NAO

User Guide

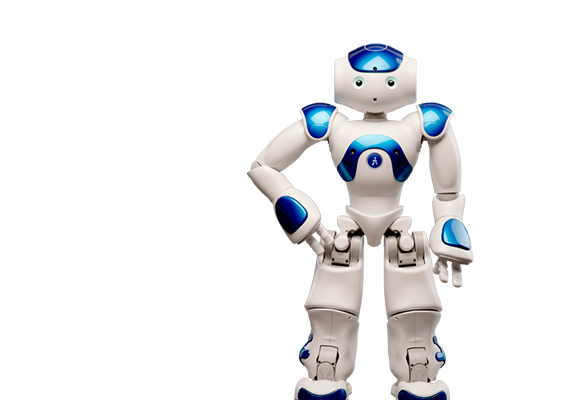


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# Turning Dandy On

Take Dandy out of his box, place him on a flat surface (Table or on the floor with his mat), place him is his kneeling stance, the hold the middle button until it lights up blue. (Pictures Below)

|  |  |  |
| --- | --- | --- |
|  | | |
| Kneeling Stance | Turn Dandy on via middle chest botton | Once blue lights apperar release middle botton |
| C:\Users\vozzo\Desktop\Dandy1.jpg | C:\Users\vozzo\Desktop\Dandy2.jpg | C:\Users\vozzo\Desktop\Dandy3.jpg |

## Connecting to the Router

To connect to the WebUI you will need to be connected to the Router. To make sure you are connected follow these steps:

|  |  |  |
| --- | --- | --- |
| Connecting to the Router | | |
| 1. | On the bottom right hand side of the screen click on the wireless connection |  |
| 2. | Make sure you are connected to the ‘Dandelion’   1. If you are connected it will appear with Disconnect, you do not have to do anything. 2. If you are not connected it will say connect – press connect.   Password: HpeNao4Heights |  |

Web UI (DandyUI)

Information about the WebUI

The web interface for the robot will be accessed through the robot’s network connection, at <the robot’s IP address>/dandyui. It will present the user with an interface allowing them to select from several pages corresponding to the robot’s activities. Each page will provide the teacher with an option to begin the behaviour or related behaviours, as well as (if applicable) options.

The website is also responsively designed; allowing the website to ‘scale’ up and down depending on how large the screen size is. The website is designed to work on mobile phones, tablets and even smart watches, or it can even be used on screens as large television or desktops.

The HTML files are stored on the robot, using it as a web server. Using JavaScript, they will connect to the robot’s internal systems and run simple commands to send and retrieve data, from the robot, relating to the current running behaviour and battery level or to begin a new activity.

The WebUI is divided into three columns. In the left hand columns are words and actions which can be directly started from the website.

|  |  |  |
| --- | --- | --- |
| **Web UI** | | |
| LEFT COLUMN | MIDDLE COLUMN | RIGHT COLOUMN |
| Contains all of the words on command features: stop, wait, please sit down, great job, your turn. | In the middle column is the text to speech function (described in more detail later) | In the right hand column will allow you to select the various applications that are installed on the robots. (The applications are described in further detail in the documentation) |

How to connect to WebUI

WebUI URL: 192.168.1.176/dandyui/   
(or press middle button once and he will give you his IP address)   
Username: Nao  
Password: HpeNao4Heights

The WebUI to control Dandy will only load if you are connected to the router. To access the WebUI you can either click on the Desktop Shortcut created or open up an internet page and type in the WebUI URL.

Each separate activity has its’ own page in the site structure. There is also a page for the index, an ‘About’ page, and a ‘Contact’ page.

On-Demand Text to Speech

To use the text to speech function on the website, ensure that your robot is connected to the router and that you are connected to the WebUI (see above). Once you are connected, the website provides details on how to use the text-to-speech function on the website.

If the network is heavily congested, you may experience some delay between entering the text and when the robot speaks. Once the web page loads, you will be able to use the text to speech function and all other features on the website. If the text to speech doesn’t work on the first load of the website, try refreshing the page. If you are still experiencing issues, ensure that you are connected to the robot.

