2023 Mobile Robot Quick-Start

17-3 2023

Quick-Start for:

1. Mobile robotic platforms: PiCar-4WD, PiCar-X or YetiBorg,

Preparations

1. Start your mobile robot:
   a. Starting the PiCar-4WD or PiCar-X: use the on/off switch on top of the robot.
   b. Starting the YetiBorg: insert the 9V battery. The YetiBorg will now boot. Wait until the green-light becomes stable.
2. After the mobile robot booted it will automatically connect to a wireless network (2.4G) with SSID ***lmlrobotics*** and password ***Staratio10!***
3. You can use an app such as ***Net Analyzer*** on your phone (after also connecting to the *lmlrobotics network) to find your robot and ip-address.*
4. Connect with your notebook to the same wireless network and use *ssh* or *RealVNC* (See: https://www.realvnc.com/en/connect/download/viewer/) to connect to the mobile robot using the respective IP-address.
   a. Note the name of the mobile robot with its respective IP-address can be found using NetAnalyzer software.
   b. The login name/password for each mobile robot is the default: pi / raspberry
   c. Please do not change the password, and be sure to connect only to your own mobile robot!
5. Always first shut down your mobile robot before switching it of by using its on/off switch or detaching the 9V battery.
   a. Do this by issuing a *sudo shutdown* command through *ssh*, or by selecting from the upper left menu: <*shut down*>. (Failing to do so may corrupt the SD-Card.)
6. Important directories:
   a. PiCar-4WD: <picar-4wd><examples>
   b. PiCar-X: <picar-x><example>
   c. YetiBorg: In the directory <*workshop*><*start*> you will find the original *race.py*, *manual_yetiborg.py* and *stop.py* files.

Note: The following necessary packages already have been installed on the **YetiBorg**:

- bash <(curl https://www.piborg.org/installer/install-picoborgrev.txt)
- bash <(curl https://www.piborg.org/installer/install-zeroborg.txt)
- bash <(curl https://www.piborg.org/installer/install-yetiborg-v2.txt)
- sudo apt-get -y install python-picamera
- sudo apt-get -y install libcv-dev libopencv-dev python-opencv
- pip install keyboard

The resolution of your screen can be set by:
<Raspberry Upper Left><Preferences><Raspberry Pi Configuration><System>[Set Resolution]

For further information and code examples please see the related articles for your mobile robot:

YetiBorg: https://www.piborg.org/robots-1/yetiborg-v2
PiCar-4WD: https://docs.sunfounder.com/projects/picar-4wd/en/latest/
PiCar-X: https://docs.sunfounder.com/projects/picar-x/en/latest/

Basic Mobile Robot Check:

Place the robot on the ground!

Picar-4wd:

- Execute python3 keyboard_control.py in <picar-4wd><examples>
- **raspistill –vf -o cam.jpg**

Picar-X:

- Ececute python3 move.py in <picar-x><example>
- **raspistill –vf -o cam.jpg**

YetiBorg:

Check that the camera works by issuing the following command in a terminal on the robot: raspistill –vf -o cam.jpg

Check that the motors work by issuing the following commands in a terminal on the robot:

- cd /home/pi/2023_start_here
- *try manual_yetiborg.py,*
- *@home: myrace.py* and stop the robot with *stop.py*