ecological information

Bei normalem Umgang tritt keine Umweltschädigung durch die Batterie auf.
Sie muss jedoch nach dem Gebrauch gesondert entsorgt werden, da sie gefährliche Chemikalien enthält. Siehe Punkt 13.
Upon normal use there won't be any environmental pollution.
If the battery is unusable, you must recycle it. See Point 13.

13. Hinweise zur Entsorgung
Disposal considerations

Eine Batterie ist Sondermüll.
Die Entsorgung der Batterie darf nur über ein zugelassenes Rücknahmesystem erfolgen.
Die Batterie darf auf keinen Fall über den Restmüll entsorgt werden.
The battery is hazardous waste.
It is not allowed to dispose it with common waste.
If the battery is unusable, dispose it according to the applicable recycling regulations.

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14. Angaben zum Transport
Transportation information

ADR/RID/IMDG-Code: Die Batterie entspricht den Voraussetzungen zur Erfüllung aller Bedingungen der Sondervorschrift 188.
The battery conforms with the conditions to meet all requirements of Special Provision 188.

Sondervorschrift 188:

Die zur Beförderung aufgegebenen Zellen und Batterien unterliegen nicht den übrigen Vorschriften des ADR, wenn folgende Vorschriften erfüllt sind:

a) Eine Zelle mit Lithium-Metall oder Lithiumlegierung enthält höchstens 1 g Lithium und eine Zelle mit Lithium-Ionen hat eine Nennenergie in Wattstunden von höchstens 20 Wh.

b) Eine Batterie mit Lithium-Metall oder Lithiumlegierung enthält höchstens eine Gesamtmenge von 2 g Lithium und eine Batterie mit Lithium-Ionen hat eine Nennenergie in Wattstunden von höchstens 100 Wh. Batterien mit Lithium-Ionen, die unter diese Vorschrift fallen, müssen auf dem Außengehäuse mit der Nennenergie in Wattstunden gekennzeichnet sein, ausgenommen vor dem 1. Januar 2009 hergestellte Batterien.

c) Jede Zelle oder Batterie entspricht den Vorschriften der Absätze 2.2.9.1.7 a) und e).

d) Die Zellen und Batterien müssen, sofern sie nicht in Ausrüstungen eingebaut sind, in Innenverpackungen verpackt sein, welche die Zelle oder Batterie vollständig einschließen. Die Zellen und Batterien müssen so geschützt sein, dass Kurzschlüsse verhindert werden. Dies schließt den Schutz vor Kontakt mit leitfähigen Werkstoffen innerhalb derselben Verpackung ein, der zu einem Kurzschluss führen kann. Die Innenverpackungen müssen in starken Außenverpackungen verpackt sein, die den Vorschriften der Unterabschnitte 4.1.1.1, 4.1.1.2 und 4.1.1.5 entsprechen.

e) Zellen und Batterien, die in Ausrüstungen eingebaut sind, müssen gegen Beschädigung und Kurzschluss geschützt sein; die Ausrüstungen müssen mit wirksamen Mitteln zur Verhinderung einer unbeabsichtigten Auslösung ausgestattet sein. Diese Vorschrift gilt nicht für Einrichtungen, die während der Beförderung absichtlich aktiv sind (Sender für die Identifizierung mit Hilfe elektromagnetischer Wellen (RFID), Uhren, Sensoren usw.) und die nicht in der Lage sind, eine gefährliche Hitzeentwicklung zu erzeugen. Wenn Batterien in Ausrüstungen eingebaut sind, müssen die Ausrüstungen in starken Außenverpackungen verpackt sein, die aus einem geeigneten Werkstoff gefertigt sind, der in Bezug auf den Fassungsraum der Verpackung und die beabsichtigte Verwendung der Verpackung aus-reichend stark und dimensioniert ist, es sei denn, die Batterie ist durch die Ausrüstung, in der sie enthalten ist, selbst entsprechend geschützt.

f) Jedes Versandstück mit Ausnahme von Versandstücken, die in Ausrüstungen (einschließlich Platinen) eingebaute Knopfzellen-Batterien oder höchstens vier in Ausrüstungen eingebaute Zellen oder höchstens zwei in Ausrüstungen eingebaute Batterien enthalten, muss mit folgenden Angaben gekennzeichnet sein:

(i) einer Angabe, dass das Versandstück «LITHIUM-METALL»- bzw. «LITHIUM-IONEN»-Zellen oder -Batterien enthält;
(ii) einer Angabe, dass das Versandstück sorgsam behandelt werden muss und dass bei Beschädigung des Versandstücks eine Entzündungsgefahr besteht;
(iii) einer Angabe, dass bei einer Beschädigung des Versandstücks besondere Verfahren anzuwenden sind, welche eine Kontrolle und erforderlichenfalls ein erneutes Verpacken einschließen, und
(iv) einer Telefonnummer für zusätzliche Informationen.

