

How To USE this project

1. Install the project

1.1. Install ROS

Follow the instructions on the official website: <http://wiki.ros.org/ROS/Installation>

1.2. Install the project

Clone the project in your catkin workspace:

```
cd ~/catkin_ws/src
git clone
```

1.3. Install the dependencies

```
cd ~/catkin_ws
rosdep install --from-paths src --ignore-src -r -y
```

1.4. Build the project

```
cd ~/catkin_ws
catkin_make
```

2. Run the project

Every launch file in this project should launch everything required to run properly the project.

2.1. Run the project simulation with Gazebo

```
cd ~/catkin_ws
source devel/setup.bash
roslaunch stage_arene_ros arene_simulation.launch
```

2.2. Run the project real arena while connected to the Raspberry Pi

```
cd ~/catkin_ws
source devel/setup.bash
roslaunch stage_arene_ros arene_real.launch
```

2.3. Run a checkup for the turtlebot while connected to the robot

```
cd ~/catkin_ws
source devel/setup.bash
roslaunch stage_arena_ros checkup.launch
```

2.4. Spawn the turtlebot in the simulation arena while Gazebo is running

```
cd ~/catkin_ws
source devel/setup.bash
roslaunch stage_arena_ros spawn_turtlebot.launch
```

3. Build the arena

There are 2 traffic lights tri-colored, 1 bi-colored, 2 barriers and 1 control box.

- Plug the power supply to the Raspberry Pi.
- Plug the power supply to the board.
- Check that the Raspberry Pi is linked to the arduino with the USB cable.
- Check that the shield is plugged on the arduino.
- Plug each module to the box:
 1. Traffic light tri-colored n°1
 2. Barrier n°1
 3. Traffic light tri-colored n°2
 4. Barrier n°2
 5. Traffic light bi-colored

(In case the order the order is mixed up, the program will not work properly, please check that the traffic lights are connected with blue wires and the barriers with yellow wires inside the box)