Feature Dropdown Menu

On the WebUI, a dropdown menu is provided for you to start any application available on the robot. Once you click on a feature in the dropdown menu, it will automatically start the feature automatically.

Some behaviours have options which you allow you to customize the application depending on your needs. The options for these features are located below the feature dropdown menu.

Robot Options

Below the feature dropdown menu (or the feature options box on some pages) is the robot options button.

Volume Slider

The WebUI can also control the volume of the robot. You can adjust how loud or how quiet the robot is depending on your needs.

Stop Behaviour

The WebUI can also stop any feature currently running on the robot at any time by pressing the Stop button in the robot options box.

# **Features**

## Words on command

Objective: the objective of the words on command is to assist the teacher with managing the kids in ways like getting them to be quite or sit down.

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

2. Open up your phone or computer start up a web browser (NaoWebUi)

3. On the web page find the words on command section

4 click on the different buttons to start the corresponding actions. Etc. press the well done button will trigger the action and sound.

Description:

Under the words on command tab is a range of actions that respond to speech recognition:

|  |  |
| --- | --- |
| Action | Description |
| Stop | The robot will raise it’s right hand and say stop |
| Go | Robot will raise both hands and say go |
| Wait | Robot will raise left hand and say wait |
| Sit down | Robot sits down with corresponding sitting down animation |
| Great job | Robot says great job and give yourself a pat on the shoulder alone with corresponding animation |
| Your turn | Robot says your turn and raise both hands |

## Wellbeing Expectations

Objective: Depending on the circumstance, to play a selected introduction to the chosen function.  
Time: 1 Minute each

1. Set Up:   
   Place Dandy on a flat surface, in front of the class
2. Ensure Dandy has room to move by ensuring the immediate area around is clear.
3. **IF NOT ALREADY THEN** - Power on the robot using the instructions provided earlier by pressing the button in the middle of his chest and wait for boot up.
4. When the robot has booted fully, the desired program may be run from the Web UI – Wellbeing. (Each Wellbeing step activities is commanded separately by the website)
5. Adjust the volume as needed

Description:

Dandy has 4 functions, Listening, Slowing Down, Food Safety Expectations and Warm up and Stretch, all which provide a general introduction/routine.

|  |  |
| --- | --- |
| Activity | Description |
| Listening | This function is an introduction to Wellbeing and is to be used to when the lesson in the Community Room is about to begin. |
| Slow it Down | This function is to be used it is time to slow the body down and sit on the green mat. |
| Food Safety Expectations | This function gives a general overview in regards to food safety expectation and is to be used before cooking. |
| Warm up and stretch | This function goes through three basic stretches, this ensures that injuries can be prevented. |

## Zones of regulation

Objective: To teach children about the zones of regulation Time: 5 Minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

Description:

Dandy explains to the children about the different zones of regulation, using gestures. His eye LEDs also light up whenever a specific colour zone is being explained (e.g. blue zone, eye LEDs go blue).

|  |  |
| --- | --- |
| Zones | Dandy’s description |
| Blue zone | Blue zone: If you’re ever feeling in the blue zone it is ok if you need space. |
| Red Zone | Red zone: When someone is in the red zone it is best to leave them alone and let an adult know. |
| Yellow Zone | Yellow zone: It’s ok to be in the yellow zone sometimes but remember to stop and take time to slow it down. |
| Green Zone | Green zone: Fantastic job being in the green zone. We can listen, learn and play at our very best in this zone. |

## End of Day Instructions

Objective: To aid students in packing up for the end of the day.

Time: 15 minutes, as directed by teacher.

