

Hardware Review Summary:

During our meeting with Dr. Oman, our group discussed our current individual involvement on the project during the winter break and since the beginning of the semester. Each individual student reported the following:

Ahmad Abuouf- Not present at the meeting

Alonzo Bizahaloni- Working on the three cases of setting up the foundation or elevating the thermal box at a specific height for the thermal box. Suggestions made at the meeting is raise the thermal box that will be sitting on a metal frame. Laying down concrete or any type of material that will create a hard and elevated surface. Using concrete blocks that will elevated but we need to keep in mind of keeping out animals and reptiles from underneath the box. I suggested of using the Labview software and using thermocouples for the box to take measurements of the heat in the thermal box by analyzing if the thermal box has uniform distribution throughout the whole box.

Brandon Dunn- During break looked over the Arduino code needed to turn the fan on via sensor and created physical pseudo code for the project. I ensured the team had the feedback for the final report. I also spent time researching the EnergyPlus program and how it would be used, downloading weather information from nearby locations to the Navajo Reservation. With the team I went to Home Depot to help find the final pieces of the project and determine what would be the best parts to use for each purpose; helping to finalize the design.

Carl Aaker- Went to Home Depot with team to find finishing pieces of the ordering to have all parts to finish building of the box.

Tatum Begay- During the first few weeks of the spring semester, I worked on the team website. Changes that I made included: fixing the overall website layout, adding all the documents, adding team member information, and adding a video to the gallery. In addition, I have started programming the light sensor and fan needed for our design. From my analytical analysis, I have been following the pseudocode layout that I have computed. I have been working with Wyatt as we need to test out the individual parts to determine threshold values to turn on/off the fans and light sensors.

Taylor McCormack- During break I kept in contact with our client and companies we were ordering from. I spent most of the break looking for the best parts to order. Over this semester I worked on ordering our parts for the project. I was the client contact, setting up meetings and parts to pick up. A couple weeks ago William and I traveled down to Phoenix, Arizona to pick up our box and solar air heater with parts. In addition to this I worked on finding the best way for the air to flow through the box and PCM using duct work. During the meeting I provided Dr. Oman with pictures of our project so far with all the receipts for our parts ordered so far.

Wyatt Bain- During the break I researched many different fans and transistors that would be needed for the air heater fan. Fans were purchased over the break and that gave a better understanding of what transistors were needed. As well as research I created schematics that could be used for the different set ups of the fan. Another task was researching the type of batteries and solar panels that would be needed for the air heater. During this semester I have been implementing the research of the circuits and building the individual fan component, and I have been working with Tatum on this because she will be creating the code for the fans as well.

William Senseman- Throughout break I spent time researching the EnergyPlus website from how to use it to the input of data for specific conditions. I also met with Dan from Green Rhino on two separate occasions to look at the thermal box and take measurements. Taylor and I also discussed what items to buy and from where over the break. Then later in January, Taylor and I went down and picked up the box, solar air heater, ventilation, solar panels, and more fans. During the last few weeks I have been researching light sensors and code from past classes and online. Taylor compiled all the receipts and I'm going back through our budget and adjusting the numbers based on what we bought, from whom, and when.

Action Items:

- Foundation for the thermal box- Alonzo Bizahaloni, Carl Aaker
- Cutting the box ventilation- William Senseman, Taylor McCormack
- Creating the thermal chamber separation- Brandon Dunn, Ahmad Abuouf
- Creating the coil heater- Brandon Dunn, Taylor McCormack
- Building circuits for fan- Wyatt Bain, Tatum Begay
- Coding circuits for fan- Wyatt Bain, Tatum Begay
- Building circuits for light sensors- William Senseman, Wyatt Bain
- Code for light sensor- Brandon Dunn, William Senseman
- Website Updates- Tatum Begay, Ahmad Abuouf
- Updating the Final Proposal Report-Tatum Begay, Carl Aaker
- EnergyPlus Implementation- Brandon Dunn, Taylor McCormack
- Using Labview software and thermocouples to measure heat distribution- Alonzo Bizahaloni, Taylor McCormack