



Traffic Simulator Team

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Ana Obradovic

About Us



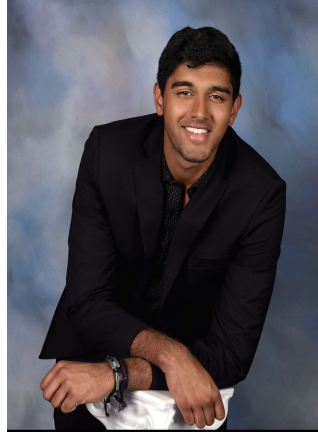
Afreen Fatima

Rutgers University
Major: Computer
Engineering
Class: 2024



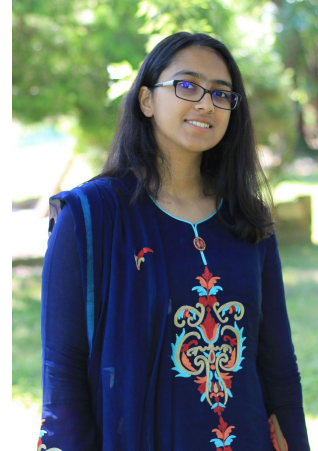
**Sebastian
Teslic**

Boston University
Major: Computer
Science
Class: 2024



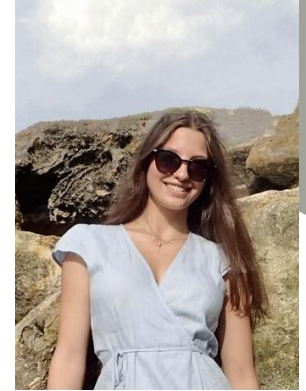
**Mohammed
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Sheza Bajwa

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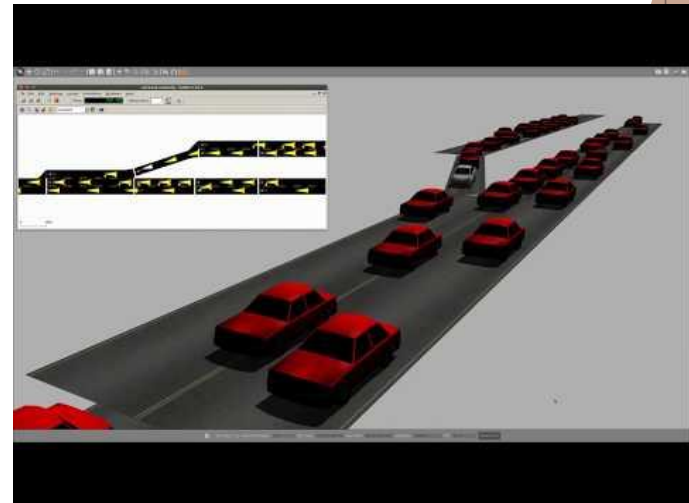
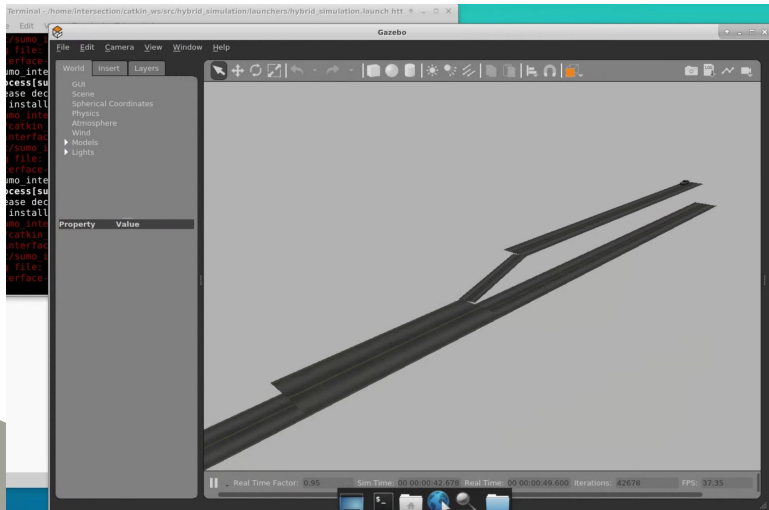


Ana Obradovic

Academy of
Information
Technology (HS)

Project Overview

- Develop a smart city intersection for the model intersection in the ORBIT lab
- The simulation is a testbed for self-driving research and we hope to emulate human driving



Methodology and Equipment

- SUMO – Simulation of Urban Mobility
- Gazebo – Robotics Simulation
- ROS – Robot Operating System (Melodic)



