**Research Question**

Traffic jam is a common problem as well as a hot research topic that every driver has to face at least once in their life time. Multiple factors are involved in the cause of this issue e.g. driver’s behavior, quantity of vehicles, weather…etc. To avoid such inefficient and time-wasting circumstance, the driver normally prefers to stay informed about the traffic situation before they depart. However, the information is not always up-to-date due to the fact that traffic jam is not absolute predictable and is usually not timely reported. If the newest information can be delivered to every driver/vehicle in real time, the ongoing traffic can then be diverted to the other route, instead of all arriving at the same jam. Therefore, how to construct an ideal updating and communicating system which helps the vehicles with avoiding the traffic jam is the main goal of this project.

**State of the Art**

* Gipps Model
* Psychophysical Model
* **Cloud based communication**

Tesla has not only made pure electric cars possible on the market, but also

* V2X communication
* Sensors for collision avoidance

**Methods**

We are implementing a multilane traffic scenario with different vehicles. The lane will have an obstacle that causes traffic, through which the vehicles will coordinate to reach passing the obstacle.

We are using ROS with Stage simulator so that we can focus on the development of the various traffic situations. As in ROS we can find the models for the hardware such as laser scanner, ultrasonic sensors, etc. which are used in vehicles and is readily available for ROS.

The problem is split into main three parts, such as modeling of the world, the vehicle, and traffic scenarios.

The vehicle model will consist of the dynamics of real vehicle aptly scaled for simulation so that the results shall be realistic.

**Timeline**