

EE/CprE/SE/CYBE 491 WEEKLY REPORT 08

3/28/2022 - 4/3/2022

Group: 07

Project: Wireless Energy Harvesting

Client: Dr. Jiming Song

Team: Benjamin Brown, Christopher Marting, Greg Schmitt, Jacob Walczak, Sam Runkel, Tanner Garity

Weekly Summary:

- Dr. Song Meeting
- Preliminary Testing Methods and Results
 - Test board and dipole antenna working just very small output - need to incorporate directional antenna design.

Weekly Accomplishments:

Benjamin Brown - Had a meeting with our advisor, Dr. Song discussing our testing procedures. We also did our first test with the board and dipole antenna during our team meeting. We discussed about implementing a directional antenna. I specifically researched commonly used antennas for wifi routers and the effects of different types of antennas.

Christopher Marting - Meeting with Dr. Song and did initial wireless harvesting tests with test board and dipole antenna. Started to figure out design choices for building a Yagi antenna along with doing more simulation testing in CST studio by seeing what would happen by adding more directors to the antenna.

Sam Runkel - This week we met with Dr. Song and discussed our test board and the antenna fitting. We started our first tests with the board using a store bought dipole. The first tests were not very successful and we couldn't get much power. I did some calculations later on my own and realized we should have ideally received closer to 0.3mW of power so we need to change some things up.

Jacob Walczak - Meeting with Dr. Song where we discussed testing procedures and what to expect moving forward. We also did a very basic test using our testing board and dipole antenna during the team meeting on Tuesday. I did some basic Yagi-Uda research.

Tanner Garity- Further researched radar signals and antennas in order to refine system model simulations. Explored the theory behind Yagi-Uda calculations. Continued to research Yagi-Uda design specifications and simulation techniques. Refined part parameters in cadence virtuoso in order to tweak simulation results.

Greg Schmitt - Meeting with Dr. Song discussing potential testing guidelines to consider as we begin initial phases of testing antennas.

Plans for upcoming week:

1. Order some materials so we can start building our own Yagi antenna.
2. Do more testing with test board to try and improve our initial test results.

Individual contributions:

Name	Individual Contributions	Hours this week	Hours cumulative
Benjamin Brown	<ul style="list-style-type: none"> ● Meeting with Dr. Song - 1hr ● Team meeting & 1st testing phase - 2hr ● Researched specific antennas used for wifi routers and the effects of different types - 1hr 	4	24
Jacob Walczak	<ul style="list-style-type: none"> ● Meeting with Dr. Song - 1 hr ● Team meeting and testing - 2 hrs ● Basic Yagi-Uda research - 1 hr 	4	24
Greg Schmitt	<ul style="list-style-type: none"> ● Team meeting - 1 hr 	1	20
Christopher Marting	<ul style="list-style-type: none"> ● Meeting with Dr. Song - 1 hr ● Team meeting plus initial test - 2 hrs ● CST studio simulation testing - 2 hrs ● Antenna designing & material research - 1 hr 	7	27.5
Sam Runkel	<ul style="list-style-type: none"> ● Meeting with advisor -1hr ● Team meeting and initial testing - 2hr ● Work on better testing procedures and do theoretical experiment calculations -1.5hr 	4.5	24.5
Tanner Garity	<ul style="list-style-type: none"> ● Explored Yagi-Uda calculations and design/simulations strategies - 1.5 hrs ● Finished the mid steps of 	1.5	23

	simulation. - 1 hrs		
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