GAZEBO

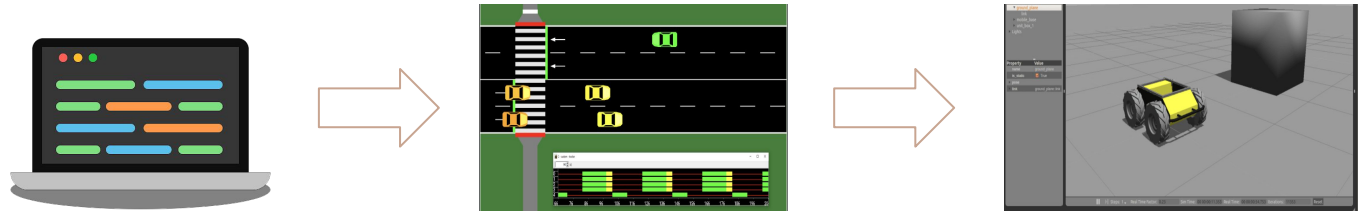
The ROS logo consists of a 3x3 grid of nine dark blue dots on the left, followed by the letters "ROS" in a large, dark blue, sans-serif font.

Project Goals

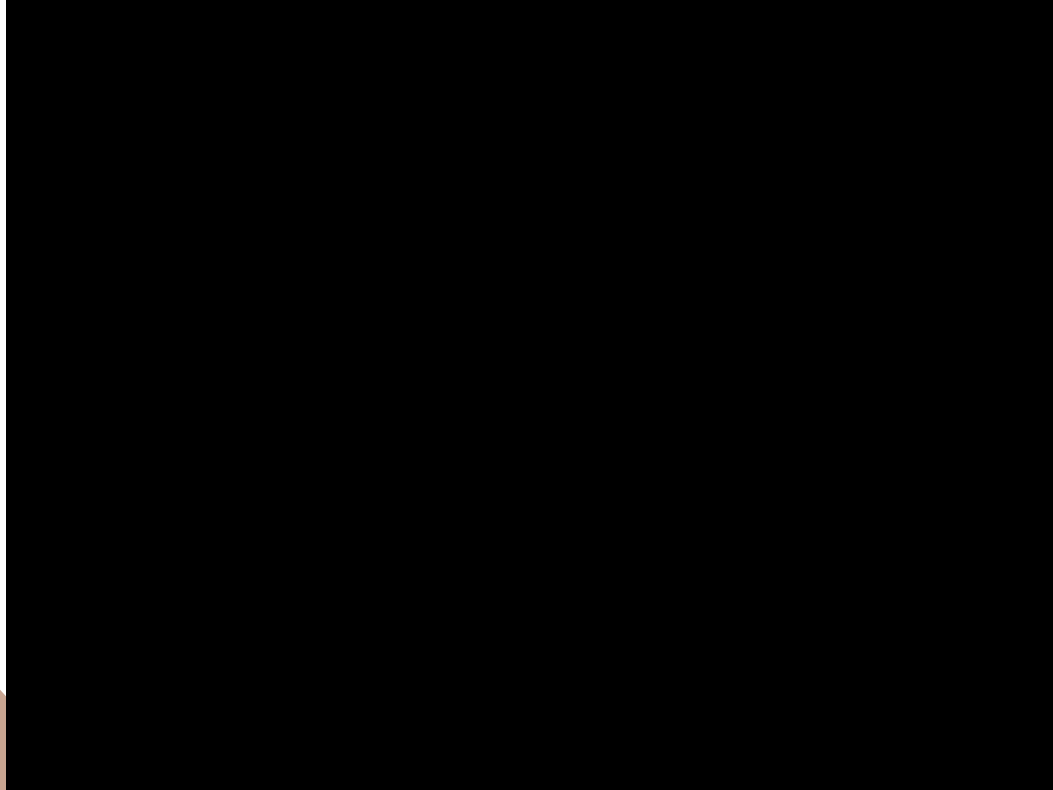
- Feed real-time data from SUMO to a Gazebo simulation
- Gazebo software will provide a 3D robotics simulation of the data collected from SUMO
- Create objects within the simulation such as a traffic light

