

EE491 Weekly Report 9

Date: 11/01/16-11/07/16

Group number: May 1717

Project title: 19 - Wireless Solar Temperature/Humidity Sensor

Client: Dan Stieler

Team Members/Role:

Yi Qiu - General Member

Xiang Li - Webmaster

Kebei Wang - Team Leader

Trevor Brown - Key Concept Holder

Kukjin Chung - Communication Leader

Weekly Summary

- In this week, we had a meeting with our client and professor tuttle. For make suring some goals within these weeks.
- We also finished our design document version 1 in the week.
- We mainly focus on how to get the right outside environmental temperature this week from our circuit system to computer by using the bluetooth module and nRF Uart 2.0.
 - As we can see that the circuit connection is like the following on the figure 1
 - While the circuit and application are set, we can find the bluetooth connection option on the phone like what shown in figure 2

- After we send the command like in figure 3
- We can get the result like in figure 4 and been returned to the phone.

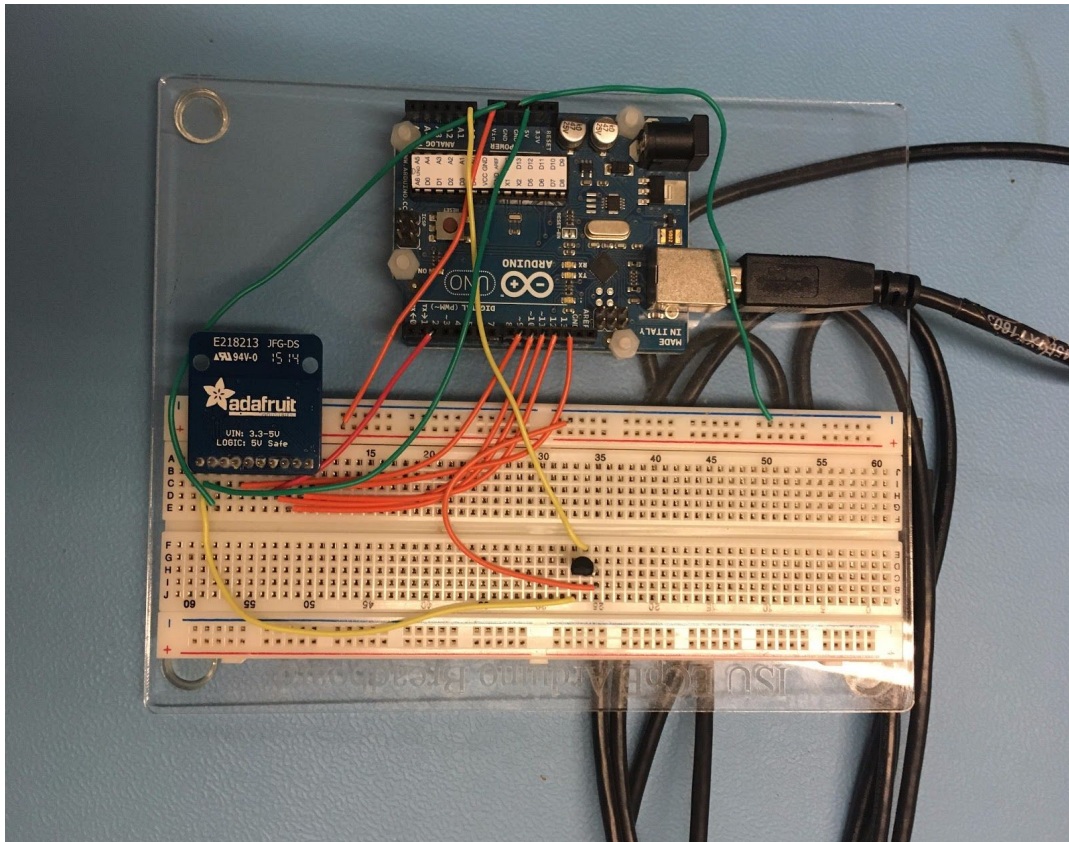


Figure 1. The Arduino circuit

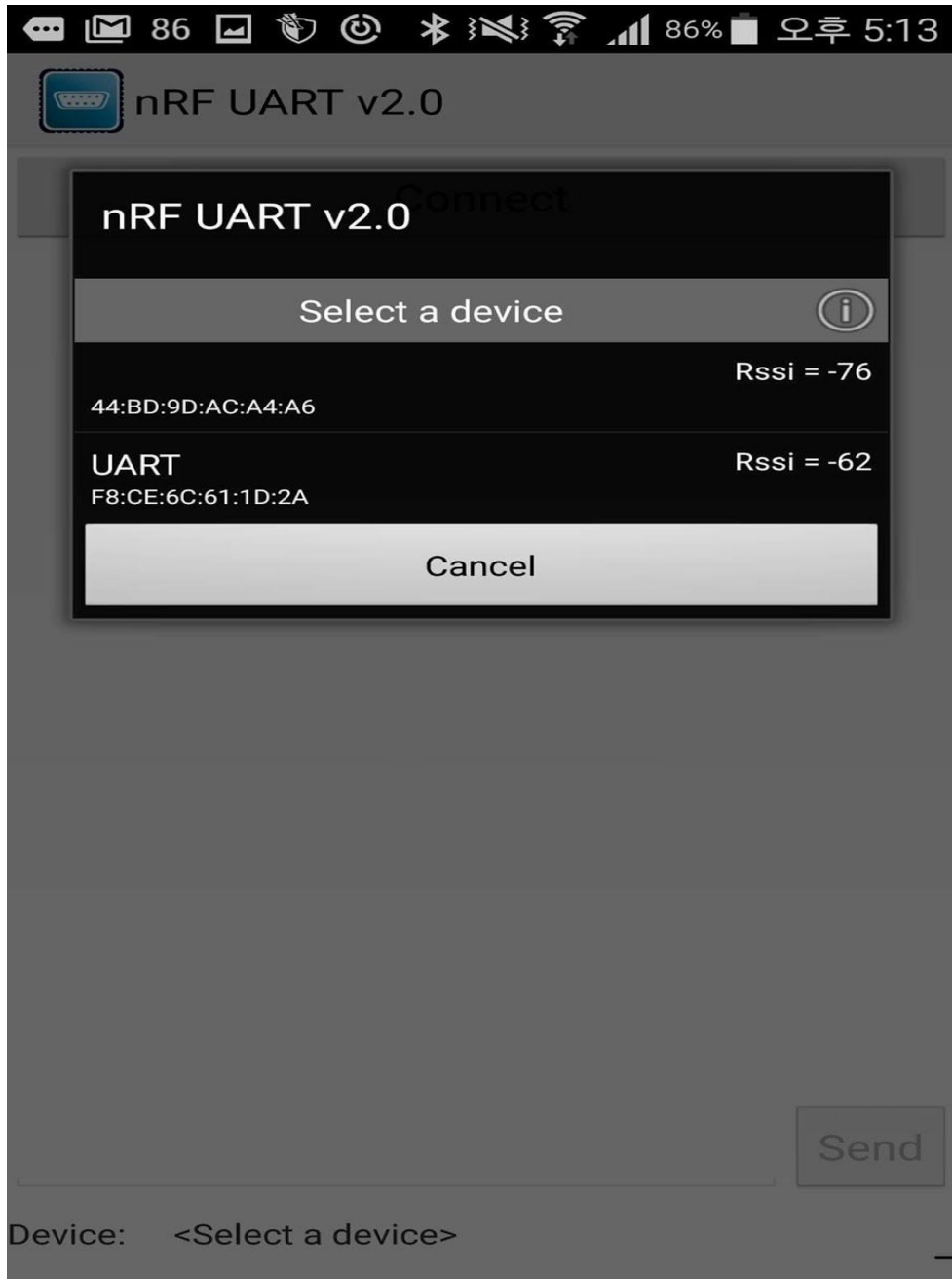


Figure 2. Connection between BLE and the phone

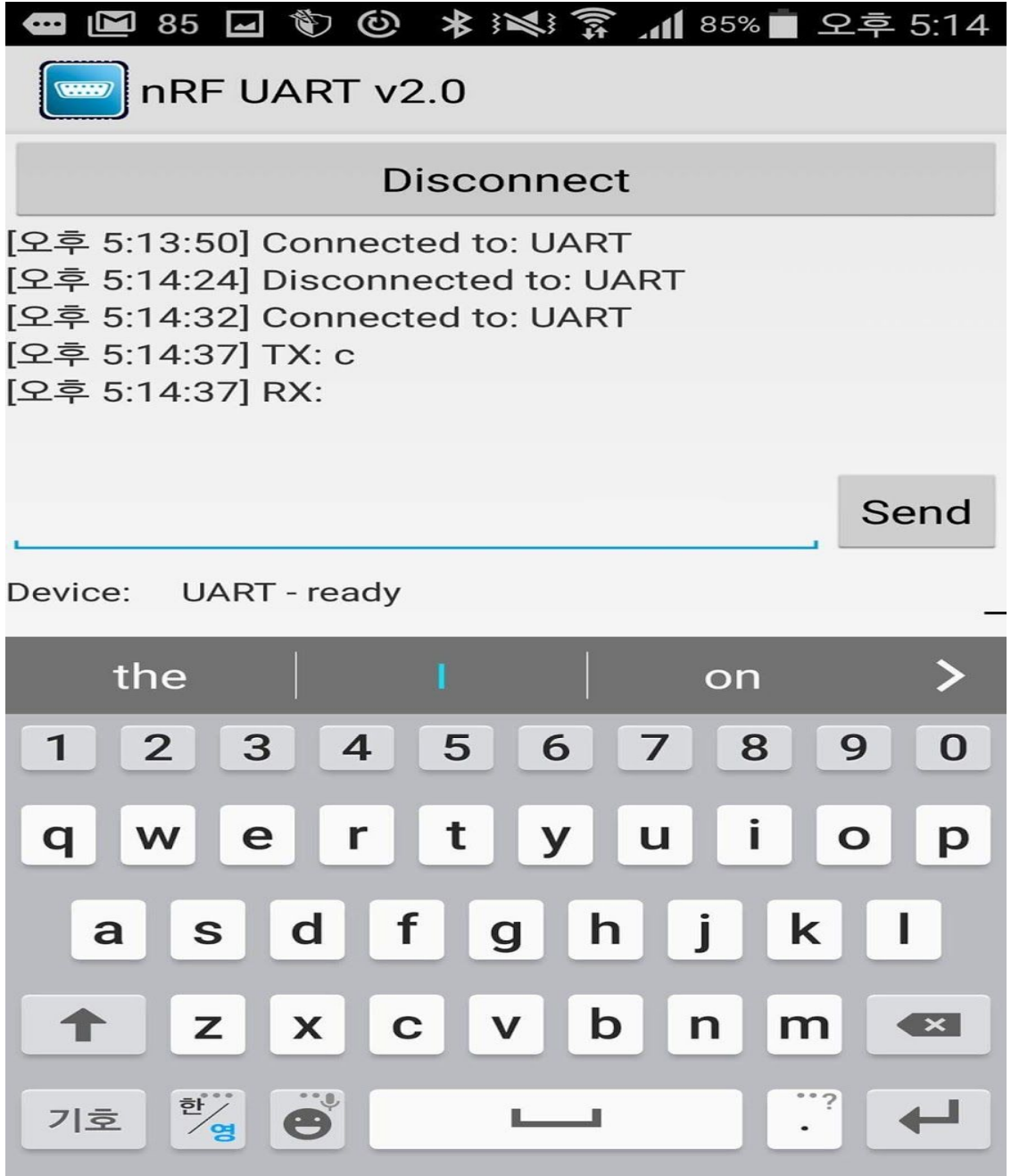
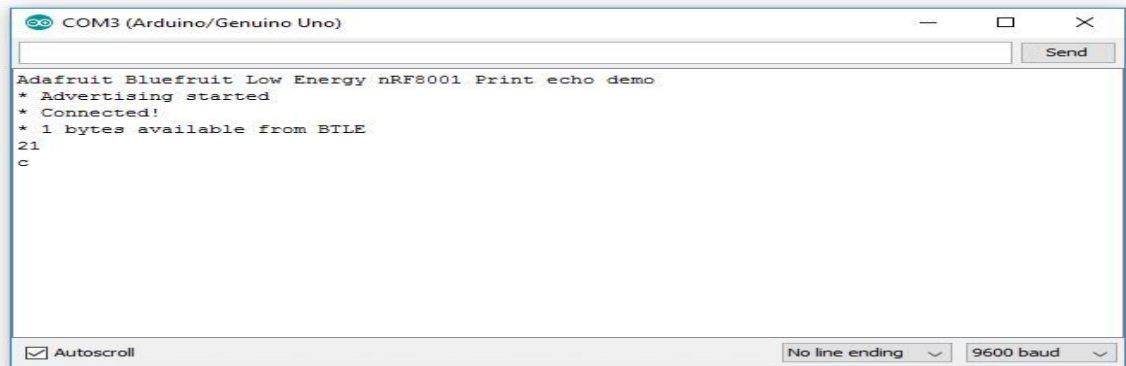


