Senior Design Project Proposal
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1. Project Title: uCopter 2.0: Development of a TriCopter Drone

2. Project Description:

This is a follow-up project that builds on a previous design project. However, practically everything must be done from scratch with possibly using some of the existing hardware that was purchased by the previous design team. The goal of this project is to construct a flying tricopter drone capable of streaming video from a camera mounted on the drone. The drone will be controlled through a hand-held controller (such as an Android tablet), which should be capable of performing image/video processing and possibly virtual reality tasks. For example, the controller could run a face/person detection algorithm and point the detection on the video.

3. Project Design Objectives:

The following are the main steps.
1. Design and construct the drone. Develop the interface app to control the drone.
2. Develop or reuse publicly available image/video processing algorithms. Integrate those algorithms with the app running on the controller.
3. Test the prototype system on real subjects.
4. Maintain a project website.

4. Project Prerequisites:

Experience with programming in C/C++ and Android. Basics of image/video processing and communication. Past experience with hardware prototyping is a plus.
Most importantly, students should be self-motivated to learn new interdisciplinary approaches that bridge knowledge and skills from electronics, wireless communication, image/video processing, and programming.