**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**: S20-35

**2. Project title (as will appear on the poster)**: Eagle Eye – Multi UAV Reconnaissance

**3. Team members**: Kaavya Krishna-Kumar, Sagar Shah, Harmit Badyal, Abhishek Kondila

**4. Adviser(s) name(s)**: Dr. Narayan Mandayam

**5. Up to 5 keywords that will help to classify the project scope**:

Drone Surveillance, Human Identification, Disaster Relief, Multi-UAV Scheduling, Offline Network Communication

**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)

From 2006 to 2015 there have been approximately 70,000 deaths and missing people due to natural disasters occurring worldwide. As a result, the need for a safer and faster way to find humans in disaster relief zones is necessary. Using small unmanned aerial vehicles (UAVs) is a possible solution to aid in search and rescue of missing people. With UAVs, we have the ability to scan the disaster zones and take images of the land. Then, using machine learning models we can process images to help identify humans that may be in stuck in disaster zones. In real situations however, this task might be more difficult due to drone limitations in flight times and processing power needed to classify images. In addition, network connectivity and transmission may be compromised during the disaster making it difficult to transmit images from the drones to the servers for processing. We suggest a utility-based formula that minimizes flight time and battery energy used to make sure that all images are continuously being updated and classified while maintaining a drone’s flight power. Here, the drone’s battery life will only be used for flight time and image capturing while an edge server will be used to process the images through image classification algorithms. We will be using a user device as a middle man between the edge server and the drones. The user device will be able to control the drone flights and transmit images to the edge server using Bluetooth.