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g) Jede Sendung mit einem oder mehreren Versandstücken, die gemäß Absatz f) gekennzeichnet sind, muss von einem Dokument begleitet werden, das folgende Angaben enthält:

(i) eine Angabe, dass das Versandstück «LITHIUM-METALL»- bzw. «LITHIUM-IONEN»-Zellen oder -Batterien enthält;

(ii) eine Angabe, dass das Versandstück sorgsam behandelt werden muss und dass bei Beschädigung des Versandstücks eine Entzündungsgefahr besteht;

(iii) eine Angabe, dass bei einer Beschädigung des Versandstücks besondere Verfahren anzuwenden sind, welche eine Kontrolle und erforderlichenfalls ein erneutes Verpacken einschließen, und

(iv) eine Telefonnummer für zusätzliche Informationen.

h) Jedes Versandstück muss, sofern die Batterien nicht in Ausrüstungen eingebaut sind, in der Lage sein, einer Fallprüfung aus 1,2 m Höhe, unabhängig von seiner Ausrichtung, ohne Beschädigung der darin enthaltenen Zellen oder Batterien, ohne Verschiebung des Inhalts, die zu einer Berührung der Batterien (oder der Zellen) führt, und ohne Freisetzen des Inhalts standzuhalten.

i) Die Bruttomasse der Versandstücke darf 30 kg nicht überschreiten, es sei denn, die Batterien sind in Ausrüstungen eingebaut oder mit Ausrüstungen verpackt.

In den oben aufgeführten Vorschriften und im gesamten ADR versteht man unter «Lithiummenge» die Masse des Lithiums in der Anode einer Zelle mit Lithium-Metall oder Lithiumlegierung.

Es bestehen verschiedene Eintragungen für Lithium-Metall-Batterien und Lithium-Ionen-Batterien, um für besondere Verkehrsträger die Beförderung dieser Batterien zu erleichtern und die Anwendung unter-schiedlicher Notfalleinsatzmassnahmen zu ermöglichen.

Special Provision 188:

Cells and batteries offered for carriage are not subject to other provisions of ADR if they meet the following:

(a) For a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and for a lithium ion cell, the Watt-hour rating is not more than 20 Wh;

(b) For a lithium metal or lithium alloy battery the aggregate lithium content is not more than 2 g, and for a lithium ion battery, the Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case, except those manufactured before 1 January 2009.

(c) Each cell or battery is of the type proved to meet the requirements of paragraphs 2.2.9.1.7 a) and e).

(d) Cells and batteries, except when installed in equipment, shall be packed in inner packagings that completely enclose the cell or battery. Cells and batteries shall be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. The inner packagings shall be packed in strong outer packagings which conform to the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.5;

(e) Cells and batteries when installed in equipment shall be protected from damage and short circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. This requirement does not apply to devices which are intentionally active in transport (radio frequency identification (RFID) transmitters, watches, sensors, etc.) and which are not capable of generating a dangerous evolution of heat. When batteries are installed in equipment, the equipment shall be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained;

(f) Except for packages containing button cell batteries installed in equipment (including circuit boards), or no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:

(i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate;
(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and
(iv) a telephone number of additional information;

(g) Each consignment of one or more packages marked in accordance with paragraph (f) shall be accompanied with a document including the following:
(i) an indication that the package contains "lithium metal" or "lithium ion" cells or batteries, as appropriate;
(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;
(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and
(iv) a telephone number for additional information;

(h) Except when batteries are installed in equipment, each package shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents; and

(i) Except when batteries are installed in or packed with equipment, packages shall not exceed 30 kg gross mass.

As used above and elsewhere in ADR, "lithium content" means the mass of lithium in the anode of a lithium metal or lithium alloy cell.

Separate entries exist for lithium metal batteries and lithium ion batteries to facilitate the carriage of these batteries for specific modes of carriage and to enable the application of different emergency response actions.

