SELF DRIVING CARS

KALMAN FILTER PROJECT

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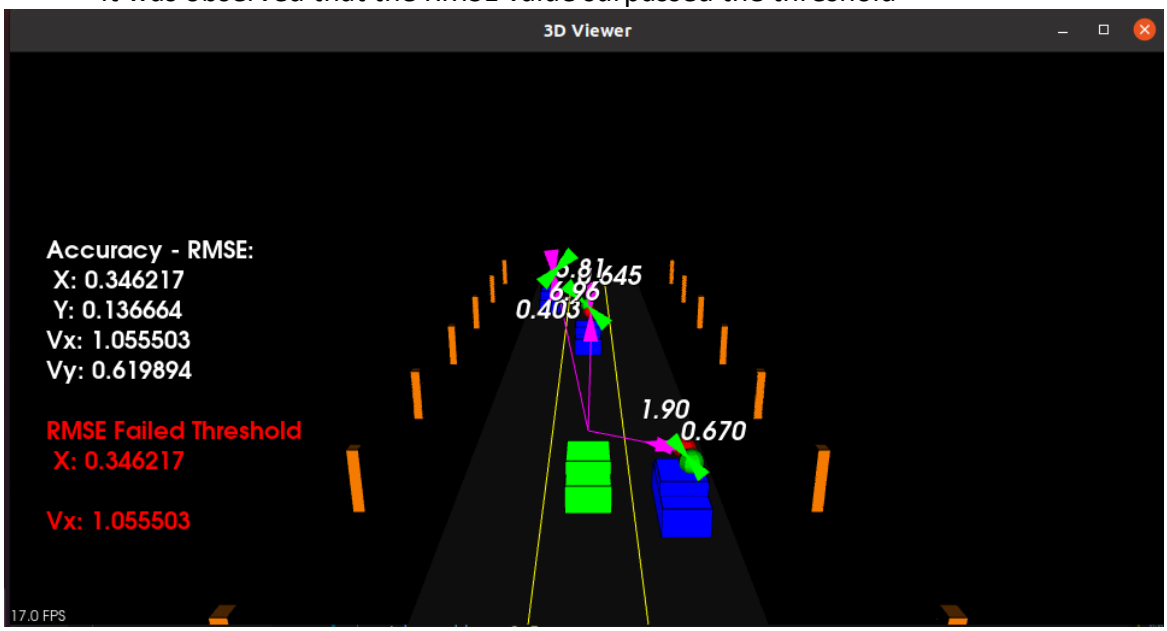
The unscented Kalman filter is a suboptimal non-linear filtration algorithm, however, in contrast to algorithms such as EKF or LKF, it uses an unscented transformation (UT) as an alternative to a linearization of non-linear equations with the use of Taylor series expansion.

UNSCENTED KALMAN FILTER OUTPUT

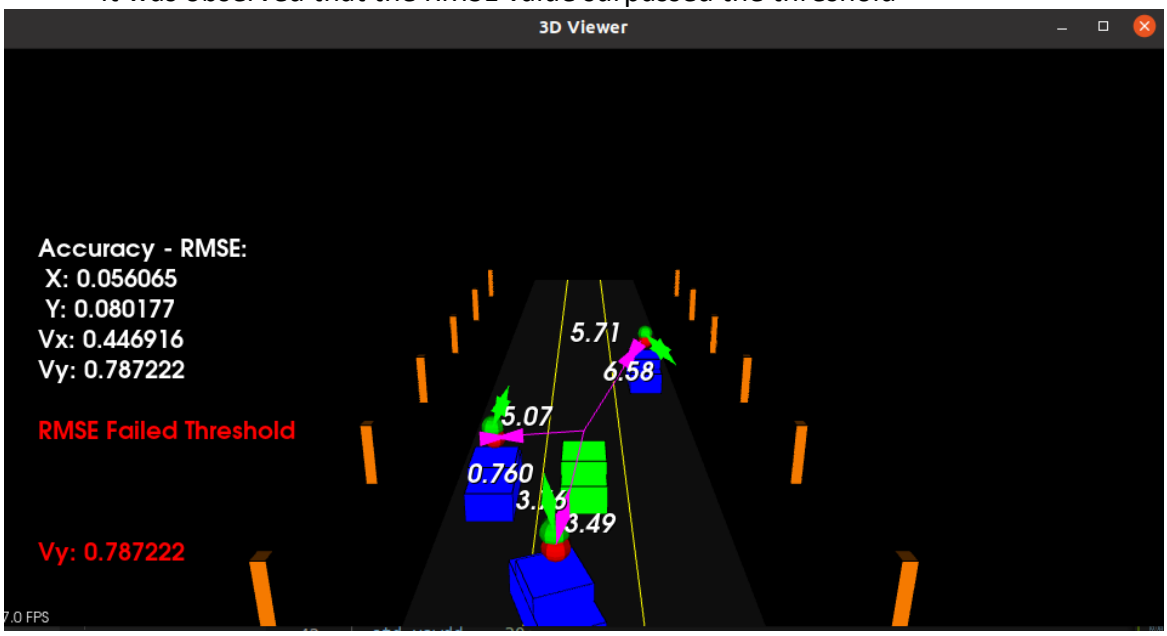
std_a_ value of 0.5
std_yawdd_ value of 0.5

