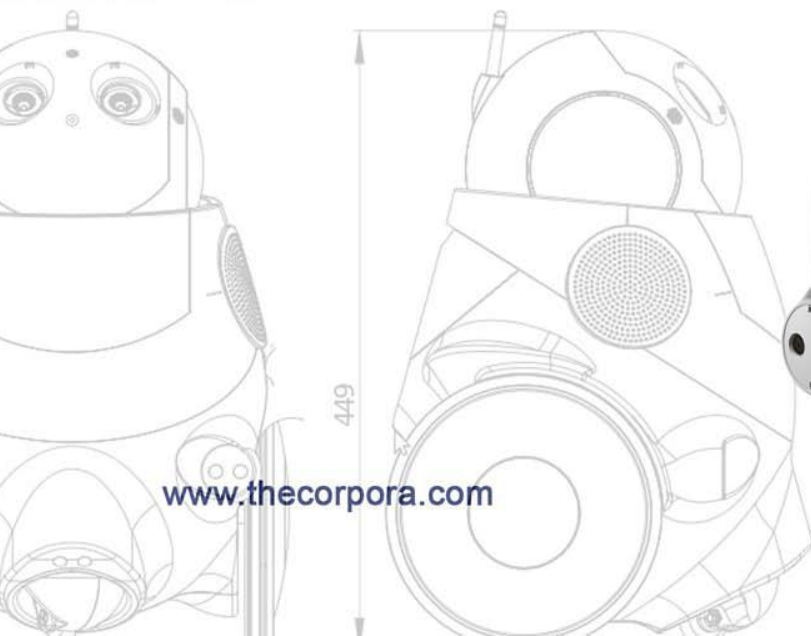


Q.bo®

user's guide



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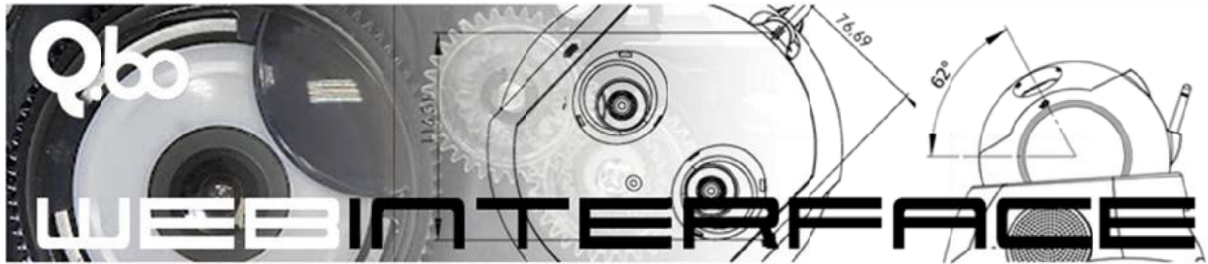
Q.bo Webi User's Guide

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Q.bo Webi reference guide

The Webi is a web interface to control your Q.bo remotely using a Web browser and it is part of the OpenQbo software set¹. The web interface also gives you information about the status of the systems inside of Q.bo and launches some demo applications.

There are two ways to access the Webi. The first one is by connecting a keyboard, mouse and a screen to Q.bo. This is the administrator mode.

The second way to use the Webi is via Wi-Fi. Q.bo needs to be connected to a Wi-Fi network to use this mode.

Some functionality can only be executed using the administrator mode.

In the administrator mode the Webi can be accessed by opening the web browser and entering the page: localhost:7070

In the remote mode the Webi can be accessed by opening the web browser and entering the URL: "http://<robot_ip>:7070" (where the <robot_ip> is the network IP address of the robot). This IP address is displayed on the back LCD screen of the robot.

