Multi-Agent Collaboration for navigation in disaster zone

Team F : Falcon Eye

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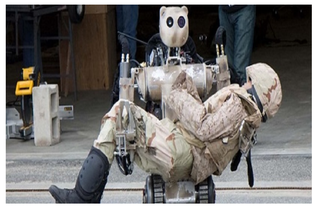
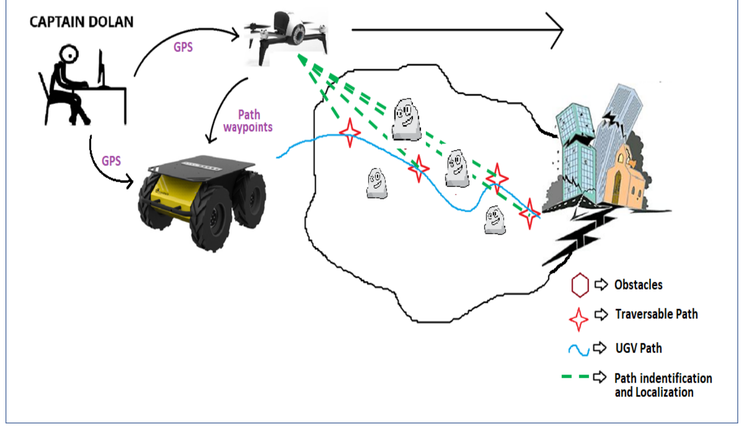
MOTIVATION

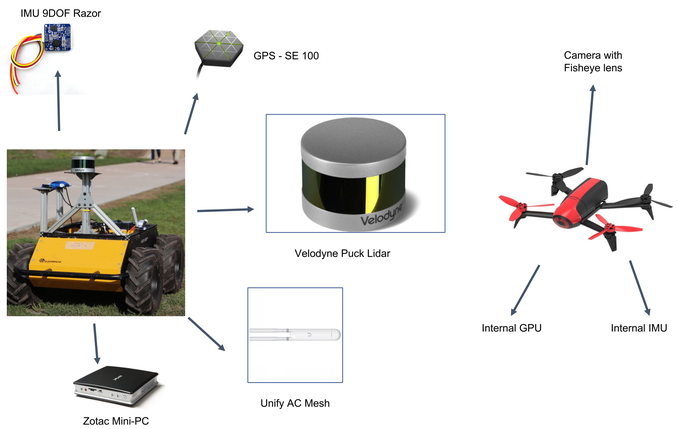


- Human and Robots working in Collaboration for Disaster Response
- Enhance the exploration and navigation capabilities of ground robots in unknown environments by integrating aerial information from drones

