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| Task. No.: | 8 | Points: | 5 | Turtlebot3 Navigation |

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| Objectives:  1. Creating map of the environment. 2. Working with .*pgm* and .*yaml* files. 3. Running SLAM algorithm. 4. Using Rviz simulator. |

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| Description: This project aims to build environment map and navigate Turtlebot to avoid collision. |

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| Step | Action |
| 1 | Launch the virtual robot using RViz.  smoz@mrl:~$ roslaunch turtlebot3_gazebo turtlebot3_world.launch |
| 2 | Run the Rviz simulator.  smoz@mrl:~$ roslaunch turtlebot3_gazebo turtlebot3_gazebo_rviz.launch |
| 3 | Run SLAM algorithm to build the map of the environment.  smoz@mrl:~$ roslaunch turtlebot3_slam turtlebot3_slam.launch slam_methods:=gmapping |
| 4 | Move the robot.  smoz@mrl:~$ roslaunch turtlebot3_teleop turtlebot3_teleop_key.launch |
| 5 | Show the robot position using *odom* topic. |
| 6 | Save the map.  smoz@mrl:~$ rosrun map_server map_saver -f ~/my_house_map |
| 7 | Show the pgm file and yaml file contents. |
| 8 | Load the saved map and navigate the robot.  smoz@mrl:~$ roslaunch turtlebot3_navigation turtlebot3_navigation.launch map_file:+$HOME/my_house_map.yaml |

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