Important: it is recommended that you execute the Webi using the Google Chrome browser. The current Webi version is fully compatible with this browser. The next version of the Q.bo Webi will be compatible with other popular browsers such as Internet Explorer, Opera, Safari and Mozilla Firefo

¹ The OpenQbo software provided with the robot is not covered by any guarantee that may be applicable to the hardware under the General Conditions of Sale. OpenQbo is a free software distribution based on the Ubuntu Operating System and as such is exempt from any guarantee. For any question regarding this, you may check the Ubuntu license. We preinstalled OpenQbo in the robot so that it can be operational the moment you open the packaging, but the "distro" does not deliver the full potential of the hardware nor was it our intention for that to happen. Feel free to program it any way you like and tell us in our wiki and in our forum what's the best you can get from Q.bo.



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1.1. Login

Use the following values to connect to the robot:

Robot username: qbobot

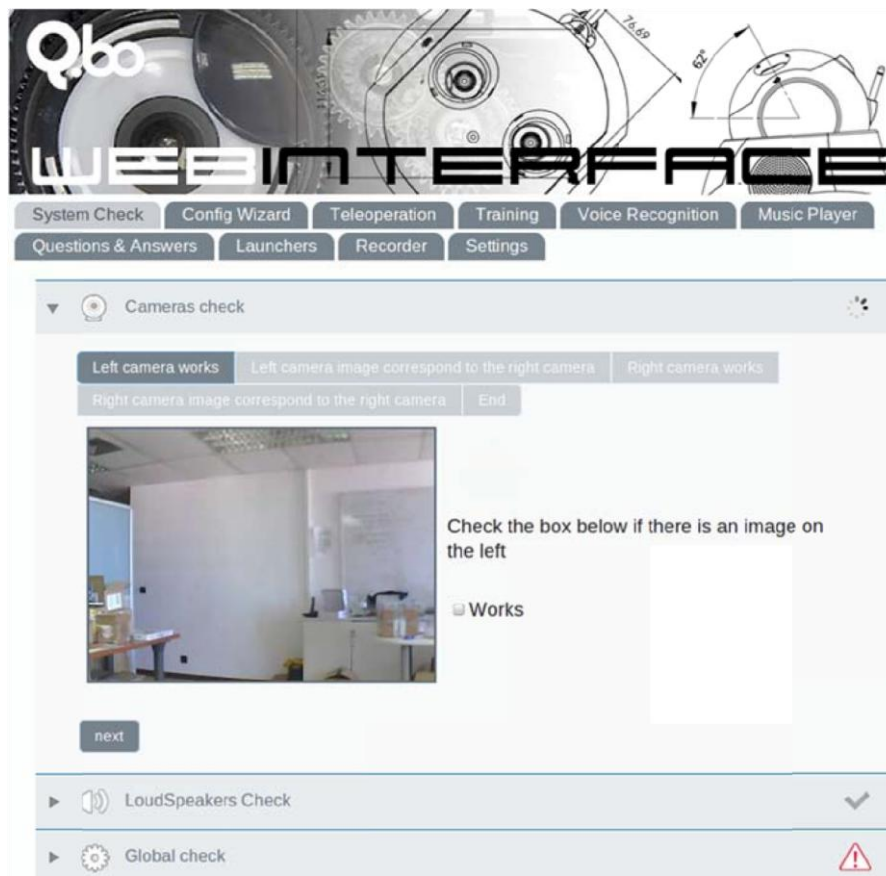
Robot pass: QboPass

Webi pass: admin

1.2. System Check

Cameras Check

The Camera check allows you to test the correct function of Q.bo's cameras. You will only need to follow the instructions on the screen to finish the test.





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Global Check

The global check shows if all the Q.bo sensors and devices are working properly.

The screenshot displays the Q.bo Webi Interface. At the top, there's a header with the Q.bo logo and the text 'WEBINTERFACE'. Below the header is a navigation bar with buttons for System Check, Config Wizard, Teleoperation, Training, Voice Recognition, Music Player, Questions & Answers, Launchers, Recorder, and Settings. The main content area shows a list of checks: Cameras check (loading icon), LoudSpeakers Check (checkmark), and Global check (warning icon). The Global check is expanded, showing a detailed status for Q.bo Board no1. It lists SRFs found (226) and SRFs not found (230), both with warning icons. Below this, a list of sensors and devices is shown with their status: Gyroscope (checkmark), Accelerometer (checkmark), LCD (checkmark), Q.bo Board no3 (checkmark), Left Wheel (checkmark), Right Wheel (checkmark), and Q.bo Board no2 (checkmark).

