ECE Capstone program  
Spring 2020  
Project Abstract & Info

Please provide the following information to be shared with on capstone information exchange platform:

1. **Project number**: S20-16

2. **Project title (as will appear on the poster)**: Personal Drone

3. **Team members**: Anthony Merheb, Alec Rodrigues, Brian Girgis, Rani Sayed

4. **Adviser(s) name(s)**: Maria Striki

5. **Up to 5 keywords that will help to classify the project scope**: Drone, Machine Learning, Assistant, Tracking

6. **Project abstract (up to 250 words) to be shared with judges**:
   
   (General guidelines: The abstract should include: (a) A background review of the state of the art in the relevant field; (b) The problem addressed in the project; (c) Objective of the proposed projects; and (d) The adopted approach)

   Recently, the use of commercial drones has become a lot more popular. Many consumers enjoy flying drones around during their free time, taking advantage of their flight for use in photography, filming, and even something simple such as drone racing. Our group members are very fond of drones, and aim to enhance the personal experience of owning a drone. Most drones that are currently in use require the use of a controller, which can be a hassle depending on what the user is doing.

   The goal of this project is to enable a small personal drone to track and follow a user utilizing an array of sensors and cameras, as well as be able to be controlled verbally by said user. We wanted to make it possible to have a drone identify the user, follow them around, and follow voice commands from said user. Unlike most commercial drones, a physical controller won’t be required to operate the drone. Everything will be done onboard the drone, with the option of having a mobile app being integrated into the system later on.

   Our current approach is to take a commercial drone and utilize a raspberry pi microcontroller to control the drone. The pi should also be able to perform all of the calculations needed to perform the movement tracking. This is a proof-of-concept to show that it does not require advanced knowledge in making drones and to encourage others to participate in drone development.