ICAO-TI/IATA-DGR: Verpackungsanweisung 965, Teil II oder Teil IB
Packing Instruction 965, Part II or Part IB

15. Vorschriften und Regelwerke
Regulatory information

Hinweise auf Vorschriften zur Beförderung gefährlicher Güter:
Notes to regulations concerning the transport of hazardous goods:

Gefahrgutbeförderungsgesetz (GGBefG)

Gefahrgutverordnung Straße, Eisenbahn und Binnenschifffahrt (GGVSEB)

Gefahrgutverordnung See (GGVSee)
Luftverkehrsgesetz (LuftVG), Luftverkehrs-Zulassungs-Ordnung (LuftVZO)

Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße (ADR)
European Agreement concerning the International Carriage of Dangerous Goods by Road

Ordnung für die internationale Eisenbahnbeförderung gefährlicher Güter (RID)
Convention concerning International Carriage by Rail

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Europäisches Übereinkommen über die Beförderung gefährlicher Güter auf Binnenwasserstraßen (ADN)
European Agreement concerning the International Carriage of Dangerous Goods by Inland Navigation

Internationaler Code für die Beförderung gefährlicher Stoffe mit Seeschiffen (IMDG-Code)
International Maritime Dangerous Goods Code

International Civil Aviation Organization / Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO-TI)
International Air Transport Association / Dangerous Goods Regulations (IATA-DGR)

16. Sonstige Angaben
Other information

Diese Informationen wurden nach bestem Wissen und Gewissen sorgfältig zusammengestellt. BMZ schließt jegliche Gewährleistung auf die Genauigkeit, Zuverlässigkeit und Vollständigkeit der aufgeführten Informationen aus!
Es liegt in der Verantwortung des Anwenders die Angemessenheit und Vollständigkeit dieser Informationen in Bezug auf seinen besonderen Verwendungszweck zu prüfen.
This information has been compiled accurately to the best of our knowledge and belief. However, BMZ excludes any warranty for the accuracy, reliability or completeness of the information contained herein. It is the user´s responsibility to satisfy himself as to the suitability and completeness of this information for his particular use.

II. Safety instructions

A. General precautions

The following safety instructions are from Zora's point of view.

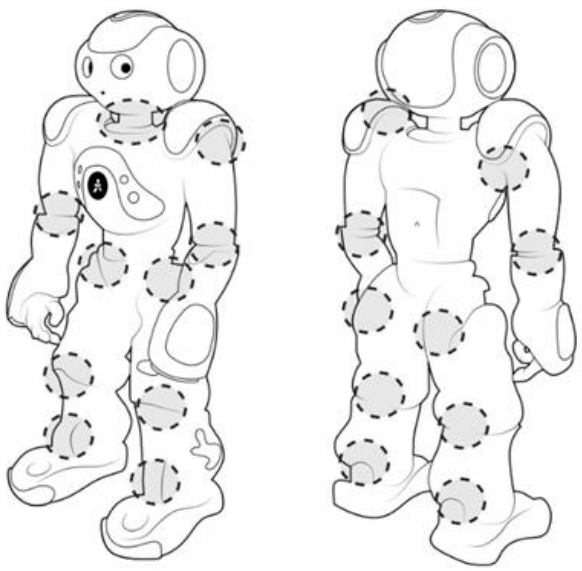
- Even if I look human, remember that I am still an object.
- I am not a toy, and I am not intended for use by children under 14 years old, or any person with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless either:
    - supervised by a person responsible for the child's safety and who has read and understood these instructions.

      OR
    - if the child is 14 years old and above, the child has been given instructions concerning my use in a safe way and understands the hazards involved.
- Children between 3 and 14 should otherwise not play with me.
- Keep me away from children under 3 at all times, even when I am switched off.
- Keep fastening or packing materials away from children.
- Also keep me away from pets and animals of any kind, as some animals may behave strangely with humanoid robots.
- Take particular care if the experience of handling robots is new to you, because at first, I can appear to behave unexpectedly and so handling me can seem unusual.
- If I do not operate normally — in particular, if you detect an unusual sound, smell or smoke coming from me:
    - Ensure I cannot fall.
    - Turn me OFF immediately.
    - Unplug me.
    - Remove the battery (remove 2 screws on the back of the battery casing).
    - Contact ZoraBots Customer Support.
- To prevent the spread of fire, keep candles or other open flames away from me at all times.
- At all times remember that safety to humans always comes first; safety to Robots always comes second.
- Always follow installation and service instructions closely and store them for safekeeping.
- Review and follow the other safety information provided throughout this manual.
- This safety guide does not cover all possible conditions that may occur. Use your common sense and good judgment. When in doubt, contact ZoraBots Customer Support.
- IMPORTANT: For use in health care: Aldebaran Products are not medical devices and are not covered in UL or IEC 60601 (or their equivalent).

