# Week 5 Update: Rosify and Simple Autonomous Driving

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ME/EE/CS 169

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## 1 Update RVIZ

## A picture containing chart Description automatically generated

## 2 Roslaunch

Text

Description automatically generatedText

Description automatically generated

## 3 2D Navigation Goal

When running RVIZ, the list of ROS topics contains the topic /move\_base\_simple/goal, which provides information on the 2D Navigation Goal set through the RVIZ GUI.

Graphical user interface, text

Description automatically generated

Echoing the topic allows us to view the topic message when we set a 2D Navigation Goal in RVIZ. We note that the pose is given in the odom frame, as desired. This frame changes dependent on RVIZ’s reference frame.

Text

Description automatically generated

## 4 Create a Simple Autonomous Driving Node

Diagram

Description automatically generated

For a simple autonomous driving node, we first utilized a turn-drive-turn method. This method included a proportional speed based upon the distance to the goal, thus slowing down as it reached the provided navigational goal. It also included a deadzone such that when close enough to the goal it would switch to the turning phase.

Diagram, schematic

Description automatically generated

A second method we utilized consisted of a turn and drive, then orient to the desired orientation. It also slows down as it arrives to the goal.

A screenshot of a computer

Description automatically generated with low confidence

Another method utilizes the same turn and drive, then orientation method as before, but now utilizes a trigonometric feedback rather than a linear feedback for the angular velocity while driving to the goal. This appeared much smoother than the previous method.

## 5 Add the Laser Scanner

Chart, line chart

Description automatically generated

The laser scan works well! We can even detect Lorenzo’s feet when he jumps in front of the robot to scare Tyler. We added the laser scanner to the launch file and added the LaserScan display to the rviz configuration.