## ROBOT CHECK LIST

<table>
<thead>
<tr>
<th>Rev.</th>
<th>Prepared by</th>
<th>Date</th>
<th>Approved by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>iCubFacility</td>
<td>01/04/2018</td>
<td>iCubFacility</td>
<td>01/04/2018</td>
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<tr>
<td></td>
<td>Davide Tome'</td>
<td></td>
<td>Julien Jenvrin</td>
<td></td>
</tr>
</tbody>
</table>

### Revision history

<table>
<thead>
<tr>
<th>Rev.</th>
<th>Date</th>
<th>Revision description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>01/04/2018</td>
<td>New release</td>
</tr>
<tr>
<td>1</td>
<td>02/08/2019</td>
<td>Updated test on microphones</td>
</tr>
</tbody>
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1 Document Scope

This document shows how to check iCub’s basics functionality.

2 Requirements

- A laptop running Linux (Ubuntu 16.04 LTS) configured as server
- iCub Power Supplies Rack

3 ROBOT CHECK LIST

WARNING!

- KEEP YOUR HAND ON THE RED EXTERNAL FAULT BUTTON!!!

3.1 Preliminary actions

- On the server run “yarpmanger”
- Go in the “cluster” tab and run the “nameserver node” and both “nodes”

- Go back in the “entities” tab and load “iCubStartup” application
- Run “yarprobotinterface” module

The robot will start the calibration procedure and goes in the start position.
3.2 Test cameras

- Load “Calibrated Cameras”
- Click on “Run all” and “Connect all”

Now you'll see the images captured by the camera.

3.3 Test Skin

- Load “Skin_Gui” application
- Click on “Run all” and “Connect all”

Touch the skin and check if the GUIs highlight the part you’re touching.
3.4 Test Face Expressions

- Load “FaceExpressions” application
- Click on “Run all” and “Connect all”

On the server type

```bash
icub@icubsrv:~$ cd $ICUB_ROOT/app/faceExpressions/scripts
icub@icubsrv: /usr/local/src/robot/icub-main/app/faceExpressions/scripts$ ./cycle.sh
```

Now you’ll see the face expressions running
3.5 Test Yoga Demo

- Load “Yoga_Demo” application
- Click on “Run all” and “Connect all”

Let iCub playing yoga for a while

3.6 Test Microphones

- On the server type in a terminal:
  `icub@icubsrv:$yarpdev --device portaudioPlayer`
- On the head type in a terminal:
  `icub@icubsrv:$yarpdev --device portaudioRecorder --start`
- On the server type in a terminal:
  `icub@icubsrv:$yarp connect /audioRecorderWrapper/audio:o /audioPlayerWrapper/audio:i`

Now you should hear on the server speakers the sound caught by the microphones on the head’s ear.
3.7 **Test DemoForceControl**

- First of all check if torque sensors are correctly reading data; to do that *(with the robot in the calibrated position)*:

  ```
  icub@icubsrv:~$ yarp read ... /icub/left_arm/analog:o
  ```

  You’ll see a data dumping in the shell, try to move the part by hand and see if numbers are changing.

  **Repeat the command above for all parts having a sensor** (tipically left_arm, right_arm, left_leg, right_leg, left_foot, right_foot)

- Double click on iCubStartup
- Select wholeBodyDynamics and gravityCompensator modules, right click and run

- open yarpmotorgui and check the torque value reading for affected joints, tipically the should read as follow:

<table>
<thead>
<tr>
<th>Part</th>
<th>Joint 0</th>
<th>Joint 1</th>
<th>Joint 2</th>
<th>Joint 3</th>
<th>Joint 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arms</td>
<td>-1.5</td>
<td>+1.2</td>
<td>-0.2</td>
<td>+0.6</td>
<td>0</td>
</tr>
<tr>
<td>Legs</td>
<td>+0.2</td>
<td>+0.1</td>
<td>0</td>
<td>+0.1</td>
<td>/</td>
</tr>
</tbody>
</table>

If values are not close to the table above, stop running demoForce and check sensors

- run demoForceControl
icub@icubsrv:~$ demoForceControl

- select soft spring on the part to test, move it by hand checking a right force response

**WARNING!** Be sure to move the part applying the force by hand respecting the following:

<table>
<thead>
<tr>
<th>Part</th>
<th>Point where apply the force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arms</td>
<td>Forearm/wrist</td>
</tr>
<tr>
<td>Legs</td>
<td>Ankle</td>
</tr>
</tbody>
</table>