2 packages used.

1. robot_localization package.

State est nodes

a) ekf_localization_node.
b) ukf_localization_node.

Sensor preprocessing node.

c) navsat_transform_node.

This node allows to transform Geographic coord (lat & long) into robot's world frame (map or odom)

2. package for Generating trajectory:

odom_to_trajectory.

nodes.

a) path_odom_plotter → to plot unfiltered path.

b) path_filtered_plotter → to plot filtered path.

Date: ___/___/___

✓ Visualizer used to plot : multiplot_rqt

✓ gps-IMU fusion

launch files used :

for ekf : dual_imu-gps_ekf.launch

for ukf : dual-imu-gps-ukf.launch.

✓ for both filter parameters are set, files are in params folder

for ekf : dual-imu-gps-ekf. yaml

for ukf : dual-imu-gps-ukf.yaml

✓ odometry - imu - gps fusion

launch files used:

for ekf: dual-odometry_imu-gps_ekf.launch

for ukf: dual-odometry_imu-gps_ukf.launch.

✓ for both filters parameters are set, files are in params folder.

for ekf: dual-odometry_imu_gps-ekf.yaml

for ukf: dual_odometry_imu_gps-ukf.yaml.

About launch files

* It runs 3 nodes

1) An EKF instance that fuses odometry (only if provided) and IMU data & outputs state estimate.

2) A second EKF instance that fuses same data, but also fuses GPS data

3) An instance navsat-transform-node, which takes GPS data and produces pose-data.

This is for robot_localization package.

* It runs 2 nodes.

1) path_odom_plotter → It publishes /odompath topic which is unfiltered path.

2) path_filter_plotter → It publishes /filteredpath topic which is filtered path.

This is for odom_to_trajectory package.