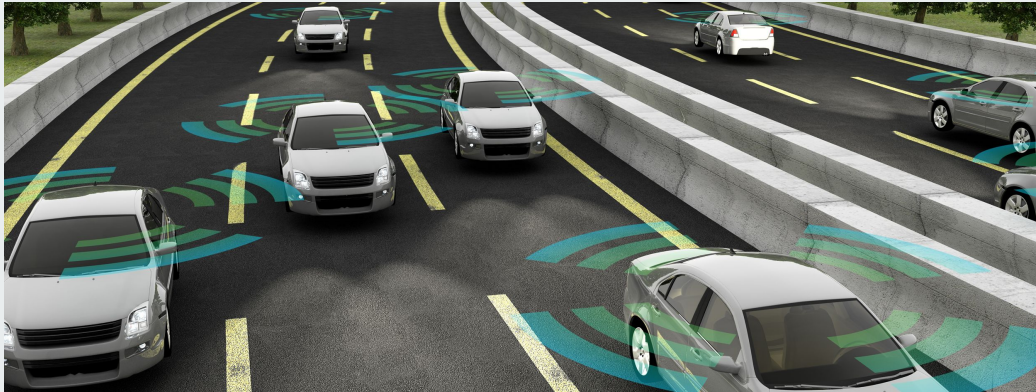


Virtual ROS Based Self-Driving Car Model





Team



Shounak Rangwala
Rutgers University
Class of 2021
Major: ECE



Nathan Yu
Rutgers University
Class of 2022
Major: CS/Philosophy



Victor Abril
Rutgers University
Class of 2021
Major: ECE

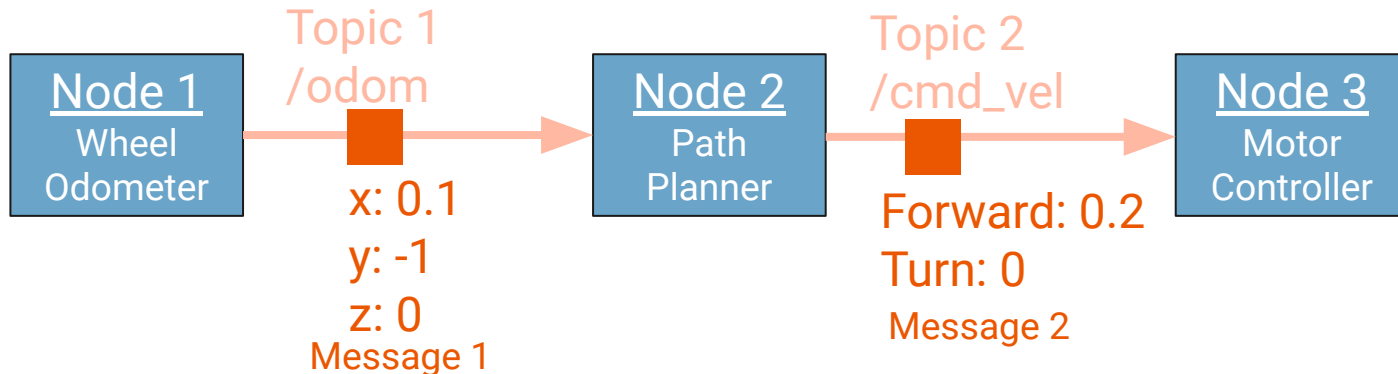
Project Objective

- Implement self driving behavior in a virtual city environment
- Use of machine learning algorithms to develop self driving behavior

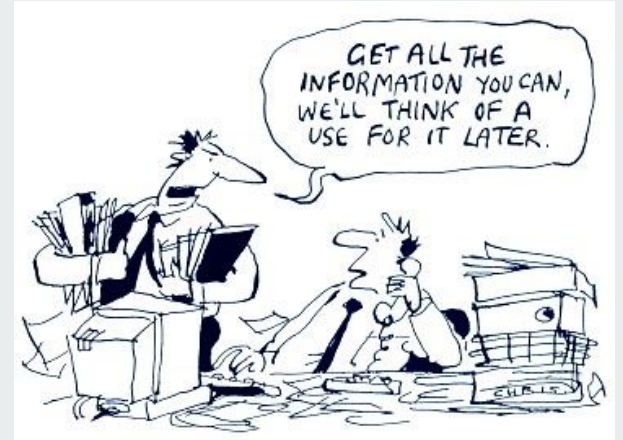
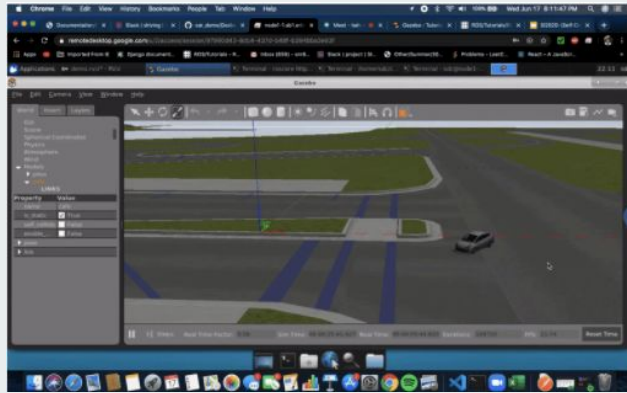


What is ROS ?

