Team Members:

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Quadrotor Search and Rescue

Purpose: Our proposed project is to create a swarm system of aerial robots. We've chosen quadrotors as our aerial robots due to their stability and control. The big picture implementation of our project would be for search and rescue assistance. Aerial robots would conduct a coordinated survey of a designated arena giving rescue personnel needed information to safely navigate to found victims. That being said, with the time that we have to complete our project, coordinated movement will be our core focus.

Difficulty: There are several complexities to the project we are proposing. Firstly, we will be creating our own quadrotors to use in this project. The reason for this is that there are simply not enough available for us in order to implement a swarm at this time. Secondly, we will be designing a swarm control system for coordinated movement of our quadrotors. Just in case our self-assembled quadrotors are faulty or incomplete, we will also be implementing our swarm system with models in Gazebo. We may choose to create a model that more closely resemble our self-assembled quadrotors if the default model in Gazebo is not comparable.

Organization: The first phase of our project will be to discuss the design of our quadrotors. We will discuss what components will be needed and where to source them from. As it may take a while to obtain all components, we will then begin discussing the design of the swarm system and possibly start development. As the components start coming in, the team's time will be divided between continued development of the swarm system and assembly of the quadrotors.

Measurement: Deadlines will be established within each section of our project in order to measure our pace. If any section falls behind deadline, more team development time with be shifted to it. While making design discussions, success criteria will be set for each section of the project. These will be evaluated during final testing to determine how successful we were.

Cost: Rough estimate: ~$60 per quadrotor

Software: We will be using ROS and writing nodes in C++