Computing Simulations On Traffic Control
Presented by: Mitali Aajoankar (mpa8986@g.rit.edu)
Faculty: Dr. Rajendra K. Raj

Overview
- Consider you are going from place A to place B however you miss a turn in such cases a person has to go a long way to get back on track.
- This wastes time and fuel unnecessarily. This project proposes a U-turn on some roads or ramp of exits.
- This will also help to reduce unnecessary traffic within the cities.

Introduction
- Commuters on an average collectively lose 6.9 billion hours and 3.1 billion gallons of fuel a year due to high traffic [4].
- Most of the traffic congestion occurs near city exits and inner city loops. Some of the effects of traffic congestion are delays, pollution, emergency vehicle problems etc.
- One of the way to solve this problem is to introduce U turns on ramps and in necessary places.
- U-Turn intersections or also known as volte face intersections are a promising solution for avoiding traffic and also rerouting to the original route in the fastest possible manner.
- These turns have a potential to move large amount of vehicles efficiently across the road with comparable minimum hazard possible. This project puts forward a unique way for heading back on the right track by introducing a U-turn on an exit ramp.

Architecture

Implementation
- **Car source**: This object creates the cars and the road is determined according to the connection (selection source).
- **Bus source**: This object creates bus and is directly connected to the moveTo object.
- **Selection Source**: The input to this object is the car source. This selects the output road to which car is sent. This is determined by giving probability as the selection criteria for each road.
- **CarMoveTo**: This is an object that determines on which road the car runs. The user can specify the number of lanes, direction, stop line, intersection etc. using this object.
- **Parking**: This object stops the car in pre determined spaces for specified time.
- **Car dispose**: This object makes the car vanish which suggest its off the road.

Design Considerations
- Module speed of the cars
- Fit cars on the road.
- Use Queuing theory for car simulation.
- Calculate number of cars a road can sustain

Future Work
- Determine better structure for the roads according to the results of the simulation
- Find different ways to achieve results.
- Add more real life scenarios like traffic signals, road constructions, one ways etc.
- Simulations can be made more realistic using netlogo and Simio.

References