- The Robot Operating System (ROS) is a flexible framework to simplify the task of creating complex and robust robot behavior.
- Building blocks - Nodes & Topics/Messages



Data Collection

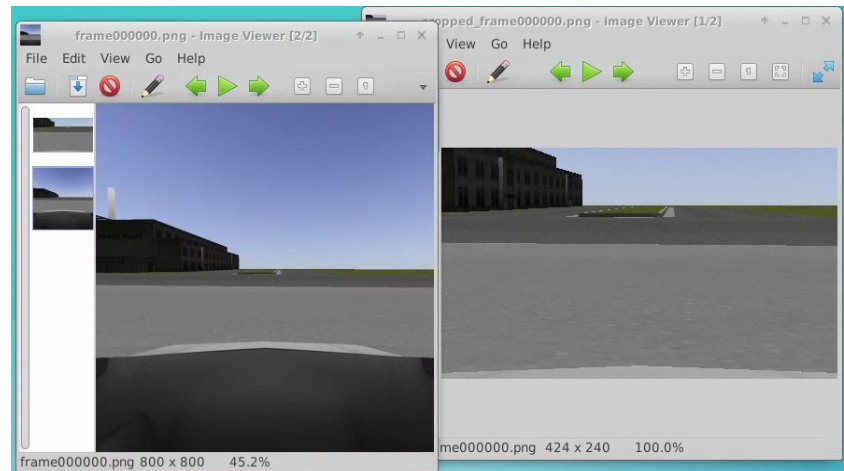
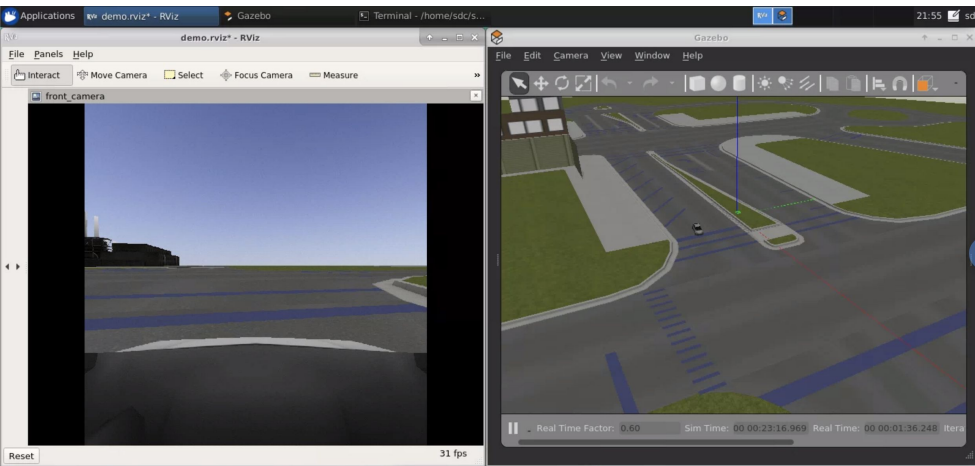


What was the data for?

- Our model needed to learn how to drive using camera images and steering wheel positions.
- The more data the model studies, the better the model could drive itself.

How did we collect data?

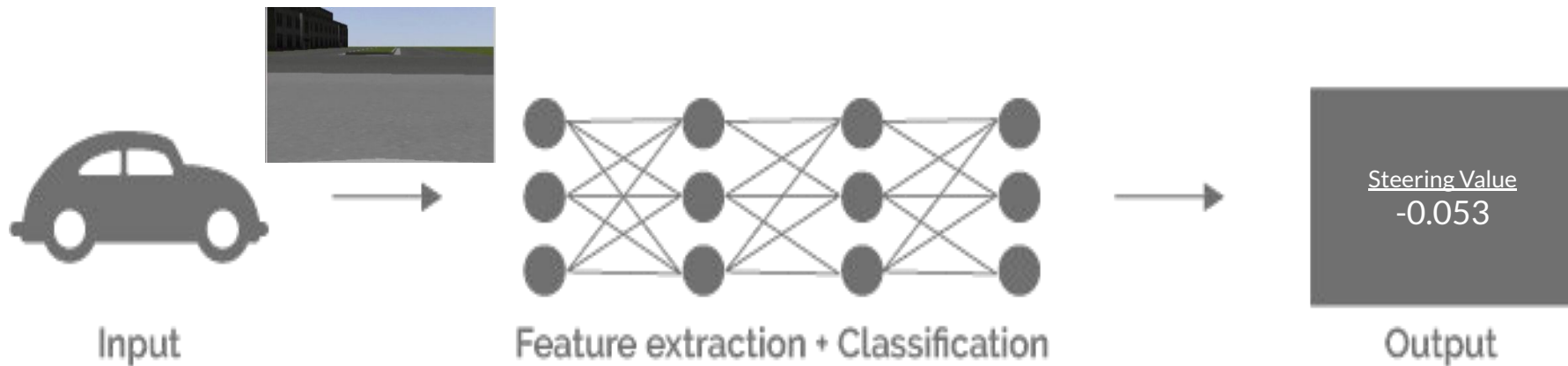
- Recorded driving segments in our simulation
- Stored our steering and image topic data in files called bagfiles - a ROS built-in for collection



