

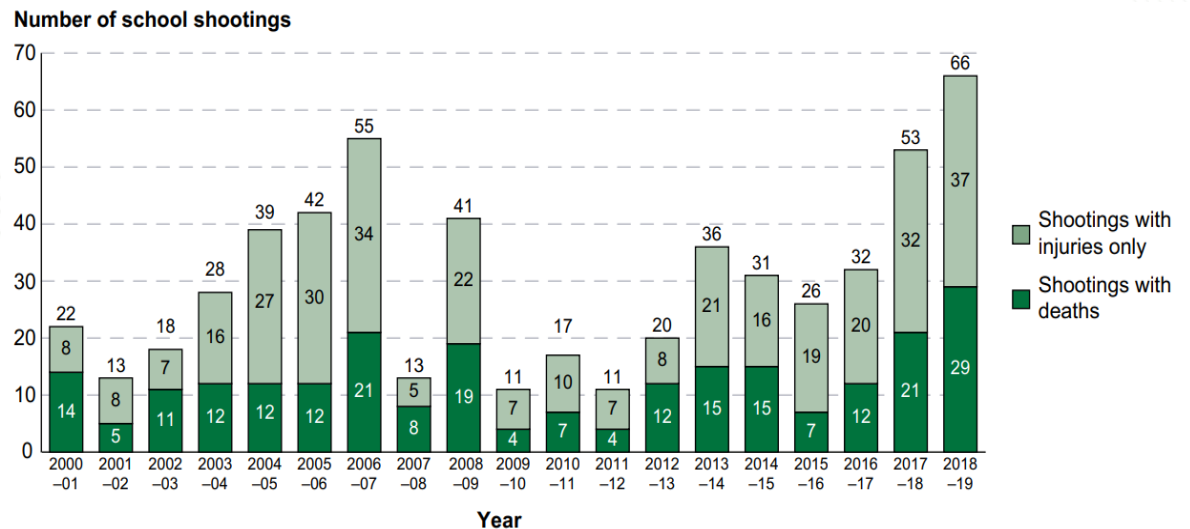


# Drone Buddy: Semi-Autonomous Surveillance Drone

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# The Problem

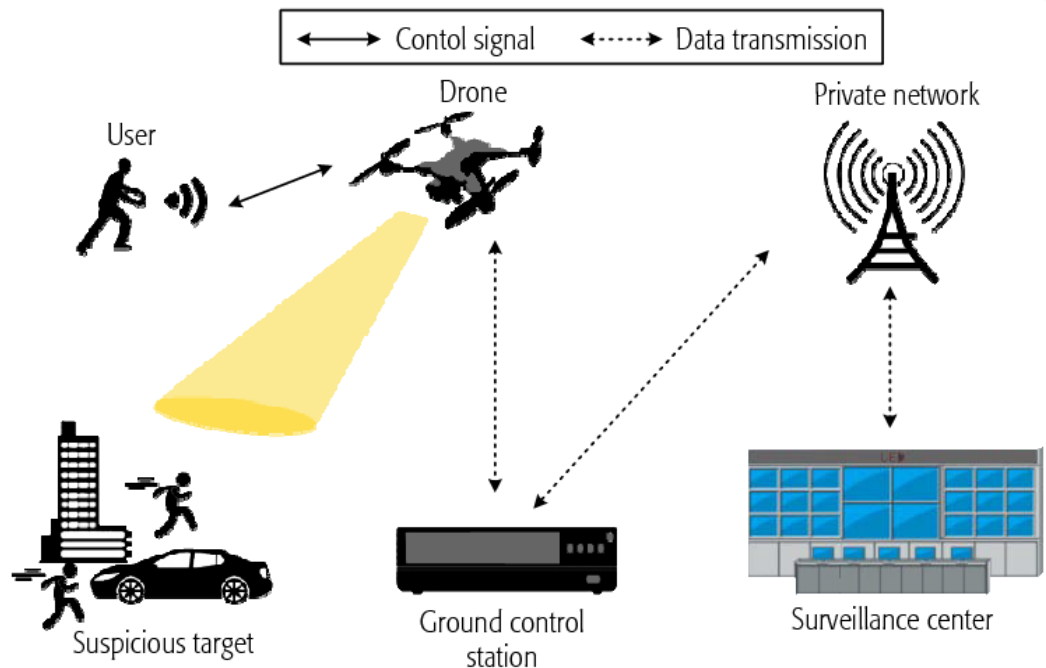
- Certain types of crimes have been steadily increasing in recent years
  - Hate crimes
  - Sexual Assault
  - Gun Violence



