EE/CprE/SE/CYBE 492 BIWEEKLY REPORT 03

10/26/2022 - 11/08/2022
Group: 07
Project: Wireless Energy Harvesting
Client: Dr. Jiming Song
Team: Benjamin Brown, Christopher Marting, Greg Schmitt, Jacob Walczak, Sam Runkel, Tanner Garity

Biweekly Summary: As a team we had our first initial tests of the new yagi antenna. We also had a parts order get delivered which allowed us to construct our multimeter and start to mess around with the pluto device to determine how it works and how we can best utilize it.

Bi-Weekly Accomplishments:

Benjamin Brown - Met with the team to run some tests with our 5th iteration of our yagi uda antenna for about 1 and half hours. Then in the following week I met with the team again to implement the parts we ordered to our project. We spent approximately 3 hours implementing the pluto and voltage sensor to the project. Lastly I researched basic arduino and C code to get a better understanding on the topic so we could implement the voltage sensor during the team meeting.

Christopher Marting - Met w/team to build and test yagi 5.0 for roughly and hour and a half with sadly minimal results to show. Then I also did a quick refresher of c coding as we will need to do that for our arduino. Lastly we met in the lab to try and see if we could get our arduino working along with the pluto device.

Sam Runkel - Met with the team to do our first tests with our yagi 5.0 which yield some weak results only showing a few millivolts of voltage produced. 3D modeled and printed the housing and form for the helical antenna. Used the form to create the spiral needed for the antenna and created 2 different variations, one with bare metal and the other with insulated. Ordered parts for the construction of an arduino powered multimeter that we will use to find how much voltage we are producing. Discussed with ETG about borrowing their ADALM-Pluto, an RF testing device, instead of purchasing it. Researched the implementation of the voltmeter using an arduino and had a team meeting to construct it and work with the Pluto to try and get it running.

Jacob Walczak - Met with the team to implement our coding research required for the project. We spent about 3 hours attempting to implement the Pluto device and the Arduino voltage sensor. I researched how to code the voltage sensor and discovered that we may have an issue with the voltage sensor not being able to detect the output voltage of the antenna due to the minimum voltage not being high enough.

Tanner Garity-

Greg Schmitt - Conducted research into the Pluto portable radio transmitter/receiver in order to generate a constant 2.4 GHz frequency to mimic a wifi signal. There are multiple ways to make the transmitter work, and the most convenient method was interfacing using Matlab on a laptop. During the implementation meeting, the Pluto connected to the software and was properly calibrated for operation. However there was some issue within the waveform we created that restricted the transmitter from working properly.

Plans for upcoming week:

- Yagi Uda Testing
- Helical Antenna Testing
- Meet with Dr. Song to discuss our findings

Individual contributions:

Name	Individual Contributions	Hours this week	Hours cumulative
Benjamin	● First team meeting - 1.5hrs ● Second team meeting - 3hrs ● Aurdiono and C code research for voltage sensor - 1hr	5.5	41
Jacob Walczak	● Team meeting with implementation - 3hrs ● Arduino/C coding research - 1hr	4	38.5
Greg Schmitt	● ADALM Pluto research and Matlab implementation - 4 hrs ● Matlab/Simulink refresher - 1 hr ● Team meeting with implementation - 3 hrs	8	42.5
Christopher Marting	● First team meeting to test new yagi 5.0 antenna - 1.5 hrs ● Team meeting with implementation - 3hrs ● C coding refresher - .5hr	5	55
Sam Runkel	● Modeled and 3D printed helical antenna housing and form to created the spiral effect - 3 hrs ● Constructed helical antennas - 0.5 hrs ● First team meeting to test new	9	63.5

Name	Individual Contributions	Hours this week	Hours cumulative
	yagi 5.0 antenna - 1.5 hrs ● Ordered components and discussed with ETG about the renting/borrowing of an ADLAM-Pluto - 1 hr ● Arduino code research - 1 hr ● Team meeting - 3 hrs		
Tanner Garity	●		45