Figure 3. Command on the phone

*/

*/



```
COM3 (Arduino/Genuino Uno)
Adafruit Bluefruit Low Energy nRF8001 Print echo demo
* Advertising started
* Connected!
* 1 bytes available from BLE
21
c
```

Figure 4. temperature sensed been shown

Past week accomplishments (please describe as what was done, by whom, when)

- Kebei Wang -work on presentation, design document and arduino testing.
- Trevor Brown - Made a block diagram of the hardware, ordered samples from TI of the power management IC
- Yi Qiu - meet with advisor and client, test our bluetooth circuit and debug the bluetooth code. Wrote design document.
- KukJin Chung - I borrowed BLE module from our advisor and connected BLE module to the arduino board. I have made up the application code diagram.
- Xiang Li —participated the meeting with client and professor Tuttle, participated the meeting with group members as well as helped to trouble shot the coding problem for transmitting the data from computer to cell phone. Wrote the design document, and took the pictures for what we have so far.

Pending Issues

- Power harvesting test is postponed to next week.

Individual contributions

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Yi Qiu	Write the design part 3 for design document, learn the BLE mode datasheet and figure out the solution to transmit data from sensor to phone. Attend advisor meeting and group meeting	8	21.5
Xiang Li	participated the meeting with client and professor Tuttle, participated the meeting with group members as well as helped to troubleshoot the coding problem for transmitting the data from computer to cell phone. Wrote the design document, and took the pictures for what we have so far.	7	23
Kebei Wang	Worked on design document. Participated the group meeting. Circuit debug help.	7	23.5
Trevor Brown	Tested multiple sensors and measured the power consumption. Ordered more TI sensor samples.	8	19
Kukjin Chung	I joined the advisor and client meeting and participated Monday, Friday, and Sunday group meeting. I worked on the design document.	8	24.5

Comments and extended discussion

- We still need to figure out measure the power consumption, and order some batteries to try on.

- We need to think about how to transmit the data by bluetooth without arduino for next semester.

Plan for coming week (please describe as what, who, when)

- Kebei W. work on design document and discover another way to approach the project.
- Yi Q. work on help team test energy harvest mode IC and the battery system.
- Kukjin C. will work on coding to make up the connection between BLE module and arduino system.
- Trevor B. Continue research on TI chips and compare power consumption.
- Xiang L. help to build the harvest energy circuits, and figuring out the problem we have for transmitting the data.