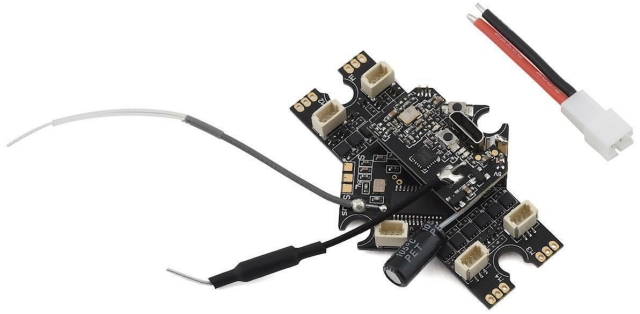
Web-Controlled Drone

Nick Galis, Moryan Tchoumi, Anamu Uenishi

Deliverables

- Realistic goals:
  - Web server controlled drone
  - Wireless connection from server to drone (using WiFi)
  - Google Chrome/Any web browser used to control drone
- If time allowed
  - Waypoint Navigation with Betaflight
    - Not only does web server give commands, but drone gives back location data

Back End System



Arduino? Pico? Teensy?

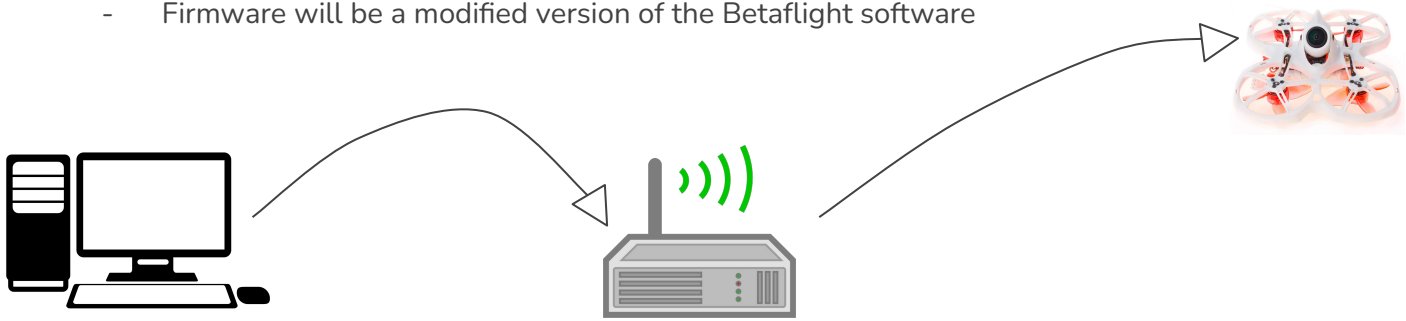
None of the above.

We will instead be using:

- Flight Controller: F4 (MATEKF411RX Firmware)
- Wireless communication: HiLetgo ESP-32 microcontroller

Interactions with Web Server

- Web server controls interactions
- Control data sent from server to drone
- Firmware on drone will interpret aforementioned data
    - Firmware will be a modified version of the Betaflight software



Technical Challenges

- Flight control - immensely complicated
  - Simple flight control software has ~50,000 lines of code
- Communicating wirelessly
- Physical
  - Soldering board onto drone
  - Difficult control of drone

What’s different?

- Focus is on communicating with web server, from a PC
- Integration of ESP-32 onto flight controller
- Google Chrome to control Drone

Questions?