

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 we began testing the soil moisture probe as a collective group. We measured Capacitance, Resistance, and other values from various soil moistures. Many of us came in early and left late to manually measure these because the current systems available to us were unable to measure the capacitance values we needed. The leaf node group also worked with the transceivers to get them sending and receiving. We also finished up our team website with the completion of our “about us” page, and simply need to continue adding documentation and perhaps some extra information as it comes available. Finally, we recieved a public IP assignment from ETG so we will be able to access our web application from our home node.

o Past week accomplishments

- **Ian Harris:** Helped set up and collect data from the sensors. Finished the bio section of our team page, and got a public IP address from ETG.
- **Gregory Steenhagen:** Helped with collecting data from the sensors, and helped to set up the initial experiment.
- **Khoi Cao:** Debugged and fixed the issue with the cellular network communication caused by Adafruit Arduino library. Made a script to parse some sorts of the POST data to the web-sever. Created additional soil moisture sensor. Supported to get the moisture readings
- **Terver Ubwa:** called Verizon wireless to resolve module compatibility issues. Took soil sample measurements.

- **Tim Lindquist:** Worked on new libraries for the short and long range sensors with steve. Created soil moisture sensors for testing. Prepped lab for soil testing and ran soil moisture tests.
- **Steven Warren:** Worked on getting sensor data to be used for the moisture sensor. Also worked on the transceivers to get them to send and receive data.

Pending issues

- **Ian Harris:** Get a database up for our web application.
- **Gregory Steenhagen:** Need to get some progress done on the endpoint, and get a UI started to display data.
- **Khoi Cao:** Fixing the configuration issue of the AT command. We are just able to send the data to the web-server but unable to receive feedbacks from the server.
- **Terver Ubwa:** Getting a sim card to test module compatibility with Verizon.
- **Tim Lindquist:** We collected data now we need to interpret it.
- **Steven Warren:** Currently we can send data across short lengths but long distance is still not able to receive data, although it is able to send data. We believe this is a power issue and are working to resolve the issue. Our next step will be to use a 3.3uF or 10uF capacitor as that is what is advised to be used online.

o Individual contributions

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS Cumulative</u>
Ian Harris	Contacted ETG, took sensor readings periodically, helped set up experiment, did research on soil capacity, finished bio page.	12	40
Gregory Steenhagen	Helped to set up the sensor experiment, and collected sensor readings.	7	27.5
Khoi Cao	Collect the sensor readings. Fixed the issue with the network communication caused by Arduino library	10	35
Terver Ubwa	Collected sensor reading from soil samples. Called Verizon to verify module compatibility with network.	5	34

Tim Lindquist	Transceiver, communication, created hydroscopic probes and test procedure. Presented soil sensor at meeting with APC	16	58
Steven Warren	radios, moisture sensor	12	52

o Comments and extended discussion

Lots of testing was done this week by the group for the hydroscopic sensors. Revision 2 on the project plan was also completed.

o Plan for coming week

- **Ian Harris:** This week we can start getting our web application ready to store and visualize data.
- **Gregory Steenhagen:** Work on the UI to display node data, using fake data for now.
- **Khoi Cao:** Finish the round-trip communication between the home-node and the web-server.
- **Terver Ubwa:** Get a sim card and verify module compatibility with Verizon Network. Verify the cost of accessing the network. Get the home node transmission going.
- **Tim Lindquist:** Put all sensors into dry dirt and see if the values will return to the control state. Research probe to buy from Geigers list.
- **Steven Warren:** Get the long range transceivers working to be able to send and receive. Collect and analyze data for the hydroscopic sensor.

o Summary of weekly advisor meeting

Met with Geiger and discussed our progress. He was pleased with our overall progress. He did ask us to figure out how much the 3/4g plan is going to cost, which carrier, etc. We will be finding more information about that this week. Shows him the range testing for the short range transceivers and the graphs from those. Told him our plan of action for doing the hydroscopic sensor testing done on Friday. Goal for upcoming meeting is to show him the data from those tests.