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**
- Human and Robotic collaboration for disaster response
- Enhance exploration and navigation capabilities of ground robots in unknown environments by integrating aerial information from drones

**TEAM**

**SUBSYSTEM TESTING RESULTS**

**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.

**HARDWARE**
- Zotac Mini-PC
- IMU 9DOF Razor
- GPS-SE 100
- Velodyne Puck Lidar
- Internal IMU
- Camera with Fisheye Lens
- Internal GPU

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**SYSTEM DESIGN**
- Path Planning with Obstacle Avoidance (Dynamic and Static)
  - Velodyne Raw Point Cloud
  - Reduced Point Cloud
  - GPS Variance