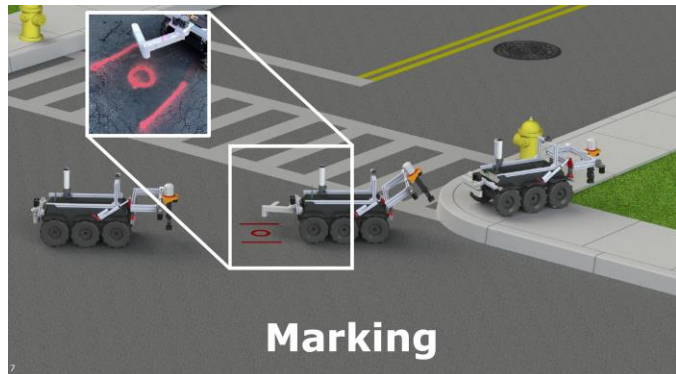
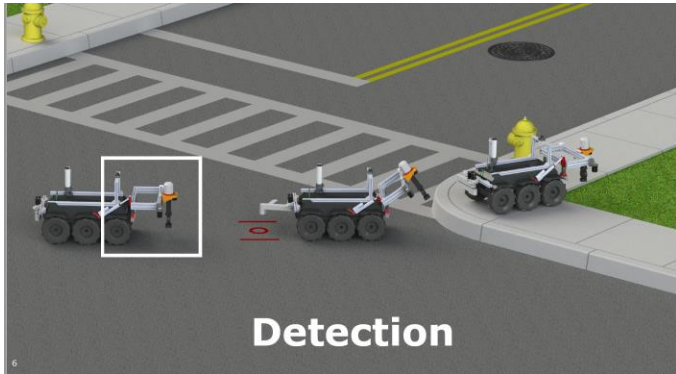


Overview

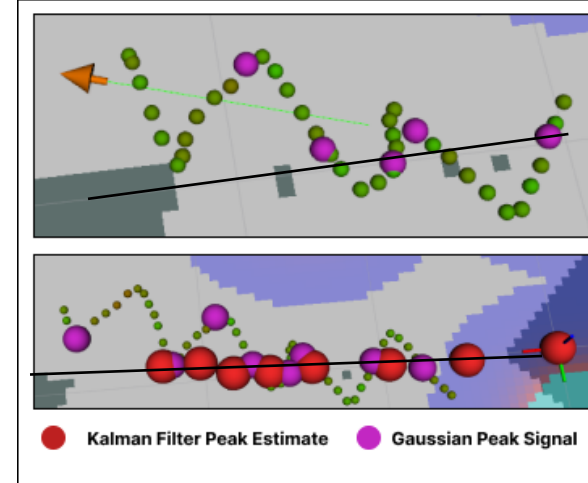
We develop Navigation stack for Dig Safe robot equipped with cable detector for accurate detection and utility marking. Dig safe robot will provide a tool for utility marking (cables) as it is monotonous and labor-intensive task.

Introduction



Cable Detection and Path Planning & Tracking

- Sampled Gaussian peak signals are noisy
- We use Kalman filter estimate peak signal
- Predict cable path on estimated peak points.
- Cable point is predicted at distance ahead path is planned followed using pure pursuit algorithm.



Live Cable following Demonstration



GIS Data Processing - Navigation

- GIS data is represented into formats like (.shp .gpx) used in ARCGIS or QGIS software.
- We use the GIS data by utility companies for integrating in the Navigation system.
- We convert the GIS data to OSM layers extracting specific nodes into UTM coordinates.
- Then plan path from robot to goal from OSM data.

Results

- Robot follows the estimated path from cable detector on live cable.
- We visualize the GIS data and estimated path followed.

