DESIGN AND IMPLEMENTATION OF AN AUTONOMOUS GROUND VEHICLE FOR FIRE FIGHTING MISSIONS

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Background:
Fire fighting is a highly difficult and challenging task for human beings which requires reaching the target place in a short period, identifying the fire spot and suppressing the fire efficiently.
The existing human involved firefighting system has following major drawbacks:
1. Fire fighters safety cannot be guaranteed
2. Requires additional effort to detect fire and actuate device
3. Accessibility to hazard area has been limited.

Hence, some sort of automation is required in such complex fire fighting missions. Our proposed project is on design and implementation of an unmanned aerial vehicle (UAV) for firefighting application. The proposed UAV firefighting system consists of a quadcopter and a mission control system to monitor and coordinate the UAV. In our proposed autonomous cooperative framework, fire detection sensors will be deployed in our testing environment and upon receiving alert signals from these sensors, the mission control system will guide UAV to find an optimal path (with respect to distance) to the fire spot at first. After arriving at the target on fire, the mission control system will instruct the UAV to suppress the fire.

Objective:
Design and implementation of an unmanned ground vehicle for autonomous firefighting missions.

Specific objective:
We aim to develop strategies on
- Unmanned ground vehicle
- Fire extinguishing
- Work on Shortest path based on Dynamic obstacles