Name: Minh Quan Tran

PROJECT PROPOSAL

1. **Autonomous Robot Car for Environmental Mapping**

This project involves creating a robot car equipped with RPLIDAR and MPU sensors to autonomously navigate and map dangerous or hard-to-reach environments, such as disaster zones or collapsed buildings. Using the sensors, the car will build a real-time map of its surroundings while avoiding obstacles. The system can assist rescue teams by providing a clear layout of areas unsafe for human entry.

2. **Drone-based Aerial Mapping for Environmental Monitoring**

This project aims to develop an autonomous drone equipped with cameras, infrared sensors, and GPS to monitor and map remote or hazardous environmental regions. The drone will fly predetermined paths and collect geospatial data, including temperature and vegetation health. It will be useful for environmental studies and disaster management without risking human safety.

3. **Autonomous Indoor Navigation Robot for Search and Rescue**

This project focuses on building an indoor robot equipped with ultrasonic and infrared sensors to autonomously navigate through confined spaces, such as collapsed buildings or underground tunnels. The robot will be able to create real-time 3D maps while avoiding obstacles and locating survivors using integrated thermal imaging. It can assist search and rescue operations by safely exploring areas that are too dangerous or inaccessible for humans.