### Senior Design Meeting Minutes

### Date: 9/26/23

### Agenda (Updates/Things to Discuss)

* **FOOD :)**
* Reflection Based on SAD
  + Suggestion: Finish assignments 24 hours before
  + Suggestion: More explicitly make game plan in future
* Game Plan for PDR
  + What are the subsystems and who is responsible for what?
  + First go at some subsystems
    - Serial Communication IC and physical connection (Abisha, Nida)
    - Software and website to design digital UI (Will, Parker)
    - Custom PCB design (Nida, Parker)
    - Embedded software integration and design (Parker, Kelly- Mae)
    - Enclosure modeling for frame and components + Design/Branding (Kelly-Mae, Abisha)
    - Guides and tutorials (second semester, work on it along the way)
  + We don’t have to narrow down to one idea exactly
  + Graded individually: everyone has to state (out loud) what they have done
  + Back up slides (anticipating questions)
* Update on Custom IC idea
* ***TIMELINE*** 
  + w/ PDR in mind
  + w/ Hall of Fame in Mind
    - What do we need to decide on as a group to get started on our individual tasks?
    - When do we need to decide on an MCU
  + w/ Tech Demo 1 in mind
  + What tools should we start learning (if applicable?)
    - Fusion 360 vs. SolidWorks
    - KiCad
      * I found some PCB trainings with Mr. Nguyen ([link](https://my.ece.ncsu.edu/makerspace/training/))
  + Detailed breakdown of all the tasks (w/i each subsystem)
* Just so we don’t forget, do we need to talk to Josh? (Deal with this Post PDR)
* ~~Finish the Purchase Order~~
* ~~Just so I don’t forget, do we need to ask Jeremy about using off-the-shelf components~~
* Branded green-purple slide deck? **(Abisha)**
* Fix the product requirements?? **(Kelly-Mae)**

### 

### Upcoming Deadlines

* 10/3 PDR

### Action Items

* Find new work for Will (post Wednesday)
* Meet on Sunday @ 5pm
  + Review slide deck and make sure everyone is on the same page
  + Practice presentation
  + TIMELINE + way to stay organized
* Find components
  + Look for ones with a breakout board
  + Sensors (audio
* Make a list of parts we might want to make
* Draw i/o components (pdf, jpeg)

Each subsystem:

* Proof of concept
* Potential technical barriers
* Breakdown of everything that needs to be done
* What does each subsystem need from the other subsystems
* How far can you go without needing another subsystem

Idea for PDR demo:

* Serial Communication IC and physical connection (Abisha, Nida)
  + Build i2c bus and slide about how i2c works
  + Talk about future of making parts work with i1c with IC
  + How does it interface with the larger project
  + What is feasible with a custom IC?
  + What are the limits of serial communication?
  + I need top Level Pins
  + How does the GPIO pin expander work without MCU and mostly digital block (buy extra memory)
  + Look at some more FPGA dev boards, figure out what is the difference and make the table
* Software and website to design digital UI (Will, Parker)
  + Online? Demo showing non functional frontend of how user builds UI
  + Barriers w/ drag and drop feature
* Custom PCB design (Nida, Parker)
  + Arduino shield building into I2C
  + Schematic of the parts we are using now
* Embedded software integration and design (Parker, Kelly- Mae)
  + Functional example of a user interface on touchscreen
  + What components/lead-times
  + Get LED screen working
* Enclosure modeling for frame and components + Design/Branding (Kelly-Mae, Abisha)
  + Example in enclosure
  + Custom Mag-safe port\*