- It was observed that the RMSE value surpassed the threshold



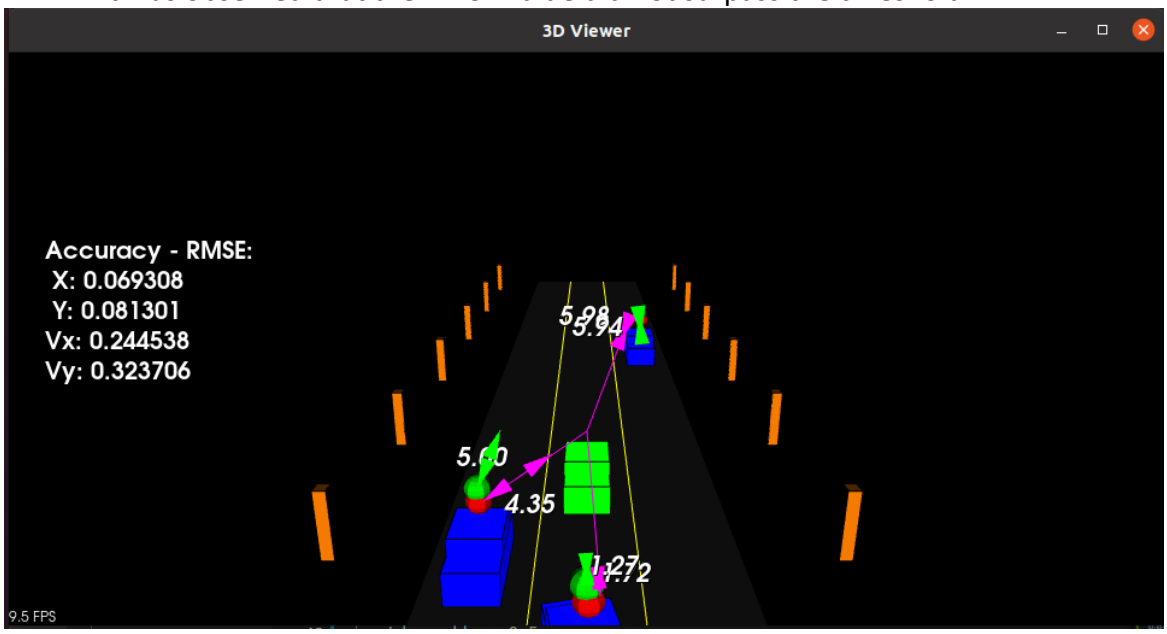
std_a_ value of 30
std_yawdd_ value of 30

- It was observed that the RMSE value surpassed the threshold



std_a_ value of 0.8
std_yawdd_ value of 0.5

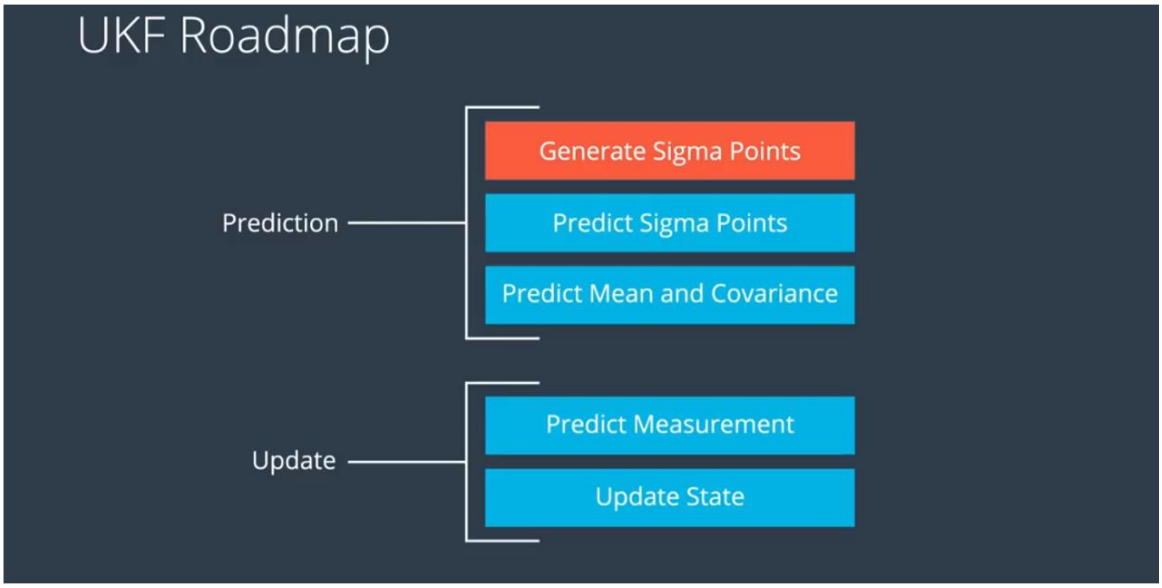
- It was observed that the RMSE value did not surpass the threshold



UNSCENTED KALMAN FILTER RULES

UKF implementation:

UKF Generate Sigma Points



UKF Update