Description: End of day instructions includes 3 steps for students to pack up. Continue to the next step by pressing any tactile button on Dandy’s head.

|  |  |
| --- | --- |
| Steps | Description |
| Step 1: Stop | Dandy’s eyes go red, motions, and directs students to “stop, look here” |
| Step 2: Pack things up | Dandy motions and tells students to pack up and put away their belongings. |
| Step 3: Pack bag | Dandy motions and directs students to get their bag, and pack it. |
| Step 4: Home Time | Dandy waves goodbye, while telling students it is home time. |

## Cooking Steps

Objective: To make Fruit and Yoghurt Cups

Time: 10 minutes

Set Up:

1. Place Dandy on a flat surface, in front of the class
2. Ensure Dandy has room to move by ensuring the immediate area around is clear.
3. **IF NOT ALREADY THEN** - Power on the robot using the instructions provided earlier by pressing the button in the middle of his chest and wait for boot up.
4. When the robot has booted fully, the desired program may be run from the Web UI – Cooking Steps
5. Adjust the volume as needed

Description:

In this cooking lesson, Dandy helps students to make Fruit and Yoghurt cups by providing step by step instruction.

|  |  |
| --- | --- |
| Recipe | Description |
| Fruit and Yoghurt Cups |  |
| Step 1:  Step 2:  Step 3: | Upon start, Dandy gives an introduction to the cooking lesson. To proceed to the receipt steps will require Dandy’s head to by touched upon command  To move between each of the five cooking steps, Dandy’s right hand will need to be touched.  Upon completion, Dandy congratulate students and return to default position. |

## Body Parts

Objective: To teach children about the parts of the body Time: 5 Minutes

Set up:

1. Place Dandy on a flat surface, in front of the class
2. Ensure Dandy has room to move by ensuring the immediate area around is clear.
3. **IF NOT ALREADY THEN** - Power on the robot using the instructions provided earlier by pressing the button in the middle of his chest and wait for boot up.
4. When the robot has booted fully, the desired program may be run from the Web UI – Body Parts
5. Adjust the volume as needed

Description:

Dandy gives an interaction explanation about the parts of the body. There are three different levels of difficulty, each of which will provide a different lesson, each lesson as instructed by Dandy is commanded by the tactile points on his head.

|  |  |
| --- | --- |
| Lesson | |
| Easy | An explanation of four basic body parts |
| Step 1  Step 2  Step 3 | Upon Command to the front tactile point, Dandy will give an introduction to the lesson.  After the introduction, moving between the body parts will require Dandy’s right hand to be touched.  At the end of the lesson Dandy will ask whether you want to play again. Press anywhere on his head for yes or his right hand for no |
| Medium | An explanation of the muscles and bones |
| Step 1  Step 2  Step 3 | Upon command to the middle tactile point, Dandy will give an introduction to the lesson  After the introduction, Dandy will move between the bones and the muscles with a pause in between each explanation  At the end of the lesson, Dandy will ask whether you want to play again. Press anywhere on his head for yes or his right hand for no, |
| Hard | An Explanation of three types of organs |
| Step 1:  Step 2:  Step 3: | Upon command to the back tactile point, Dandy will give an introduction to the lesson  After the introduction Dandy will move between the organs with a pause in between each explanation  At the end of the lesson Dandy will ask whether you want to play again. Press anywhere on his head for yes or his right hand for no |

## Yoga

Objective: To run a Yoga Session  
Time: 5 Minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

Description:

|  |
| --- |
| Yoga moves |
| Star |
| House |
| Tree |
| Lion |
| Lobster |

Dandy demonstrates five yoga moves from ‘Cosmic Kids Yoga’, while background music plays. Dandy does this by getting the kids to move into an uncrowded spot. He then does the individual moves and gives basic descriptions of how to do them. This application plays all the way to the end after pressing play.

## Meditation

Objective: Help kids to calm down.

Time: 5-10 minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

Description:

Dandy has two meditation modes: *Imagination Meditation* and *Breathing Meditation*. Both of these can be accessed individually through the Web UI. Once started, meditation session runs from start to end. During the session, Dandy plays calming background music, speaks slowly in regular pauses, and his eye LEDs change colour.

|  |  |
| --- | --- |
| Meditation type | Description |
| Imagination Meditation | Dandy get the children to sit on the floor and pretend they are a closed flower. Dandy then tell the children to pretend that they are the opening flower. |
| Breathing Meditation | Dandy gets the children to sit on the floor and do series of breathing exercises, by focussing on their breathing. |

## Dances

Objective: Enjoy fun dances.