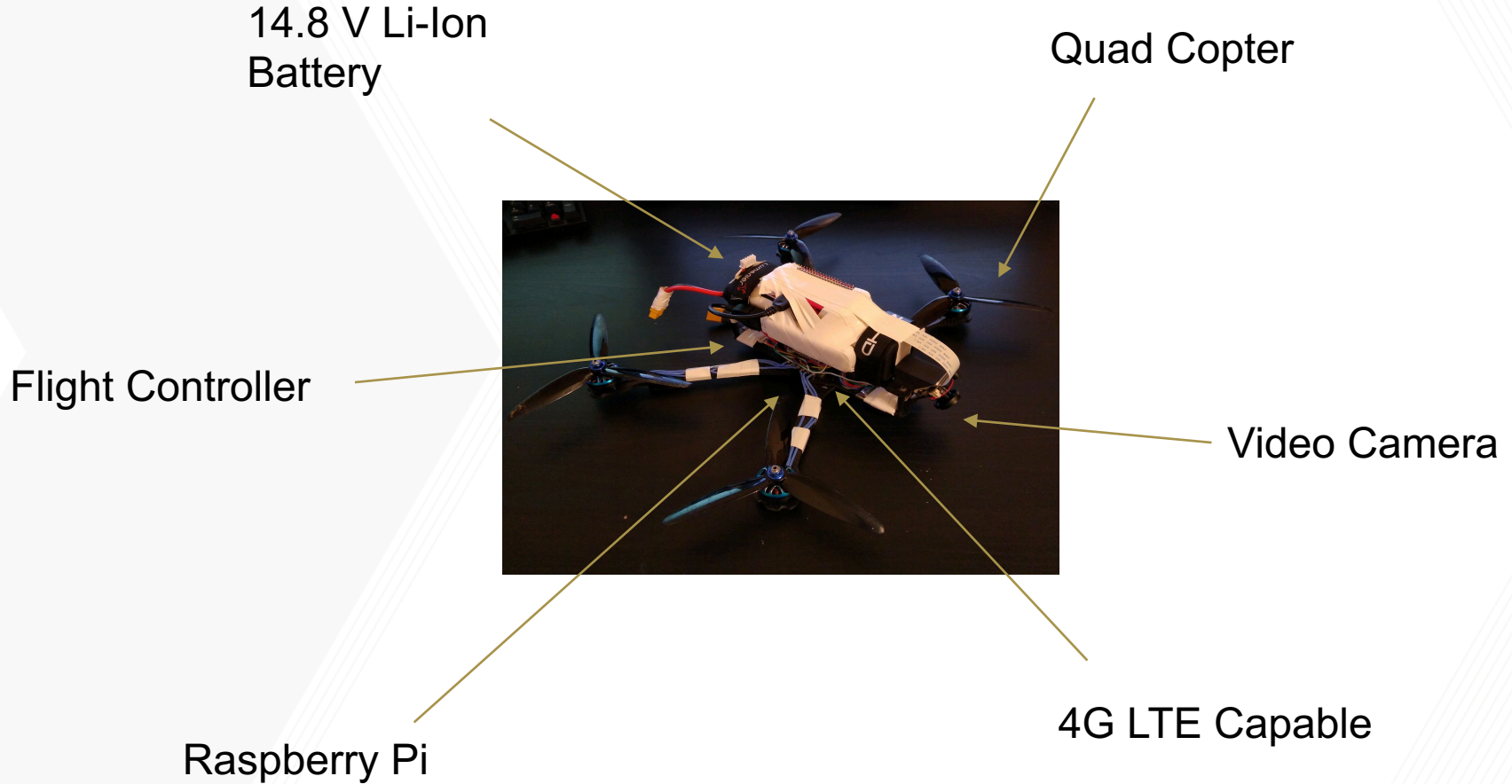
- New, Innovative forms of security will need to be implemented in order to curb crime rates

# Our Solution - Drone Buddy

- Semi-autonomous surveillance drone
- Called in through our mobile app
- Flies to the student once called upon
  - Records footage
  - Follows the user
  - Returns once released

