Wireless And Mobile (WAM) Systems Lab http://wam.ece.ufl.edu
Director: Dr. Janise McNair

Available Position: Undergraduate Research Student
Topic: Testing, Experimentation and Deployment of IoT Devices
PhD Student Supervisor: Kyle Morman

Research overview: In a several industry and NSF-supported projects, we are developing various Internet of Things infrastructures to detect, collect and process data. This project involves examining IoT devices and creating experiments to test their operation in various scenarios and deployments. Our research focuses on developing IoT devices and communication technology, and designing networked systems to serve various application areas, such as agriculture and construction.

What is the Internet of Things (IoT)? The Internet of things (IoT) is the internetworking of physical devices, e.g., vehicles, construction equipment, crops, the human body, buildings and other items, each embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data. IoT networks are advancing rapidly because of the progress made in hardware development, e.g., decline of size, reduction in cost and energy consumption, reduction in hardware dimensions, etc., that allow the manufacturing of extremely small and inexpensive low-end computing and communication devices. Our tools are a wide range of devices, such as robots, drones, sensors, zigbe (xbee), Bluetooth and other short-range transmitters, WiFi access points and edge computing devices, Amazon Web Service Cloud, and other services. We can deploy these devices in a field on campus for experimentation. Using the information collected from these experiments, we will build a suitable IoT system plan.

Undergraduate Project. We are looking for an undergraduate student with some hardware experience, some microcontroller experience, and some coding experience, C++ and/or Python. The project would consist of configuring and deploying commercial-off-the-shelf (COTS) devices on our field site to report on the device capabilities. Some reconfiguration or custom configuration using coding and microcontrollers may be necessary. We are looking for someone interested in IoT and in experimenting and customizing devices. There is a potential opportunity to continue participating in our work beyond the initial scope of this project.

Minimum Qualifications
- Experience in C++ and Python
- Basic understanding of programming and network devices
- Desire to learn more about Internet of Things

Responsibilities

(1) Attend all required meetings
    a. Project group meetings and WAM Systems Lab meetings*
    b. Individual meetings (with Dr. McNair or PhD student supervisor)
(2) Present progress reports and project updates at project group and lab meetings.
(3) Maintain and regularly check your gatorlink email
(4) Submit your reports to WAM Systems Lab MS Teams site, using your gatorlink access.

**Except when lab/individual meetings conflict with SURF scheduled meeting or exam times. Lab, individual and project meeting schedules will be determined at the beginning of the term.*