**Title**: Lateral control of autonomous vehicle using LQG

**Introduction**: In 5,471 crashes studied from 2005 to 2007, 11% of vehicles failed to stay in the proper lane and 22% of vehicles ran off the edge of a roadway. So a robust lateral control in autonomous vehicles have a huge potential to reduce these numbers of car crashes for increased road safety. This projects aims to design a LQG control for lateral control of the vehicle for that purpose.

**Purpose**: The purpose of the project is to process the sensor data for state estimation using Kalman filter and design a controller for lateral control of autonomous vehicle.

**Action items**:

1. Obtain sensor data.
2. Localization by state estimation.
3. Design LQG controller for lateral control.
4. Perform simulations to show that the controller performs as claimed.

**Expected deliverables**: The lateral control designed can be used for lane keeping and/or changing purposes by using reference gains. This can be used in zero and first level autonomous vehicles. This controller design will also help me in my thesis in which I have to use sensor data for controlling a mobile robot.