Set up:

1. Place NAO on a firm, flat surface.
2. Move any objects or obstructions at least 50cm away from NAO
3. Adjust volume as needed, as song volume may vary slightly.

Time: 8-13 seconds

Description:

A series of short 8-13 second long dances. Songs can be chosen, however the accompanying dance is one of 3 random short dance sequences. This excludes the Macarena, which is accompanied by the Macarena dance.

See ‘Songs’ for song options.

|  |  |
| --- | --- |
| Songs | Description |
| Celebration | 13 second song with randomised dance |
| Happy | 13 second song with randomised dance |
| I Gotta Feeling | 12 second song with randomised dance |
| Ghostbusters | 11 second song with randomised dance |
| Titanium | 9 second song with randomised dance |
| One More Time | 9 second song with randomised dance |
| Cotton-Eye Joe | 8 second song with randomised dance |
| The Macarena | 10 seconds of the Macarena |

## Stories to read

Objective: To read interactive stories to the children.

Time: 10-20 minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

Description:

There are two stories that Dandy plays; *‘Out of the egg’*, and a story written by one of the programmers called *‘I Have a SuperPower!’.* The individual stories can be selected using the Web UI. Once started, the story will play from start to finish; Dandy will use gestures and movements throughout the story.

## Jokes

Objective: the objective of the jokes section is to get the kids to interact with the robot by making the robot tell jokes and get the kids to try and guess the answer.

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

2. Open up your phone or computer start up a web browser (NaoWebUi)

3. On the web page find the jokes section

4 click on the jokes button to start the action.

5. Enjoy the joke

Description:

Under the jokes tab is a range of jokes designed to be kid friendly

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Jokes (note these will be simulated at random on the robot) | | Answers to the jokes | |
| Why don’t you give Elsa a balloon? | | Because she will let it go! | |
| What did the flytrap say to the waiter? | | Uh, yes... I'll have a cheeseburger with flies! | |
| Why does a flamingo lift up one leg? | | Because if it lifted both legs it would fall over! | |
| What does a cactus were to a business meeting? | | A cac-tie! | |
| What did one plate say to the other plate? | | Dinner is on me! | |
| What did the Dalmatian say after lunch? | | That hit the spot! | |
| Why can't you hear a pterodactyl using the bathroom? | | Because the 'p' is silent! | |
| What kind of witch likes the beach? | | A SAND-witch.! | |

## Games

Objective: Entertain the children with interactive educational games.

Time: 10-15 minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

Description:

Two games so far are programmed for this application: the animal sounds game mentioned earlier, and an emotions game. Children can access the various games through Dandy’s different head sensors; Dandy explains which part of the head to touch for a certain game. Within each game the robot will issue directions that require input to continue. Touching his left hand will cease all game programs currently running.

The emotions games is built for the purpose of teaching the children about identifying different emotion in themselves and others. These emotions are regularly linked by Dandy to the zones of regulation, where he gives them advice on how to deal with them. Dandy describes the emotions through actions and sounds. First shown as a pose or simple action with accompanying evocative music appropriate to the emotion, with a second more obvious animation and sound effect to follow if needed. He then asks children to place a Nao card of whatever emotion they think he’s imitating, in front of his forehead. If they are right, Dandy congratulates them; if they are wrong, Dandy explains that feelings are sometimes hard to understand. Emotions vary from happy, excited, sad, angry, relaxed, etc. Emotions can be repeated with the feet bumpers

## Alphabet

Objective: Teach children about the alphabet through the letter land song.

Time: 5-10 minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat)

Description:

Dandy will play the letter land song while doing a littler dance with his arms. Once started, the song will play all the way through. This will help to familiarise children to the basics of the alphabet.