INTERSECTION MODEL AND EXPLANATION

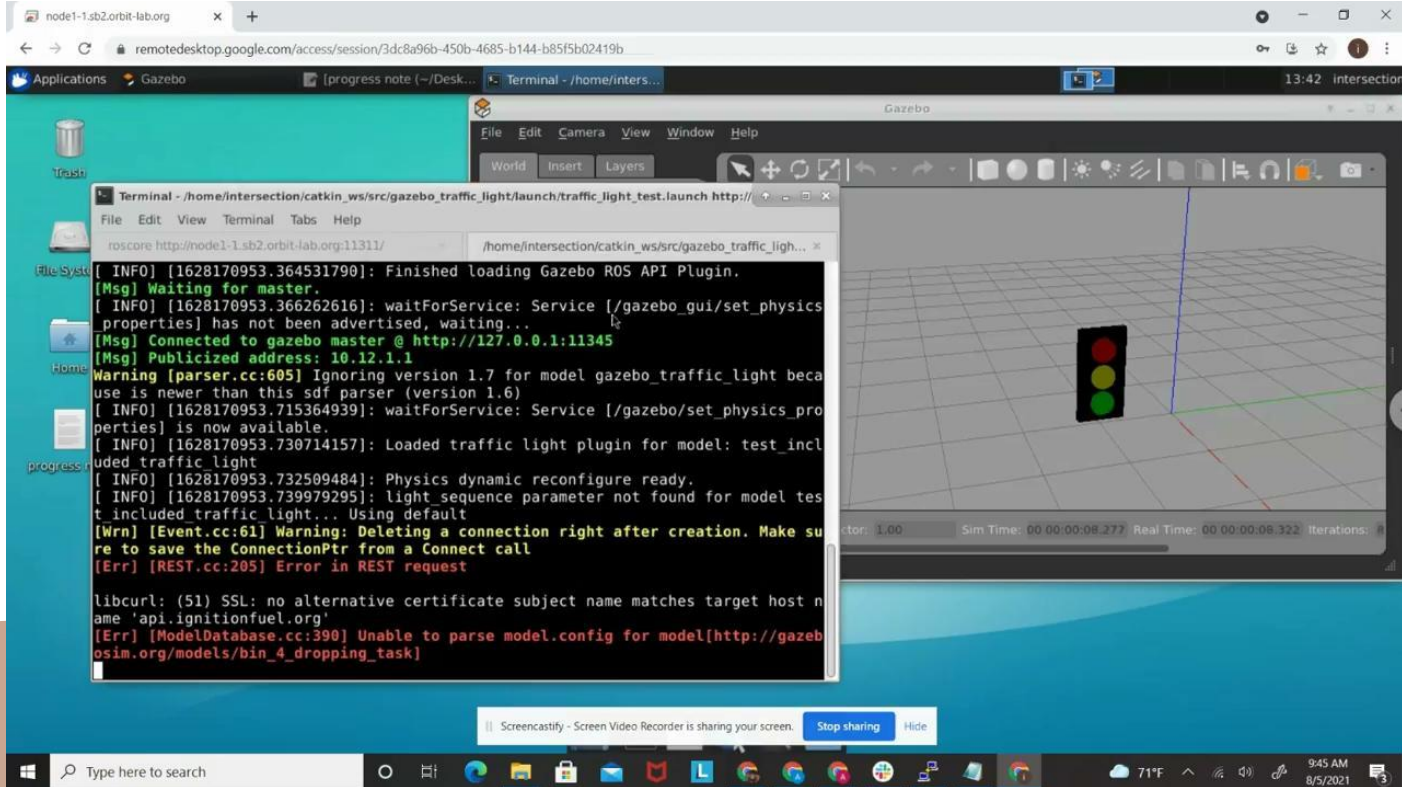
- Gazebo receives information from SUMO → the software outputs a 3D rendered model
- Gazebo can receive this information as coordinates for street intersections, cars, pedestrians, stop lights, etc.
- These plug in values do not control the execution of the simulation – this must be done in the simulation itself



Intersection Simulation



Stoplight Video



The screenshot displays a remote desktop environment. In the background, a Gazebo simulation window is open, showing a 3D grid floor and a traffic light model. The traffic light has three lenses: red (top), yellow (middle), and green (bottom). The simulation interface includes a menu bar (File, Edit, Camera, View, Window, Help) and a toolbar with various icons. The status bar at the bottom of the Gazebo window shows 'actor: 1.00', 'Sim Time: 00:00:00:08.277', 'Real Time: 00:00:00:06.322', and 'Iterations: 8'.