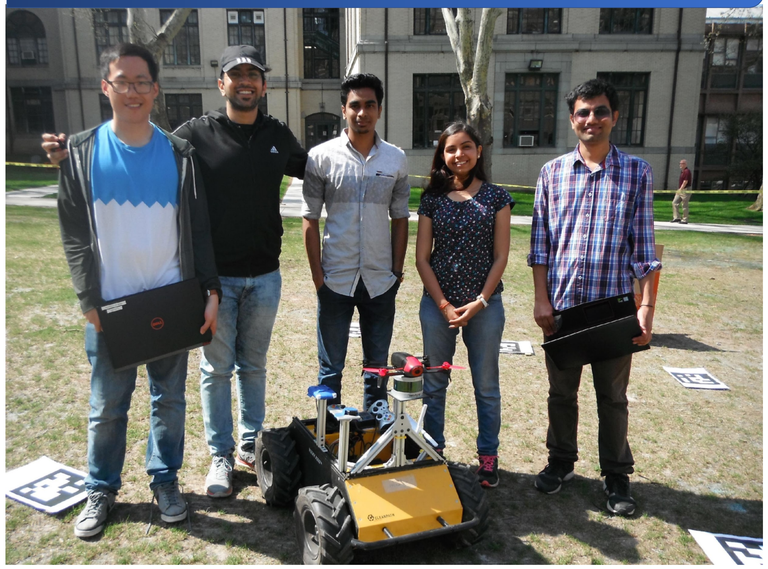
USE CASE



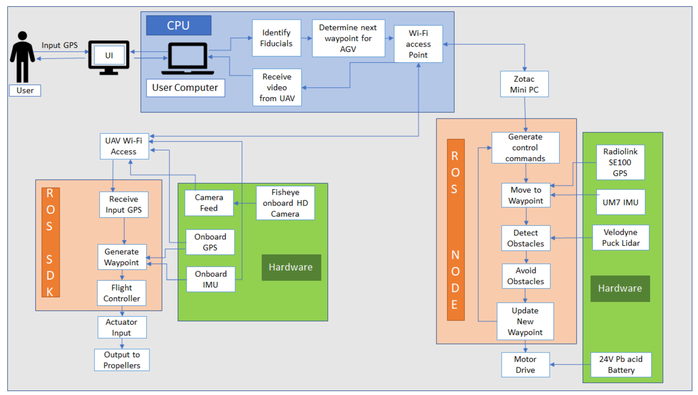
HARDWARE

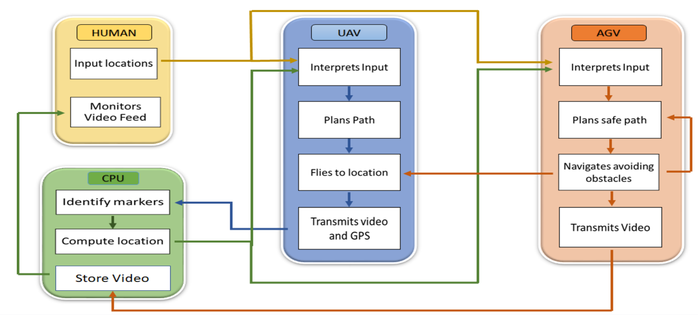


TEAM



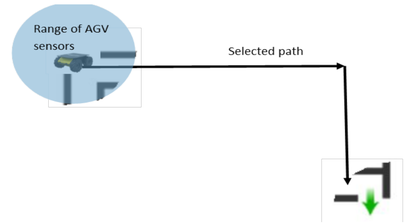
SYSTEM DESIGN

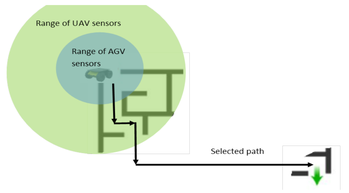




PROJECT DESCRIPTION

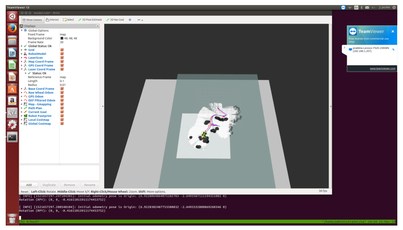
- Path finding and localization using ground-level sensors is a difficult task when obstacles and dead ends are obstructed from the sensor's field of view.
- Leads to unacceptable performance in time-critical missions in unknown environments - such as disaster relief.

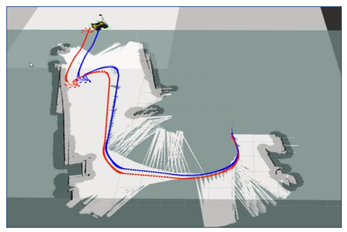




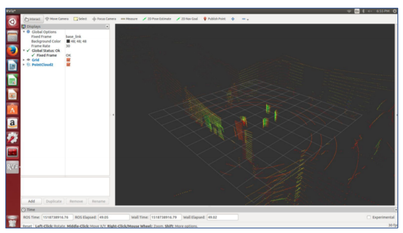
- Augment the localization and path planning capabilities of AGV's by integrating aerial sensor data from UAV's.

SUBSYSTEM TESTING RESULTS

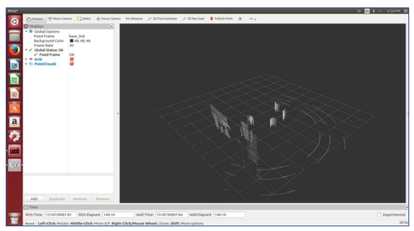




Path Planning with Obstacle Avoidance (Dynamic and Static)



Velodyne Raw Point Cloud



Reduced Point Cloud