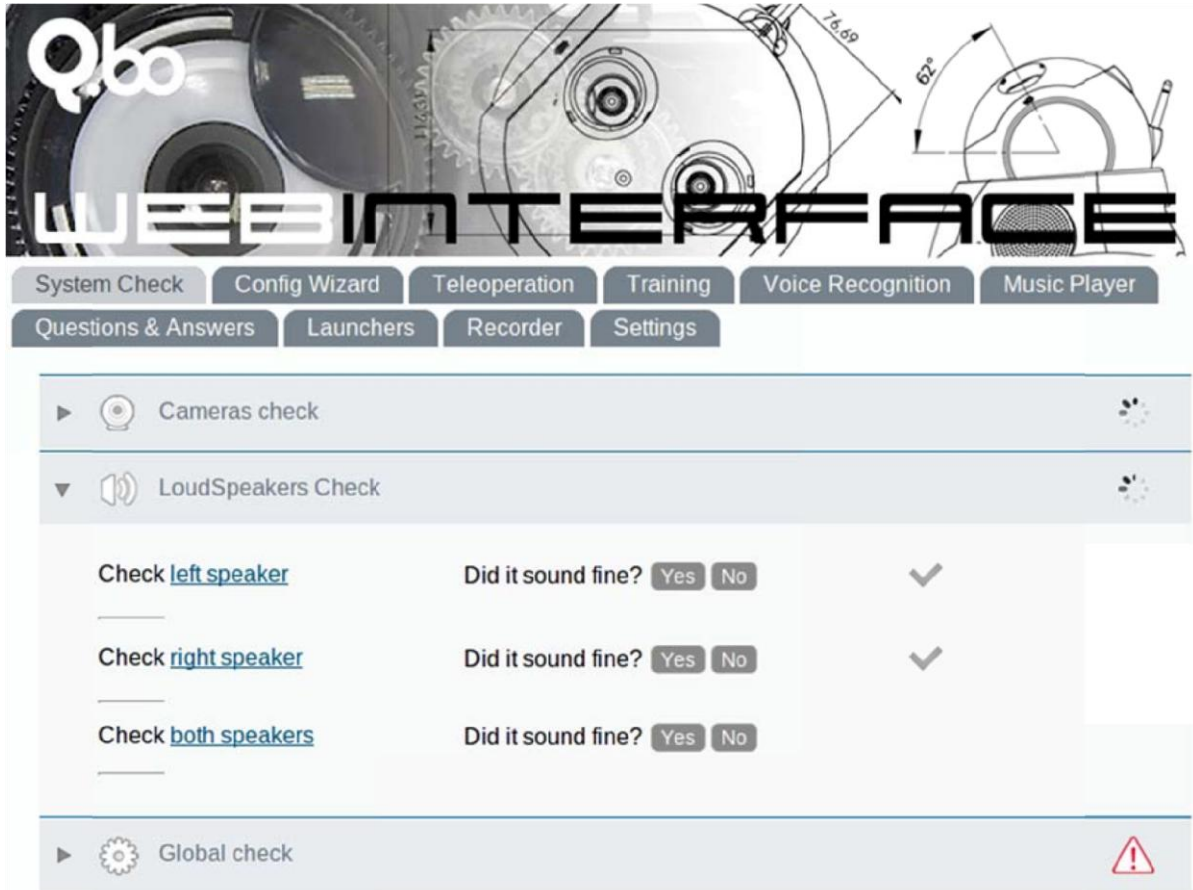
Check Item	Status
Cameras check	Loading
LoudSpeakers Check	OK
Global check	Warning
Q.bo Board no1	
SRFs found	226
SRFs not found	230
Gyroscope	OK
Accelerometer	OK
LCD	OK
Q.bo Board no3	OK
Left Wheel	OK
Right Wheel	OK
Q.bo Board no2	OK



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Loudspeakers Check

Here you can see if the stereo loudspeakers in Q.bo are working properly. Click on the speaker links to launch a test sound and verify that both loudspeakers work correctly.