## Mathematics

**1**

**3**

**2**

Objective: To provide a Maths function to aid in learning in a fun manner. It is to be level appropriate and provide some form of interactivity.  
Time: 5 Minutes per session, 4 modules (20 minutes)

Set Up:

1. Place Dandy on a flat surface (Table or Floor with mat)
2. Prepare the required and provided NAO Mark Cards, These are the coloured cards with weird patterns on one side that the robot can read, on the other side is a set of images pertaining to the cards value. These cards can also be reprinted as the files should have been provided with the programmed robot.
3. Seat the students ready for a lesson.
4. **IF NOT ALREADY THEN** - Power on the robot using the instructions provided earlier by pressing the button in the middle of his chest and wait for boot up.
5. When the robot has booted fully, the desired program may be run from the Web UI – **Maths Project**
6. The robot will begin with a greeting and then all further functions can be accessed through the robot. To interrupt this behaviour you may “take control” of the robot through the Web UI\*, if it is connected.

\*With the exception of changing the volume, most functions on the Web UI will end the program requiring a restart.

Description:

Dandy’s Maths program hosts 4 types of basic maths: addition, subtraction, multiplication and counting. The Maths program features music and dancing in all of its modes, Dandy will do a slight jig with his hands when he does. These modes require the designated NAO mark cards to provide a sense of interact-ability.

|  |  |
| --- | --- |
| Sessions | |
| Addition Quiz | **3 question quiz** |
|  | Cycle through the different modes in the program using his foot bumpers and when he says “Addition Quiz” press any one of the buttons on top of his head.  The robot will introduce the quiz and ask for input when the user is ready to begin the quiz. Press any one of the buttons on top of his head to continue.  The robot will ask 3 different simple addition questions and each time he will ask for an answer from the user. Allow the user (student) to show an NAO card to the robot roughly 10-30cm from the robot’s eyes. At the end the robot will produce a score out of 3. The program will then loop back to “feature selection mode”. |
| Subtraction Quiz | **3 question quiz** |
|  | Cycle through the different modes in the program using his foot bumpers and when he says “Subtraction Quiz” press any one of the buttons on top of his head.  The robot will introduce the quiz and ask for input when the user is ready to begin the quiz. Press any one of the buttons on top of his head to continue.  The robot will ask 3 different simple subtraction questions and each time he will ask for an answer from the user. Allow the user (student) to show an NAO card to the robot roughly 10-30cm from the robot’s eyes. At the end the robot will produce a score out of 3. The program will then loop back to “feature selection mode”. |
| Counting Game | **A simple counting game** |
|  | Cycle through the different modes in the program using his foot bumpers and when he says “Counting Game” press any one of the buttons on top of his head.  The robot will introduce the game and ask for input when the user is ready to begin the game. Press any one of the buttons on top of his head to continue.  The robot will then count upwards by 10s to 100. This mode was never expanded upon its original conception. At the end the program will then loop back to “feature selection mode”. |
| Times Tables Singalong | **Singalong for 1 – 12 Times Tables** |
|  | Cycle through the different modes in the program using his foot bumpers and when he says “Times Table Singalong” press any one of the buttons on top of his head.  The robot will introduce the singalong and ask for input when the user is ready to begin the singalong. Press any one of the buttons on top of his head to continue.  The robot will then ask for a song request. Allow the user (student) to show an NAO card to the robot roughly 10-30cm from the robot’s eyes.  The robot will then play a song from the 1-12 times tables, be sure to adjust his volume where necessary through the Web UI. |
| End Program | **Exit robot behaviour and return to a default state.** |
|  | Either using the Web UI use the STOP button and end the behaviour OR when he finishes a session (any one of the 4 modes) he will ask you to press the buttons on his head if you are finished with the behaviour. |

**WARNINGS**: it is always advised to press 1 button at a time and in a timely fashion to avoid speech errors or signal interruptions. None of these errors are fatal and may only require a reset.

## Animal sounds

Objective: Gets children to guess what animal Dandy is imitating.