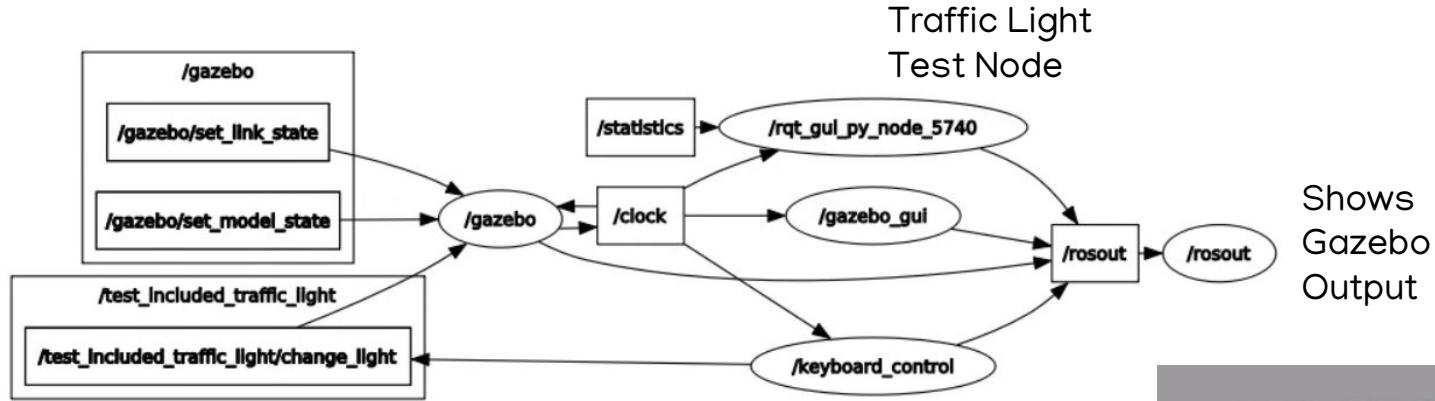
In the foreground, a terminal window is open, displaying the following log output:

```
Terminal - /home/intersection/catin_ws/src/gazebo_traffic_light/launch/traffic_light_test.launch http://...
File Edit View Terminal Tabs Help
roscore http://node1-1.sb2.orbit-lab.org:11311/ /home/intersection/catin_ws/src/gazebo_traffic_light...
[ INFO ] [1628170953.364531790]: Finished loading Gazebo ROS API Plugin.
[Msg] Waiting for master.
[ INFO ] [1628170953.366262616]: waitForService: Service [/gazebo_gui/set_physics_properties] has not been advertised, waiting...
[Msg] Connected to gazebo master @ http://127.0.0.1:11345
[Msg] Publicized address: 10.12.1.1
Warning [parser.cc:605] Ignoring version 1.7 for model gazebo_traffic_light because it is newer than this sdf parser (version 1.6)
[ INFO ] [1628170953.715364939]: waitForService: Service [/gazebo/set_physics_properties] is now available.
[ INFO ] [1628170953.730714157]: Loaded traffic light plugin for model: test_included_traffic_light
[ INFO ] [1628170953.732509484]: Physics dynamic reconfigure ready.
[ INFO ] [1628170953.739979295]: light sequence parameter not found for model test_included_traffic_light... Using default
[Wrn] [Event.cc:61] Warning: Deleting a connection right after creation. Make sure to save the ConnectionPtr from a Connect call
[Err] [REST.cc:205] Error in REST request

libcurl: (51) SSL: no alternative certificate subject name matches target host name 'api.ignitionfuel.org'
[Err] [ModelDatabase.cc:390] Unable to parse model.config for model[http://gazebo.org/models/bin_4_dropping_task]
```

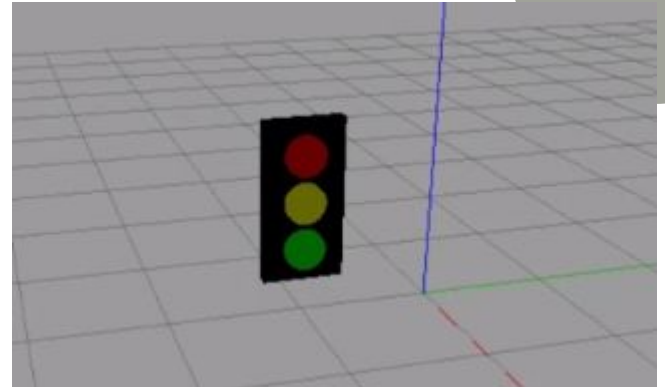
At the bottom of the screen, a Windows taskbar is visible with the search bar, task view icon, and several application icons. The system tray shows the date and time as 9:45 AM on 8/5/2021. A watermark for 'Screencastify - Screen Video Recorder' is present at the bottom center.

Stoplight



Shows
Gazebo
Output

Publisher
Node (Gives
Keyboard
Commands





Thank You

Any Questions?