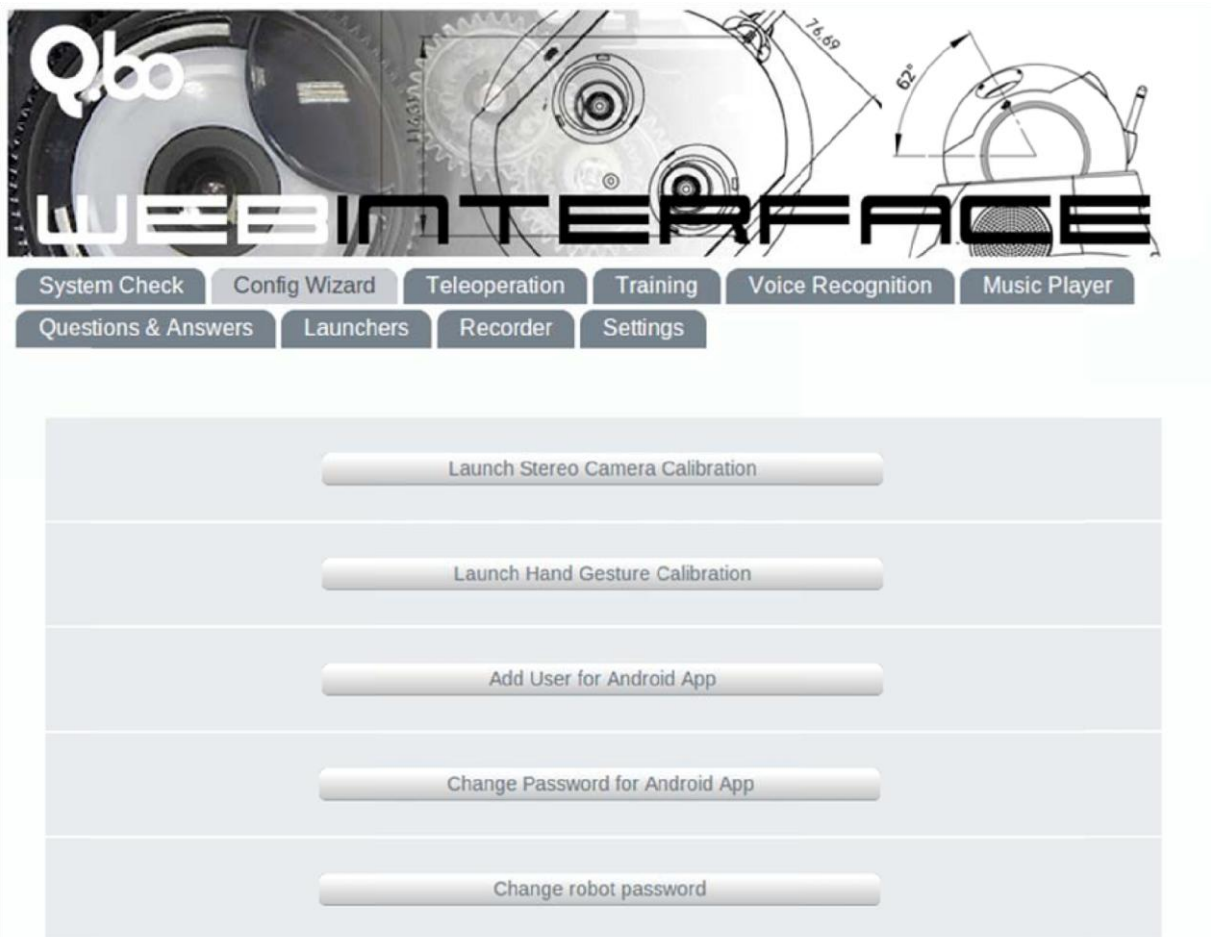




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1.3. Config Wizard

The Configuration Wizard lets you launch configuration programs for Q.bo, such as the camera calibration; as well as setting the users for the Android application and to change the Webi password.



