

AUE-893 Autonomy: Science and Systems

Repository: <https://github.com/rmerco-clemson/AuE893Autonomy.git>

Commands for launching the applications

In order to create the map I created my own package “assignment_02” with its own launch scripts. The package “assignment_02” has the following folder tree:

- custom_maps folder contains all the maps saved during the assignment for different worlds.
- Launch:
 - empty_world.launch. It launches the empty Gazebo world by typing the command:
 - `roslaunch assignment_02 empty_world.launch`
 - playground_world.launch. It launches the playground Gazebo world by typing the command:
 - `roslaunch assignment_02 playground_world.launch`
 - random_things_world.launch. It launches the random_things Gazebo world by typing the command:
 - `roslaunch assignment_02 random_things_world.launch`
 - testworld_world.launch. It launches the testworld Gazebo world by typing the command:
 - `roslaunch assignment_02 testworld_world.launch`
 - gmapping_demo.launch. It starts map building.
 - `roslaunch assignment_02 gmapping_demo.launch`
 - keyboard_teleop.launch. It launches teleoperation using keyboard.
 - `roslaunch assignment_02 keyboard_teleop.launch`
 - view_navigation.launch. Launch Rviz to visualize the map building process.
 - `roslaunch assignment_02 view_navigation.launch`
- worlds:
 - empty.world: Gazebo world totally empty.
 - playground.world: default Gazebo world.
 - random_things.world: Gazebo world provided with the assignment.
 - testworld.world: my own test world to get practice of the tools.

In order create and save the map use the following instructions:

- 1) Launch Gazebo world;
- 2) Start map building;
- 3) Use Rviz to visualize the map building process;
- 4) Launch teleop to move the Turtlebot.

When the map is built, save it using:

```
roslaunch map_server map_saver -f 'path where to save'
```

The following images has the created final map with and without the Rviz window:



