University of South Florida Control of Mobile Robots

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Installing ORB\_SLAM2

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# Requirements & Installation

The utilization of ***ORB\_SLAM2*** with the robot requires the corresponding github branches to be installed and set-up on both the robot and your computer. If you have not done so, you will need to follow the installation documentation:

<https://github.com/biorobaw/pi3_robot_2019/blob/python_client/docs/CoMRPythonClientInstallInstructions.pdf>

This package includes the libraries required for controlling the robot by sending speed messages, reading from its distance sensors for obstacle avoidance, receiving encoder information to retrieve the distance traveled by the robot, and obtaining the video feed from the camera. The launch files for starting ***ORB\_SLAM2*** as well as the bug algorithm program that utilizes the pose information are also included.

**Additionally you will need to install:**

***ORB\_SLAM2(ROS):*** <https://github.com/appliedAI-Initiative/orb_slam_2_ros>

(you only need to install, you do not need to configure anything)

Wiki: <http://wiki.ros.org/orb_slam2_ros>

***ORB\_SLAM2*** is a simultaneous localization and Mapping algorithm that uses input from monocular, stereo, and RGBD cameras, and publishes Pose, PointCloud2, and debug Image topics.

***\*Rviz:http://wiki.ros.org/rviz***

***Rviz*** is a visualization tool for displaying commonly used ROS messages such as Pose, PointCloud2, map, and Image.

**Recommended:**

***\*Telop***(**highly** recommended): <http://wiki.ros.org/teleop_twist_keyboard>

***Telop*** allows you to manually control the robot by sending ***Twist*** messages over ***ROS***

\***Included in full installation of ROS Kinetic**