EE/CprE/SE 491 WEEKLY REPORT 7

November 4th 2018 - November 11th 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 the past week, Ahmed continued the work on the leaf nodes' sensors and established a line graph to show the relationship between the Ohmic resistance value and the corresponding range of boolean signal that could be assigned for each output resistance value. This is going to be a stepstone in determining a way for minimizing the number of bits that could be used in a single boolean output. We also worked on the code for data transmitting from homemade to the web server. We ordered the 3G cellular and the SIM card used for the data transmitting.

- **Past week accomplishments**

Tyler Fritz: continued implement AODV. Will hopefully get to a point this week that I can begin testing the code. Currently have about 70% of the functionality in implemented but it can't be tested until it's all there.

Ahmed Abuhjar: Established line graphs for the outputs taken the sensors to determine the maximum possible output resistance that we could have when the sensor is dry. Derived a relationship between a boolean number range that could correspond to each output resistance from the sensor.

Dong Xing: still worked on code design work for home node about receiving and transferring data with other members. Started working together with leaf node designers to make our node connect correctly.

Haoyue Ma: worked on the code for data transmitting from the home node to the web server. Ordered the 3G cellular and prepared the plan for

the sim card needed.

Yuanzhe Wang: Worked on the connection between 3G module and Arduino. Tested the transmission and reception of the 3G module.

- **Pending issues**
  - We have some issues in the code for data transmitting from the home node to the web server. We will keep working on the code and finish it in the following week.
  - During this week, our leaf node data transfer performance still limited to two nodes, or one to one only. We are still working on this to make each leaf node successfully transfer data from one node to multiple ones at the same time

- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Tyler Fritz	Implemented more of AODV. About 70% of development is done but no testing.	6	42
Ahmed Abuhjar	Determined a range of boolean numbers that we could use for output resistance measurement taken from the sensors	5	39
Haoyue Ma	Programmed the code for data transmitting from home node to web server. Ordered the 3G Cellular.	5	33
Dong Xing	Redesigned some part of code and worked on home node data transfer to web server design progress.	4	31
Yuanzhe Wang	Worked on the connection between 3G module and Arduino.	4	30

o **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:** finish implementing AODV and then start debugging
- **Ahmed Abuhjar:** Try to determine a way to amplify the range of the output resistance signal to reduce the number of bits used in the corresponding boolean signal.
- **Haoyue Ma:** Finish the work on the code for data transmitting from homenode to web server. Set up the circuit between the 3G cellular and the arduino and active the sim card needed.
- **Dong Xing:** plan to work on home node design to make the data may successfully transfer to the web server.
- **Yuanzhe:** Keep testing the transmission and reception of 3G module.

o **Summary of weekly advisor meeting**

Our team almost finished the code design for home node and still need some work to fix the leaf node code design. Once we finish all code designs, we can just start testing our nodes in some farm fields in next following weeks.