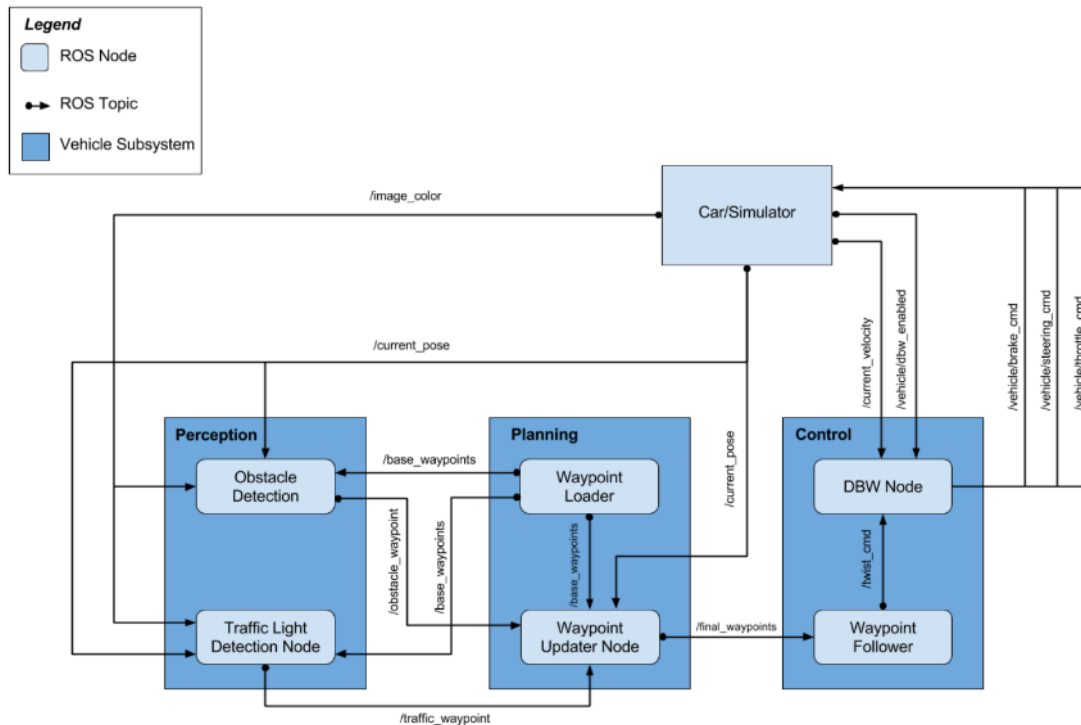# Project Description

Solution contains three individual nodes (Drive by Wire, Waypoint Updater, Traffic Light Detector). For each node an independent ROS was implemented. Nodes are communicating with each other using pub-sub.

Overall system architecture design can be seen from the next diagram:

DBW Node

Steering is controlled by yaw controller. Throttle and brake are controlled using PID controller. Tuned parameters which we used in final version:

Parameter	Value
Kp	0.3
Ki	0.1
Kd	0.005

Waypoint Updater Node

This node receives updates from traffic light detector to know which light is on now, and publishes next waypoints for the vehicle. Our system basically has two states, one for moving, and one for stopping. When there is no traffic lights nearby, or if the light is green, car is moving normally (accelerating).

If car if close to a traffic light, and light is red, car begin to stop. It does it via planning waypoints to the traffic light with deceleration on each waypoint so that last waypoint before the traffic light is zero (full stop).

Screenshots: