Project Code: O-001459

A Robot Platform For Outdoor Search And Rescue

(內容只提供英文版)

User Pain Points

Outdoor search and rescue is a dangerous line of work. Standalone in Hong Kong, there are an average of 600 search and rescue missions per year. The missions usually happen in unstable weather conditions (T3 typhoon or higher), resulting in a 10% death rate. It is desirable to have a solution that can keep search and rescue officers safe and shorten the rescue time for a higher survival rate.

Solution Benefits

This ARC system is a Centralized Mission Control System for Search and Rescue Robots. It helps search and rescue officers connect and control a group of search and rescue robots, making it easy to assign robots for rescue missions. Officers can send out multiple robots at the same time, combined with AI technologies and long-range communication technologies to cover more grounds in a shorter time. The system can speed up search and rescue with robots; the long-range communication channel also makes it easy for officers to maintain connections with robots or even people in need.

Technologies Applied

Most search and rescue robots rely on human intervention; they require an operator to control the robot. The autonomous technologies of this system are designed to handle unmapped areas with a Map exploration algorithm. The AI technologies also allow robots and drones to search for people when needed. The long-range communication channel allows the robot to transmit a video signal and control it at a large distance.

Target Users

User Profile / Persona:

Challenge: Outdoor rescue is a regular challenge for First responders. Outdoor rescue can not be avoided and it is not safe to both the rescue team and the people in distress. The First responders often have to cover a large area to search in an outdoor rescue mission. Under the time constrain in the rescue mission, it is desirable to use a single robot or even a robot fleet to perform effective search and rescue. The challenge to apply or deploy a group of robot for search and rescue mission are as follows (1) rescue mission would require the use of difference robots (example: Drones, robot dog, fire fighting tracked robots etc), it would requires all these robot to communicate and talk to each others. There does not exist such a platform or communication method (2) long range communication is a challenge in Search and Rescue work as 4G or 5G network may not cover the area.

User Scenario and Goals:

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