Launch Stereo Camera Calibration

Here you can re-calibrate the cameras to obtain more accurate results for stereoscopic tasks. Just follow the instructions that appear on the console that is launched by this button. Note: this can only be executed from a browser in the Q.bo robot.

Launch Hand Gesture Calibration

By using this calibration you can select your own gestures to control the gesture music player. Just follow the instructions that appear on the console that is launched by this button. Note: this can only be executed from a browser in the Q.bo robot.



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Add User for Android App

You can add new users to the teleoperation Android application of Q.bo.

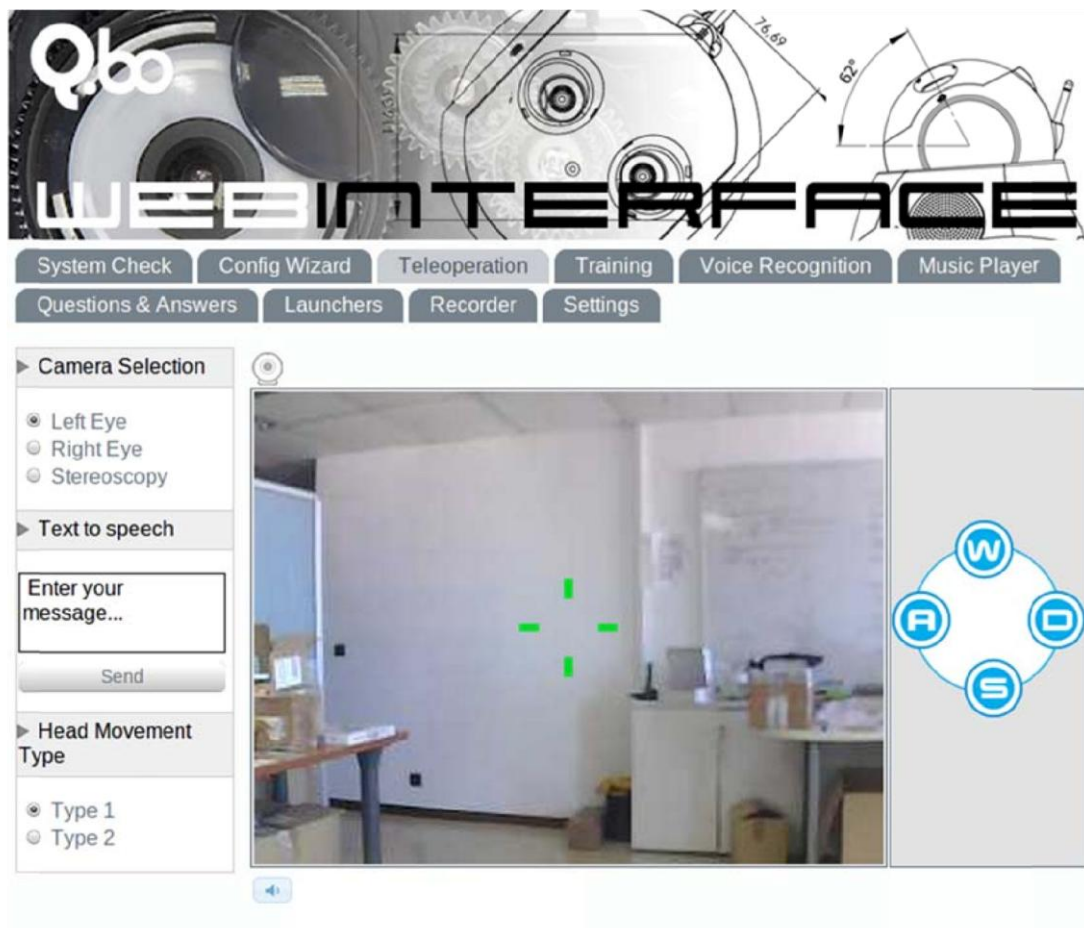
Change Password for Android App

Here you will be able to change the password for the users of the teleoperation Android application.

Change robot password

Here you will be able to change the Webi password requested in the login.

1.4. Teleoperation



Vision screen

This window shows what Q.bo sees. It is possible to move Q.bo's head by clicking on the left mouse button in the window and holding it. There are two different types of head movements.



