

Verbal Explanation on Initial Code/Research

1: We first learned about the application of Kalman Filter. Then we studied the five most important formulas, which can be used to get the estimated value, such as the displacement, velocity or the acceleration of the target.

2: We studied the two most classic models: constant velocity model(CV) and constant acceleration model(CA). We simulated the following scenario: the robot moves in a straight line with constant velocity, it can have some noise, using the sensors in the car, we can get the displacement of the robot, which is of course not very accurate, based on the above conditions, we can use Kalman Filtering to get the accurate values.

3: We have already simulated the above given scenario with Matlab, the further step is to use Processing software and implement the Kalman Filter.

4: We also need to combine our Kalman Filter algorithm with the Particle Filter algorithm to compare the filtering result.