EE/CprE/SE 491 WEEKLY REPORT 6

Oct/18/2018 -Oct/24/2018

Group number: 45

Project title: IoT environmental monitor

Client &/Advisor: Dr. Geiger

Team Members/Role: Tyler Fritz – Software Developer, Dong Xing – Hardware developer, Ahmed Abuhjar – Hardware Developer, Haoyue Ma – Hardware developer, Yuanzhe Wang – Hardware Developer

- **Weekly Summary**

During this, we have conducted several experiments to verify that the moisture sensor works and the signal can vary depending on how moist the sensor is. Using the arduino, the data was sent and transmitted to the gateway successfully. We have also contacted with several companies that provide cellular connections. We will still need to determine the best price that could fit with our needs in this project.

- **Past week accomplishments**

Tyler Fritz

- Worked with Ahmed to send real sensor data between nodes. Got that to work with a handshaking network protocol. We've currently got a problem with that however because about 5 redundant messages are sent.
- Worked more on implementing AODV. It's hard to report progress on this front because there's no way to test the work right now. There's just more code.

Ahmed Abuhajr

- Implemented a program to verify the functionality of the moisture sensors. The signal that was read was dependent on how moist the sensor was, which is what we need.
- Worked on transmitting the signal, which was read from the sensor using the leaf node, to the gateway node.
- Contacted Hologram company to discuss the services they provide

for cellular connection.

Dong Xing

- Keeping working with teammates to get the node design done.
- Improving the performances of transceivers by editing the codes.

Haoyue Ma

- Program the code needed for data transmitting.
- Search information about 3G Cellular we need to use
- Searched information about the sim card needed for our 3G cellular.

Yuanzhe Wang

- Tried to Implement the transmitter.
- Worked on debugging the connection between 3G module and arduino.
- Tried to test the 3G module.

- **Pending issues**
  - We're still having issues in making a mesh network and connecting several leaf nodes together. We will keep working on our code to implement this kind of connection during the upcoming week.
  - We need to order the 3G cellular and sim card as soon as possible, so that we can test the data transmitting when we solve the code issues.

- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Tyler Fritz	Sent real sensor data between nodes. Worked more on implementing AODV	6	36
Ahmed Abuhjar	Code implementation to verify the functionality of the moisture sensor/ leafnode and gateway	9	34
Haoyue Ma	Programming, Searching information about the 3G Cellular	4	28

Dong Xing	Working on the codes and node designs.	5	27
Yuanzhe Wang	Implement the transistor, worked on 3G module	4	26

- **Plans for the upcoming week** *(Please describe duties for the upcoming week for each member. What is(are) the task(s)?, Who will contribute to it? Be as concise as possible.)*

  - Tyler Fritz: I really want to get the route discovery functionality of AODV working.
  - Ahmed Abuhjar: We will work on implementing a mesh network for several leaf nodes. We will develop our current code to function on multiple nodes instead of just two nodes.
  - Haoyue Ma: Continue testing and programming the code for the data transmitting. Order the 3G cellular and get the sim card for it.
  - Dong Xing: By improving the codes to make the transceivers work better.
  - Yuanzhe：Keep working on debugging the connection between 3G module and arduino.

- **Summary of weekly advisor meeting**
  - We have discussed the monthly/annual plans that several companies (T-mobile, At&t) provide for cellular connections, and we determined that the amount of data covered is too much for our project needs. If we could find another company that provides the service without a contract, we will discuss that further to see if it fits our needs for this project.