

# 9/13/2020 Meeting Agenda

- Introductions

- Client Interview Questions

- What were the top challenges that last year's team go through?

Design of the headset: really have to be pressed to get good connectivity for emotive (human)

- Would like no gel or glue in device
- Would like to make more portable, preferably wireless, cost is less important
- Helmet may be a possibility, as a counterweight to apply pressure

Projects will pretty much be worked on simultaneously, just small variations in size

- What are the main goals needed to be accomplished for this semester?
- Are we going to be able to have one of the \$800 EEGs to compare it to our low-cost one?

Yes!

- Is the rat's head going to support the full weight of the device?

For rat you want to keep it on, yes it will support device.

- What kind of interface would be desired? (i.e. arduino serial monitor or a lab view monitoring system)

Used Arduino in the past, open to other ideas.

- What level of precision should we be looking for, just getting an appropriate reading, or very detailed?

Projects will differ here: helmet: precise enough to determine different outputs, but other than that, not too precise. Rat: need really high quality, in other words as high as possible.

- How "rough" would be acceptable for the final product, i.e. arduino and breadboard, or something a little cleaner?

Helmet: very lightweight, compact, not a bother to wear for hours

- Is video editing going to be required for the tutorial, and if so, will we need any assets from the university? (i.e. intros or something similar)

Should be able to design by themselves, but other than that, quality is not terribly important.

- For the tutorial, would we just show how to set up the circuit board of the prototype, or do we also need to show software, headset building, etc?

Show how to set up everything

- Could we go over the budget of \$100 if we buy components in bulk, to make more than one prototype?

Yes! As much as needed, don't go ridiculous. 300 or less should be possible.

- What is the desired frequency band to filter the brain activity signals through?  
Ranges from 0.5 to 20Hz, as long as it's open source
- What parts of the project already have finished prototypes? What parts of the projects are the least developed?  
Software,
- How accurate do you want the EEG device to be on the budget of \$100?
- Are there specific programming languages you want us to use? Such as Python or MATLAB for the Fourier transforms of the signals? Or C for the software?
- What does the overall timeline of the project look like for this year?
- How is the headset (both for humans and rat) going to be built?  
3D printing has been used in the past, input is gladly taken
- How fast do you want the EEG device to take the signals and filter them, and give a coherent reading?  
No limitations
- Will the rats need to be stabilized during recording, or will they be able to be free roaming?

They will need to be free roaming

- Were the senior design teams in the past able to work with the budget of \$100, or did they go over?
- Will we need to do any special training or sign any agreements for working with animals/humans?  
TBD, but probably no.
- What electrodes do we need?

We already have them. They are gold electrodes

## • Requirements

Good connections

Portable

Cheap as possible, but don't let that limit us

Easy to assemble

## • Time Line

Next Meeting Date:

- Zoom, next Tuesday at 4:50pm

## What to do before next weekly meeting

- Research on:
  - EEG book called Niedermeyer's Electroencephalography: Basic
  - <https://oxfordmedicine.com/view/10.1093/med/9780190228484.001.0001/med-9780190228484>
  - [http://mindworks.shoutwiki.com/wiki/Discount\\_Megamind%27s\\_Lowcost\\_Electro\\_Enc\\_ephalogram\(EEG\)](http://mindworks.shoutwiki.com/wiki/Discount_Megamind%27s_Lowcost_Electro_Enc_ephalogram(EEG))
  - [http://mindworks.shoutwiki.com/wiki/Low\\_Cost\\_Electroencephalogram\\_\(EEG\)](http://mindworks.shoutwiki.com/wiki/Low_Cost_Electroencephalogram_(EEG))
  - OneDrive files will be shared with us, will need to look them over
  - Set up an electronic portfolio on either google drive or onedrive