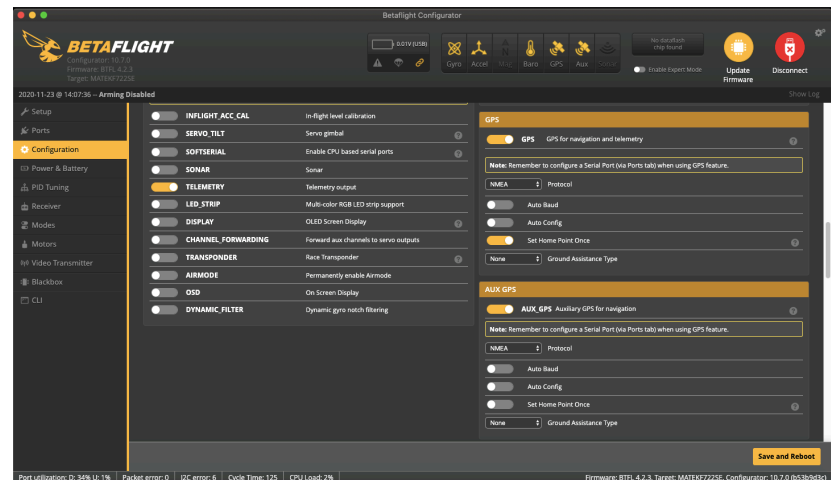
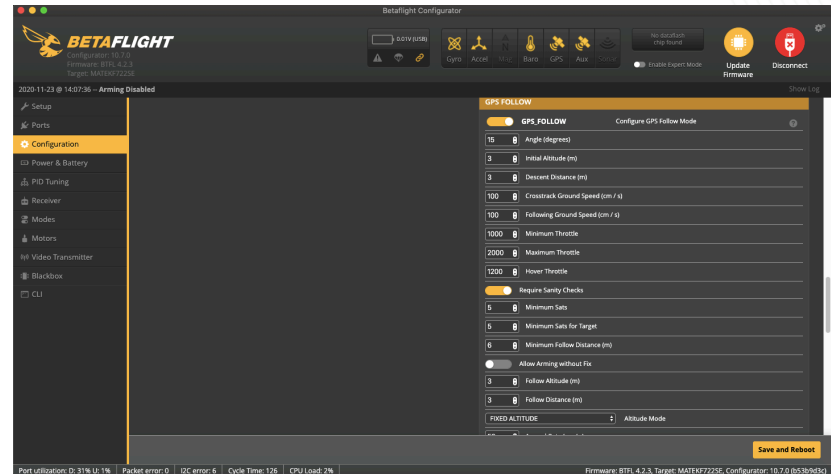