B. Operation and personal safety

1) Do not insert any foreign object:
   - in or under my casing (including the loudspeakers).
   - in the USB or Ethernet port.
2) In general, ensure that the robot doesn't fall.
3) You should not exert strong forces on the robot. Pushing against the motors may damage them.
4) Do not block the sensors.
5) Some of the sensors are tactile. Do not apply pressure on the sensors.
6) Do not pull the arms or legs. This could damage the joints.
7) Never cover the vents at the back of the head. In particular, do not put anything on the head, including any kind of hat, cap, wig, etc. This will increase the operating temperature that may lead to an unexpected shutdown or damage.
8) Do not put any clothing accessories on the robot. If you dress the robot, this could affect the operation of the sensors and the joints.

- ***Pinching hazard***

Except for emergency situations, avoid touching the robot when handling her unless you have been expressly asked to do so. Therefore, you should avoid touching the robot when she is walking, moving or standing. To avoid injuries, never place your hands between the joints.	

- ***Operating procedure in the event of an emergency***

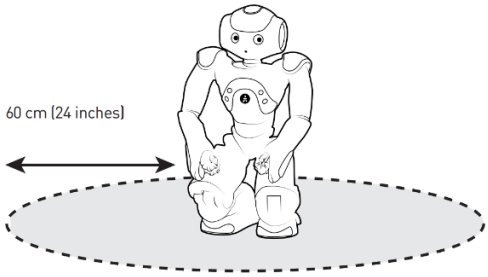
a) Pick the robot up by the chest, even if she is still moving around.

b) Press the chest button for 9 seconds to force the robot to stop. Alternatively, you can also press the chest button twice to remove the stiffness of the motors.

c) Put the robot in a safe position.

C. Usage environment

- Ensure the minimum safe distance is respected when the robot is booting.



- Ensure the robot has sufficient space to move around safely.
- Do not place obstacles in a radius of 1 meter around the robot during the execution of behaviors or compositions.
- If the robot is used on a table-surface, make sure it is at least 2m x 2m. Take particular care that the robot CANNOT walk off the table.
- Start from the Crouch posture, especially when pressing my Chest Button, or when plugging a cable.
- If the robot is turned OFF, it is recommended to place the robot in the crouch-posture, without any cables plugged in, unless the robot is charging.
- Do not touch the robot during the boot process.
- Make sure the floor surface is hard, dry and level; for example, do not make me go on thick carpets or rugs, or anything that can make me fall.
- This robot was designed for indoor use.
- Keep the robot away from radiators, heat sources and direct sunlight.
- The operating temperature must be between 15˚C and 30˚C (59˚F to 86˚F).
- The operating humidity range must be between 20% and 80%.

D. Spilt liquids

CAUTION: Use extreme caution when removing wet power cables from a Socket (or extension cable) and ONLY if it is safe to do so:

Liquids spilt onto the robot or the battery charger may enter the casing or other entry points and may cause short-circuits and stop the robot from working. The warranty will automatically be voided if any liquid seeps into the robot or the battery charger, whether apparent from the outside or not.

Do not use the robot in a wet environment, like for example, in the rain or near a bath tub, sink, or swimming pool or in a wet basement.

Never connect or disconnect the battery charger with wet hands.

Never use the battery charger if exposed to rain, liquid, or excessive moisture.

Do not attempt to dry the robot or the battery charger with an external heat source such as a hairdryer or an oven.

PROCEDURES

- ***If liquid has not seeped inside the plastic casing***:
  - Disconnect all cables, including the battery charger from the socket.
  - Turn the robot OFF.
  - Put the robot in the crouch-position.
  - Dry the robot with soft cloth or soft towels.
  - When the robot is COMPLETELY DRY, the robot and battery charger may be put into operation again by pressing the chest button.
- ***If liquid has leaked inside the casing:***
  - Disconnect all cables, including the battery charger from the socket.
  - Turn the robot OFF.
  - Put the robot in the crouch-position.
  - Dry the robot as much as possible with soft cloth or soft towels.
  - Do not use the battery charger.
  - Contact ZoraBots Customer Support.
- ***If liquid is spilt on the Battery Charger only:***
  - Also check both A and B to be safe.
  - If the battery charger is still connected to the socket, switch OFF the corresponding circuit breaker.
  - Remove the power cable from the socket and leave it unplugged.
  - Disconnect the battery charger from the robot and leave it disconnected.
  - Wipe the battery charger and leave it to dry.
  - Do not use the Battery Charger.
  - Contact ZoraBots Customer Support.

APPENDIX 6 – POSTURES

This appendix contains photos of the current postures.

Stand	**Stand Init**
Stand Zero	**Crouch**

Sit	**Sit Relax**
LyingBelly	
LyingBack	