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Head Movement Type

Type 1: In this type of movement the head will return to the original position after releasing the left mouse button.

Type 2: The head movement's speed is proportional to the distance of the cursor to the center.

Camera Selection

With the camera selection, the image shown in the vision screen will correspond to the left camera; the right camera; or a stereoscopic image to see in 3D.

Text to speech

Q.bo will reproduce with its own voice what you type in the message box.

Base Movement

You can move Q.bo by using the buttons of the Webi or the "wasd" keys as if it was a videogame.



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1.5. Training

In the Training Section you can ask Q.bo to recognize Faces and Objects as well as to make him learn them. You can select between the Face and Object recognition mode using the radio buttons at the top.



Face Recognition

Q.bo will track with its head the nearest person it sees. Click **“Guess What is This”** so that Q.bo can answer you. The answer will appear on the right side of the screen.

To make Q.bo learn a new face, make sure the person is being tracked by the robot and then click on **“Train Yourself”**, insert the name of the person and validate. A timer will appear and the Q.bo will start capturing images and learning the person. When the process is done, Q.bo will let you know.

Object Recognition

Q.bo will track with its head the nearest objects it detects. Click **“Guess What is This”** so that Q.bo can tell you the name of the objects it is detecting. The answer will appear on the right side of the screen.

To make Q.bo learn a new object, make sure the object is being tracked by the robot and then click on **“Train Yourself”**, insert the name of the object and validate. A timer



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will appear and the Q.bo will start capturing images and learning the appearance of the object. When the process is done, Q.bo will let you know.

Use Q.bo Cloud option: This option allows Q.bo to share learned objects with the Q.bo Cloud and use objects stored in the Q.bo Cloud. To activate this option, click on the check box **"Use Q.bo Cloud"**

Note: When you teach new objects and share them with the Q.bo Cloud, they will also be stored locally.