# Drone Features

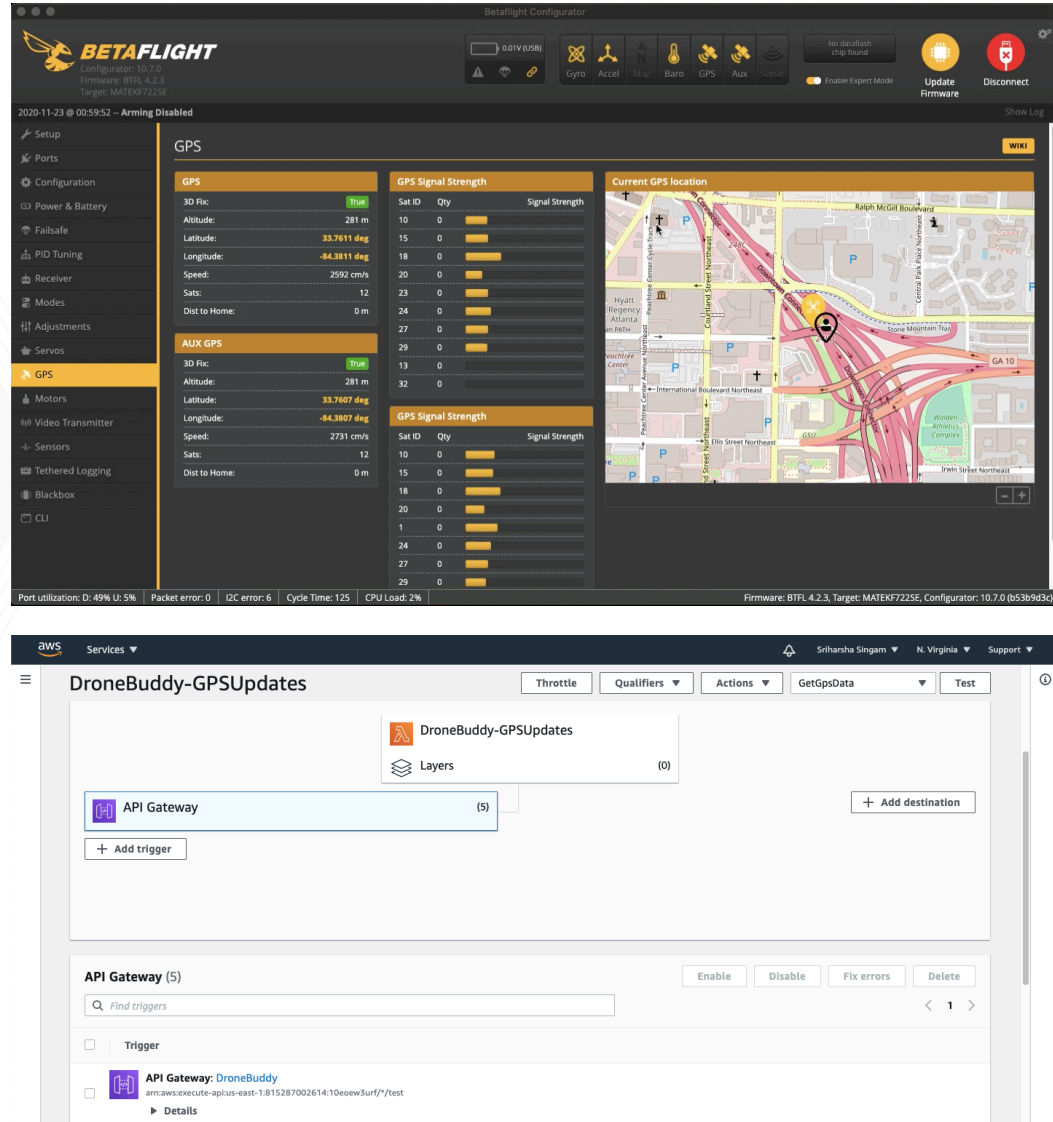
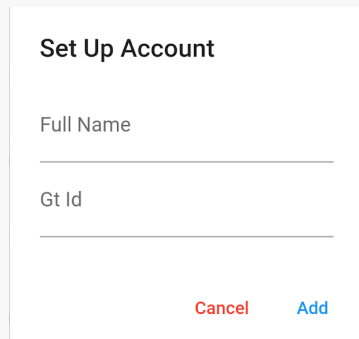
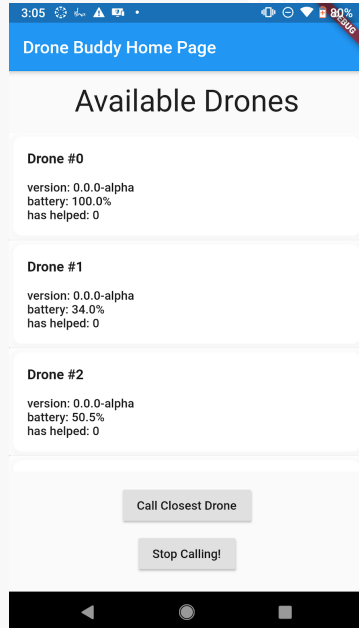


# Firmware

- GitHub was used to manage source code
- Betaflight's open source flight controller firmware was modified to add auxiliary GPS and GPS tracking
- Testing and practice runs done outdoors at Tech Green and Piedmont Park



# Mobile App GPS Tracking





# Issues

- COVID-19
  - One member caught it and became very sick
  - One member stayed remote entirely
    - Ordered extra parts so that it could be tested remotely by all members
  - Meetings in person were limited
- Incompatible Parts
  - Despite research initial camera, speed controller, and magnetometer were replaced
- Bricked Flight Controller

# Future Improvements

- Lights and sound
  - Can be used to further deter violent crimes
- Wireless charging station for convenience
- Weather resistant cover
- Image based motion tracking detection





# Let's Create a Safer Campus for All