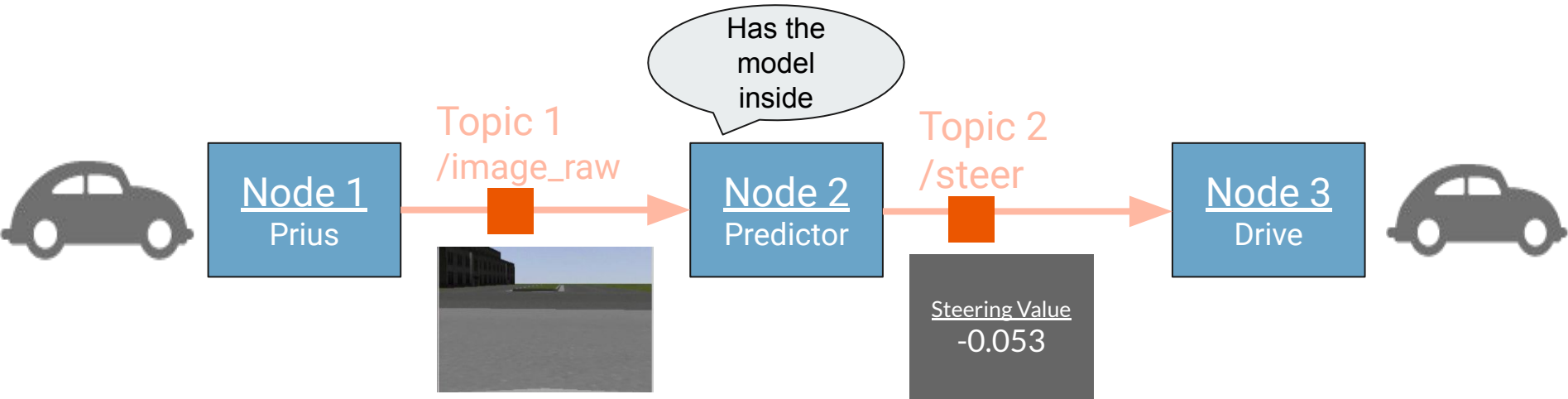


Machine Learning/AI Incorporation

What is the model?



Self-Driving Pipeline



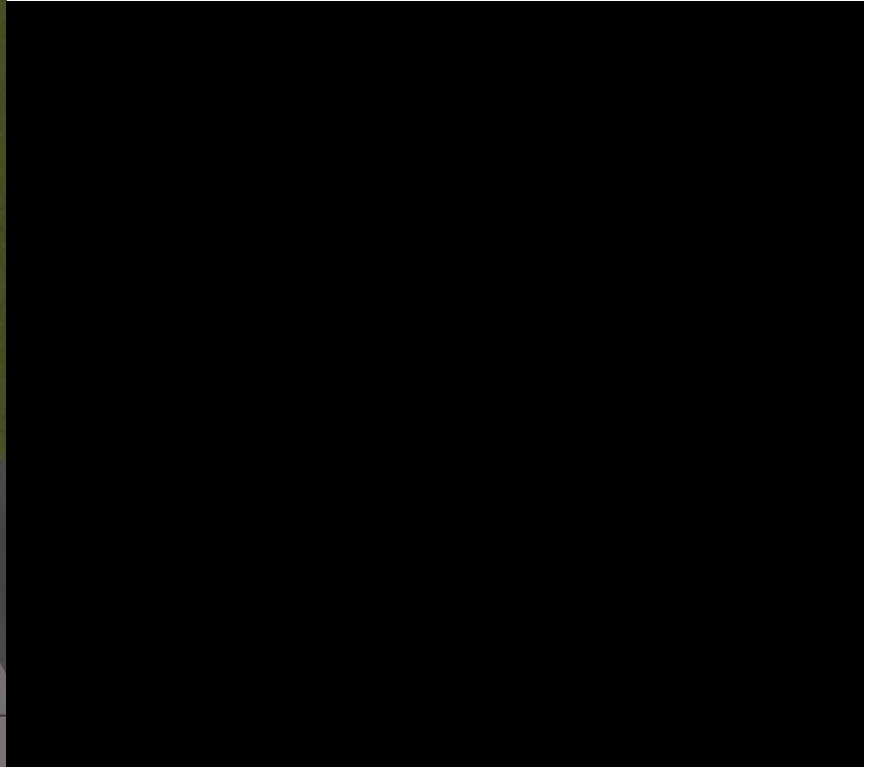


Training Results

10 Epochs - 15 Bagfiles



20 Epochs - 37 Bagfiles





Thank you!

