

EEL 4914C – Senior Design 1  
Senior Design Project Assignment

Justin Wu  
Due: August 31

Assignment:

Each student must submit a project idea suitable for Senior Design. Describe the features, goals, and objectives, then list as many requirements specifications as possible. This project idea will be used for class discussion. Each student must submit a project idea even if they have already formed a group and identified their group project.

This submission should be limited to a maximum of the equivalent of 1 printed page.

---

A suitable project for senior design would be an autonomous video capturing quadcopter. The major feature of the project is to have a drone follow you around without controlling where it moves. The drone will have the ability to capture video recording and take pictures at a click of a button (on the phone). It will hover at a set range around you depending on what you preset on the settings page. It would be able to connect to the phone through Bluetooth and have GPS enable in order to determine its where about. The drone will also have the ability for voice recognition. It would listen for commands like “take a picture” or “start recording”.

Some of the requirements for the drone would be:

- It shall be Bluetooth compatible.
- It shall weigh less than 2 pounds.
- It shall be no larger than 6 inches by 6 inches by 6 inches.
- It shall withstand temperatures of  $50^{\circ}\text{F} \pm 10^{\circ}$  -  $100^{\circ}\text{F} \pm 10^{\circ}$ .
- It shall initiate auto takeoff with 10 seconds.
- It shall be able to take off on an open landing surface of 5' by 5'.
- It shall have the ability to land on an open landing surface of 5' by 5'.
- It shall maintain a minimum flight time of 15 mins.
- It shall have a payload of 1 pounds.
- It shall have a minimum operational time of 1 hour.
- It shall be traced through GPS.
- It shall have a maximum altitude of 50 feet.
- It shall have a minimum altitude of 1 foot.
- It shall have a maximum range of 75 feet.
- It shall be able to differentiate the user vs it's environment (tree, wall, ground, etc.).
- It shall have voice recognition for commands in English.
- It shall have a minimum focal range of 10 feet.
- It shall be able to record a minimum of 10 minutes of video footage.
- It shall have a minimum storage of 1 GB.