

9/6/2018 Agenda

- Introductions
- Customer Questions
 - What customer wants -
 - Low cost EEG - \$100 budget, can be exceeded (\$150 or so for the first try)
 - Signal quality does not have to be extremely high, as this is for educational purposes
 - Make a working prototype
 - Similar to the first link in the email - cost is up to \$800
- Requirements
 - Goal: 14-18 channel EEG device
 - One person in charge of determining which parts we need on the circuit board
 - Buy electrodes, etc.
 - Help from a person in Dave Macpherson (?) ChE - research scientist
 - Interfaces - compatible with a computer - using an arduino or something
 - Gather signals, filter signals
 - Use python vs MATLAB, since it is open source
 - Separate mixed frequency signals into frequency bands
 - 0.4 to 30 Hz signal range for brain signals
 - Maybe use machine learning algorithms or discrete fourier transforms to separate frequency bands
 - EEG example
 - See how it works from an expensive EEG machine and the corresponding software
 - Mapping different brain regions based on frequency
 - EEG can gather activity from everywhere
 - See different regions to see how external or internal variables influences signals
 - Temporal regulation
 - Wireless vs. wired
 - Cost sensitive - fit within budget - see cost difference
 - High School Instructions
 - Go to high schools to present project
 - Step by step building video
 - How to build, integrate, design process, etc.
 - Educational video only for EEG circuit board - should be replicable by high school students
 - Software on GitHub
- Timeline
 - Customer -
 - Hardware setup done by the end of this semester

- Including 3D printing, etc.
 - Get raw signal data
 - Spring -
 - Python
 - Signal filtering
 - Video
 - Requests we all work as a team - make sure we all understand whole product
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- Next Meeting Date
 - McClure 401D - Tuesday next week at 4:45
 - Same time two Tuesdays from now - Tuesdays from now on
- Goals Before Next Meeting
 - Same time next week:
 - Look at resources sent from customer
 - Independent research-
 - Low cost EEG
 - Designs for EEGs
 - How the circuits for EEGs work
 - Basics of EEGs.