Testing Protocol Mercator

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1   Test Protocol

1.1   General Steps

- get a PC with ubuntu 20.04 for monitoring

- connect to marconi 5Ghz Wifi

- scan the network to get the raspberry ip with the command :

  ```
  $ nmap -sP 192.168.1.0-255
  ```

- From previous command get the [ip] and connect to the raspberry with the command :

  ```
  $ ssh sphero-rvr@[ip]
  ```

  The password is "spherorvr".

  In case of "error 22", Wait and restart.

- On 4 different terminals launch :

  ```
  - $ roscore
  - $ rosrun teraranger_array teraranger_multiflex
     _portname:=/dev/ttyACM0
  - $ rosrun rvr_ros rvr_async_driver.py
  - $ cd ~/rvr_ros/ && argos3 -c rvr.argos
  Warning: this command will put the robot in motion
  ```

  To stop every thing, use :

  ```
  $ cd ~/rvr_ros/ && ./kill_nodes.sh
  ```

1.2   Lidar

To check if the lidar works, on a new terminal, launch

```
$ roslaunch ydlidar_ros_driver X4.launch
```

If it's working fine the Blue component on top of the Mercator should rotate.

1.3 Proximity sensors

Here we just need to check the proximity topic with the command :

```
$ rostopic echo /ranges
```

This should print on terminal the distance mesure by each proximity sensor, the correctness of each of them can be evaluated by puting and obstacle at a fixed distance of the sensor and compare this value with "range" value printed on terminal

1.4 UWB Module

Ongoing

1.5 Top LEDs

Not yet tested

1.6 Ground color sensor

Launch command : *rosrun rvr_ros color_labeling.py*

Check the ROS topic /rvr/ground_color to verify that the Ground color sensor is working.

1.7 Fisheye Camera

Launch command : roslaunch color_detector color_detector.launch

Check the ROS topic color_detector to verify.

1.8 Front Camera

The code to run the Oak-d camera and all instructions can be found in the following git repository :

```
https://github.com/Said-belaroussi/rvr_robot_detection
```

After launching the camera, check the following topics to verify that it is working correctly. Make sur that the robot is facing another robot.

- /oak : Bounding boxes are published in this topic.

- /tf : Coordinates of detected robots are published in this topic.

2   Observations

- Battery level: If the battery inside the robot is below half charged, the robot will turn on but the raspberry won't be able to boot correctly.

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