ECE Capstone program
Spring 2019
Project Abstract & Info

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

1. Project number: S19-56

2. Project title (as will appear on the poster): RUCrowded

3. Team members:
   Corey Chen (POC)
   Steven Adler
   Jonathan Garner
   David Zhang

4. Adviser(s) name(s):
   Roy Yates

5. Up to 5 keywords that will help to classify the project scope:
   Monitoring Internet activity of hotspots

6. Project abstract (up to 250 words) to be shared with judges:
   RU Crowded is a mobile and web application that strives to inform students and faculty about the relative population density in various Rutgers facilities. This will include Rutgers gyms, dining halls, and libraries. This will be useful for students and faculty who wish to not visit facilities during peak crowded hours. We will achieve this by monitoring Internet traffic in an area to get an idea of how many people are in the vicinity. This traffic can be monitored by multiple Raspberry Pi’s with various network adapters.
   We can then use this data to see what times and days may be more crowded for certain places. Then we will visualize this data in a mobile and web app. The users will be able to easily check the crowdedness of a building or area before they arrive. This can also be extended to break down each of these facilities into multiple readings. For example, different floors of a library will be more or less crowded.
   In order to collect data and report populations, unique addresses will be pulled from the networks using wireless adapters (Raspberry Pi’s) that will scan through multiple wifi channels. By finding active devices and treating each as an individual user, population and traffic patterns can be collected and analyzed to report live information and to predict future crowdedness based on the analyzed patterns.