

Group number: Dec1713

Project title: IoT Monitor

Client &/Advisor: Geiger

Team Members &/Role:

Ian Harris: Team Leader - Web Role

Tim Lindquist: Key Idea - Leafnode Role

Gregory Steenhagen: Webmaster -Web Role

Steven Warren: Communication -Leafnode Role

Terver Ubwa - 3G Node

Khoi Cao - 3G Node

o Weekly Summary

This week our group completed the first round of testings on the hydroscopic sensor we made. We interpreted the data through graphs and got an idea for what we are working with. It also showed us that we need to run testing for a longer duration. Our group began thinking of ideas for presentation during dead week and signed up for a time to present at. The node team got the long range transceivers working. Our web team got a database designed and implemented on our server, while also updating our website.

o Past week accomplishments

- **Ian Harris:** Updated our website. This included some changes to our main page so we talk more about the purpose of our project. I also added a Gallery page where we have several images galleries hosted via Imgur, and embedded in our web page. Came in a few times to take sensor readings, and ran some preliminary tests against our database, making sure our web-app can connect.
- **Gregory Steenhagen:** Designed and implemented a MySQL server and got it up and running on our server. No data is in place yet, but it is ready to be connected.
- **Khoi Cao:** Finished collecting data for the soil readings. Got the home node sending and receiving data successfully via SMS. Failed to send data through 3G network. I have been finding the root cause of no HTTP access for the home node and trying to the simplify the Adafruit Arduino library.
- **Terver Ubwa:** Design and coded the receiver section of the home module. Reminded

the ETG about the home node 3G sim card.

- **Tim Lindquist:** This last week steve and I were able to get the long range transceivers working. The problem was we were working with a defective one. I also compared hydroscopic soil moisture probes to figure out which would be the best to purchase for our needs. Lastly I attempted to get the LCR meter working with labview to automate testing.
- **Steven Warren:** Tim and I got the long range transceivers working. I worked on getting the transmit and receive code simplified and creating a structure where we can have multiple nodes send and receive information. This will allow for more seamless communication and easier send/receive protocols. Created graphs to show the information from our soil testing.

Pending issues

- **Ian Harris:** Need to spend some time on the web app. Specifically, we need to design a schema for our database, decide with the team what information we need to store, then make sure our web-app can push and retrieve that data.
- **Gregory Steenhagen:** Had some trouble getting MySQL server up and running on our server, but managed to get it working. Need to secure it and run some tests on it.
- **Khoi Cao:** Sync up with Terver to understand his work. Integrate the receiver section into home node.
- **Terver Ubwa:** Test the receiver section of the home node. Waiting on Arduino to get in.
- **Tim Lindquist:** Get LRC meter working with labview. Need to locate drivers for the hardware. Contacting Matt on Monday.
- **Steven Warren:** Finishing transmit/receive code to transmit information across multiple nodes.

o Individual contributions

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS Cumulative</u>
Ian Harris	Web page work, Gallery addition, sensor reads, web app work	5	45
Gregory Steenhagen	Designed and implemented a MySQL server and got it up and running on our server	8	36.5
Khoi Cao	Tested the home node with sending and receiving data via	7	42

	SMS. Found the root cause of no HTTP access for the module.		
Terver Ubwa	Design and coded the receiver section of the home node.	4	38
Tim Lindquist	tested long range transceivers, compared hydroscopic probes, attempted to automate RCL meter for testing	5	63
Steven Warren	long range transceivers, created graphs from data, simplified transmit and receive protocols.	9	61

o Comments and extended discussion

We need a second round of data for the the hydroscopic sensor probes.

o Plan for coming week

- **Ian Harris:** Use JDBC to translate java objects/entities to our MySQL database. This will require a fair amount of setup and finagling, but is really convenient once done.
- **Gregory Steenhagen:** Begin to get endpoint connected to the MySQL server so we will be ready to store the information that is being sent to the server.
- **Khoi Cao:** finish the back logs from last week, Finish the round-trip communication between the home-node and the web-server via 3G.
- **Terver Ubwa:** Get Arduino and start testing the receiver section of the home node.
- **Tim Lindquist:** Get LCR meter connected to labview to automate tests.
- **Steven Warren:** Begin formatting transceiver code for sending across multiple nodes (ID, sensor data) etc.

o Summary of weekly advisor meeting

At meeting Dr. Geiger was shown the testing results from over the weekend. He suggested improvements to be made for the second round of testing. One of them being we automate the testing so it can continually get samples throughout an entire week. The home

node group talked about how they can send data via SMS now. Dr. Geiger informed the group that he may be absent for next week's meeting.