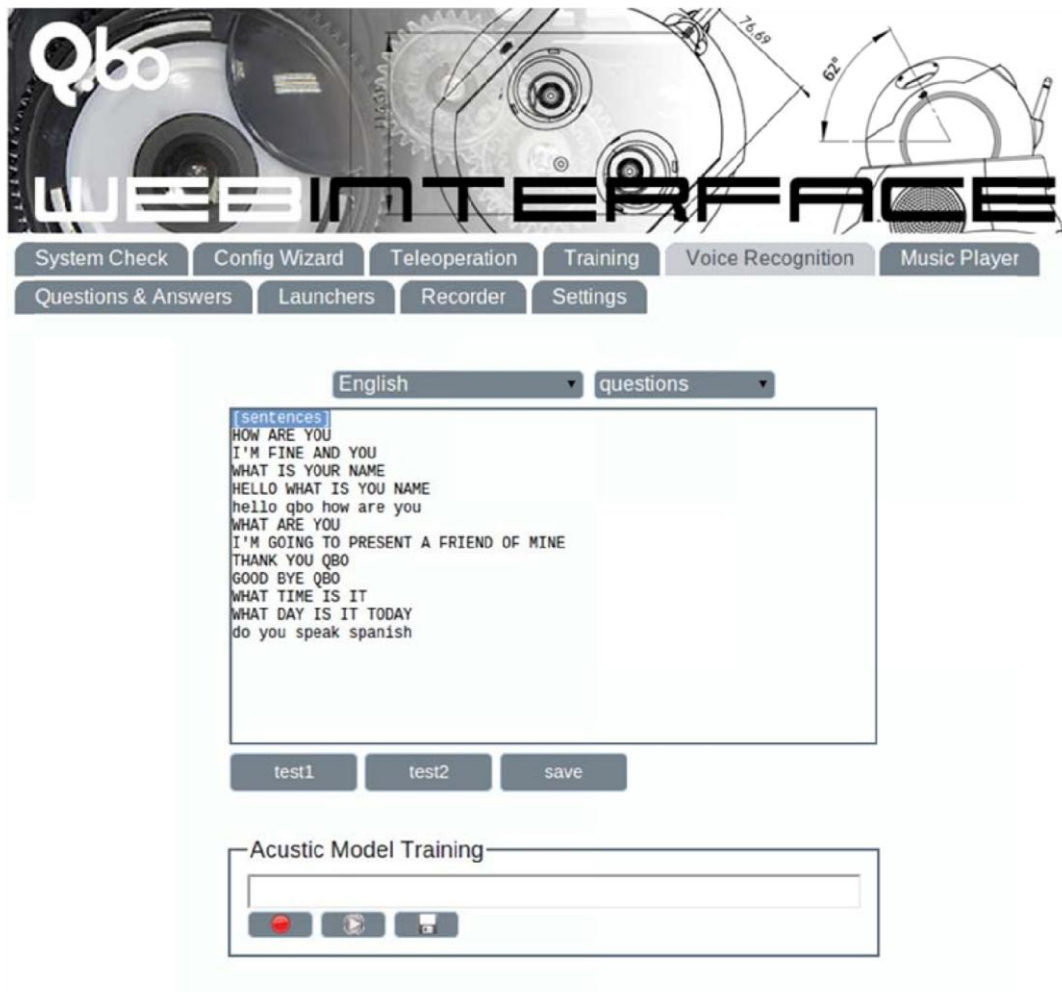
1.6. Questions & Answers

You can make a Question->Answer rule in Q.bo by selecting the Question in the dropdown list, writing the Answer you want Q.bo to respond with and clicking on "Add". The new rule should appear in the rule list. You can set several answers for the same question, which will be chosen randomly.

Question	Answer
HELLO WHAT IS YOU NAME	MY NAME IS Q.B.O
I'M GO TO PRESS A FRIEND OF MINE*	O K. NICE*
THANK YOU Q B O*	YOU WELL COME.*
HELLO WHAT IS YOU NAME*	MY NAME IS Q B O*
HOW ARE YOU*	I AM FINE, THANK YOU*
	I'M GOOD. AND YOU?*
WHAT ARE YOU*	I AM QBO, A LOW COST ROBOTIC PLATFORM FOR ARTIFICIAL INTELLIGENT DEVELOPMENTS*
HELLO Q B O HOW ARE YOU*	I AM FINE THANK YOU*
GOOD BYE Q B O*	BYE BYE. NICE TO MEET YOU*



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Here you can find the following options:

1.7. Voice Recognition

1. To add new sentences to be understood by Q.bo. Select your language and a group of sentences. For example, *questions*. Then write each sentence under [sentences] label.

More complex sentences can be created by using other labels. For example, let's say you want the robot to recognize "Call Peter" and "Call Maria". One way to do it would be writing both sentences under the [sentences] label like this:

```
[sentences]
Hello Peter
Hello Maria
```



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But there is a better way to do this with Q.bo. Just create your own label, like *[names]*, and then use it under the *[sentences]* label as shown below:

[sentences] Hello
{names}

[names]
Peter
Maria

Then you will have to pass two tests in order to check if the acoustic model can recognize it. If you succeed with this you can then save it and your robot will recognize the new sentences.

2. The other option is for collaborating to improve the acoustic model by recording any sentence you want and writing its transcription. Just press the “rec” button, say something, and when you finish click on “stop”. You will then get a transcription of what the acoustic model outputs for what you said. If it's correct just press the “save” button, otherwise write exactly what you said and save it and the transcription will be uploaded to the Cloud servers.



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1.8. Music Player

This is a web music player made for Q.bo. You can upload music from your PC which will be stored in Q.bo. Then you can play this music through the robot's loudspeakers.



1.9. Launchers

Android APK

This button launches the program that enables the communication with the android devices.

Play Music

This button launches the gesture music player.

Face Recognition

This button launches the face recognition interface.



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Random Move

This button makes Q.bo move randomly avoiding obstacles.

Start Conversation

This button launches the Questions & Answers program



1.10. Recorder

In the Recorder tab you will be able to remotely record what Q.bo sees and hears. You will also be able to play it at any time and view it through the Web browser.

1.11. Settings

In Settings tab you can select the language Webi will use.