**SE Project Proposal - Grace & Linda**

**Main Idea**

The main idea of the project is to make a drone which communicates with a remote. It will have the ability to take photos and videos. Ideally, we hope that these functions can be integrated with a mobile app.

**Description**

Features:

- Remote-controlled
- Flies
- Takes pictures
- Connects to a control phone app

**Prototyping**

The project will be evolutionary. We will be making a well-built drone and developing a remote-control system with various camera features.

    - Build drone that flies
    - Develop wireless control system
    - Integrate control system into mobile app
    - Add camera features to drone
    - Receive visual signals from drone onto app

**Software**

We will focus on establishing a link between the remote and the drone, as well as integrating these features into an app.

- Making app/remote
    - Wireless connection and control
- Flying controls
    - Making sure arduino can communicate to the electronic hardware
    - Getting the drone to stabilize, navigate
- Camera Display
    - sending/receiving visual signals in real time

**Hardware**

- Frame (Center plate, Arms, Motor brackets)
- 4 Motors
- Electronic Speed Controller (Need 4 for each motor, Must be programmable and 10A or higher)
- Propellers (2 clockwise, 2 counterclockwise)
- Battery
- Arduino/elegoo board
- IMU (internal measurement unit)
- ESP8266 (wifi module)
- Camera module

**Challenges**

- Integrating different electronic hardware parts for the drone (sensors, speed controller, IMU, modules)
- Establishing a connection between the arduino and remote
- Receiving visual information in real time from drone
- Creating an app that controls the drone and receives images