Time: 5-10 minutes

Set Up:   
1. Place Dandy on a flat surface (Table or Floor with mat) 2. Get out Nao cards with animals pictures on them

Description:

Dandy starts off by introducing players to the game. Dandy then goes to a quiz where he imitates an animal through sound and gestures. Players then guess the animal by holding up an animal card to Dandy’s forehead. When the quiz is over Dandy gives the player a score of the animals they got right.

|  |  |
| --- | --- |
| Animals | Dandy’s actions |
| Elephant | Elephant sound. Dandy raises arm up and down like a trunk |
| Dog | Dog sound. Dandy raises hands, and moves head up and down |
| Cat | Cat sound. Dandy raises forearm to face, and does an up-down licking motion |
| Cow | Cow sound. Dandy slowly moves head up in sync to sound. |
| Lion | Lion sound. Dandy kneels down and brings arms up |
| Chicken | Chicken sound. Dandy moves hands to hips, and repetitively moves them back and forth from hips. |
| Pig | Pig sounds. Dandy moves head from side to side. |

# Fun Facts

Objective: Provides the framework to a fun facts module, currently featuring 3 fun facts fully voiced and gestured by the robot. Currently features Australia, Animals and Anatomy topics with 1 fun fact each.  
Time: 1 Minute per fun fact, 3 facts (3 minutes)

Set Up:

1. Place Dandy on a flat surface (Table or Floor with mat)
2. Seat the students ready for a lesson.
3. **IF NOT ALREADY THEN** - Power on the robot using the instructions provided earlier by pressing the button in the middle of his chest and wait for boot up.
4. When the robot has booted fully, the desired program may be run from the Web UI – **Maths Project**
5. The robot will begin with a greeting and then all further functions can be accessed through the robot. To interrupt this behaviour you may “take control” of the robot through the Web UI\*, if it is connected.

\*With the exception of changing the volume, most functions on the Web UI will end the program requiring a restart.

Description:

Dandy’s Fun Facts module host 3 fun facts relating to Anatomy, Australia and Animals. Here’s how to run them.

|  |  |
| --- | --- |
| Sessions | |
| Anatomy Fact |  |
| Press Front Head Button | 1) Fact about neurons using hand gestures making them go together and apart with emphasis to sensations and neurons. 2) Define neurons with "Neurons are very small cells that act to carry messages to and from the brain" and match gesture to emphasise "Brain". Also, robot has 'Random Eyes' function that start from about the 'Definition' timeline to stop output.  3) Say: Telling you a fact of anatomy was fun. If you want a fact on Australia, press the middle button on my head. |
| Australia Fact |  |
| Press Middle Head Button | 1) Say: The Great Barrier Reef, in Australia, is seen as the world's largest underwater natural wonder of the world. Gesture shows emphasis of "world's largest" 2) Say: "The Great Barrier Reef is a beautiful blue land underwater full of fish, turtles, and many other sea animals" whilst eyes start to vary in colour.  3) Say: "Telling you a fact of Australia was fun too. If you want a fact on an animal, press the back button on my head". |
| Animals Fact |  |
| Press Back Head Button | 1) Say: "There are about 828 native bird species in Australia" and gesture as if flapping wings 2) Say: "That is so many birds!" while eyes are in Twinkle function. 3) End with "Sharing these facts with you was great. If you want me to repeat one again, press any of the three buttons on my head". |
| End Program | **Exit robot behaviour and return to a default state.** |
|  | Using the Web UI to stop the program is necessary as otherwise he will loop back to his fact select mode. |

**WARNINGS**: it is always advised to press 1 button at a time and in a timely fashion to avoid speech errors or signal interruptions. None of these errors are fatal and may only require a reset.

# Choose your own adventure story

Objective: To provide students a story in which teaches a simple moral about missing out on opportunities and finding new and lost toys  
Time: Depending on the chocies made throughout the story, it can last between 5 to 7 minutes.

Set Up:

1. Place Dandy on a flat surface (Table or Floor with mat)
2. **TURN ON** Dandy and ensure that he is at full charge.
3. **Ensure** that the robot is connected to the WebUI
4. The story can only be started from the WebUI.
5. As the story runs through the various paths, choices can be made by touching Dandy’s left and right hands

NOTES

Dandy’s tactile hand choices are programmed back to front, so that when a choice is made and Dandy is facing you, if someone reaches out with their ladn and touches Dandy’s right hand, you trigger the left hand choice.