

Meeting Agenda:

Review Snapshot Notes. Look over design concept and wire diagram.

I) Snapshot Feedback

a. Redundancy

- i. What is our failure rate?
- ii. Raspberry Pi also has Bluetooth capability

- Have to determine the failure rate on our own of the redundancy

- Each component need a failure rate?

- This would be good engineering practice to try and figure this out

b. Maintain Focus

- i. Avoid rabbit holes
- ii. What is core concept vs what additional features greatly enhance the project

-We would like to stick to the core concept here and focus on the plan and goal we are trying to reach

c. Functionality

- i. Phone App to adjust controller timing
- ii. Sensors to detect pedestrians in crosswalk
- iii. System activation without buttons

-These are things to think about, but not spend too much of our time on it

-Did a quick overview of how our snapshot 1 went

- It went really well, we received lots of feedback from viewers and other

II) Design Concept

a. Integrated Power Unit

- i. What is trade-off in vertical placement with respect to potential energy for wind and water runoff?

b. Non-Integrated Power Unit

- i. Is modularity a design goal? Can small power modules 'plug-n-play'?

-Next we looked at our drawing of how we think that this project will look like

-Looked over the names of the projects that we came up with

-MALS has a negative connotation because of the Latin language

-SAVIOR seems a little too over promising

-Looked over the wiring drawing

-Jason will email this out to Dr. Johnson and Abdallah for feedback

-DC around 5V

-PV may need to have its own voltage because it is a diode

- mounted to a board for a proof of concept

III) **Tasking**

a. Complete metrics data sheet

-Email out by Thursday to receive feedback

b. Create any additional testing criteria

c. Develop testing procedures

d. Small Scale Power Dynamo Research

i. What size dynamo is necessary?

1. Can it be DC?

2. If AC, then what size power converter?

ii. What size prime mover is required?

1. Can an integrated wind/water wheel meet power demand?

2. What is ideal height for water wheel for run off

-Design considerations

-Water wheel would have to be at the bottom vs a wind turbine would have to be at the top of the unit

-Could get failure rate from the vendors, Army has failure rates for components, Dr. Hess may have material, Course Resources – DFMA template, this could be a second semester topic

-How to we want to do this

-Fault Tree Analysis – have a measured signal that we want to get to a processor, if you have any single failures that will cause it to fail, you treat those as a logic OR

-He has some handouts on this, SEL handout on this, and other IEEE reads

-Mechanical parts fail sooner than non-moving parts

-No fans for cooling processors

Meeting adjourned at 1:34pm

<http://www.ece.uidaho.edu/ee/power/ECE444544/> handouts with lecture 15

<https://www.webpages.uidaho.edu/mindworks/Capstone%20Design/Presentations/DFMEA.ppt>

-- Capstone lecture notes from web page