ABSTRACT
The biggest barrier facing the field of neuroscience is the lack of exposure. At the earliest, students will only have the option to explore neuroscience in an academic setting is in college. Providing low cost and DIY electroencephalograms will allow high schools and middle schools to introduce neuroscience into their curriculum.

PROBLEM/GOALS
The main goals of our product were to create the following for less than $100
- Hardware that gathers raw signal and filters appropriately
- Software that determines the frequency of brain signals and shows a graphic displaying the origin within the brain
- Headset that effectively holds electrodes to any sized head and houses hardware
- Creating something easily reproducible by high school students

DESIGN
Headset
Headset is 3D printed with Nylon filament. Files for it are located in this project's bit bucket, allowing students to download the design and print it themselves at whatever 3D printer they have locally available to them.

Troubleshooting advice is made available in this same location.

Hardware
- 6 channels
- Differential amplifier per channel
- Low pass filter to attenuate frequencies >60Hz
- Non-inverting amplifier to increase voltage
- Teensy 3.2 Microcontroller to sample input and send data to PC

Software
Built with Python and Tkinter
- Displays live filtered signals
- Plots Fast Fourier Transforms
- Switches between all 6 channels
- Open source and available online
- Easily installed and ran with an executable

CONCLUSION
Our design was incomplete without an RFI filter and the headset needs to be more easily reproducible. Teams in the future should focus on how to reduce costs and difficulty for 3D printing a headset and use a multiplexer to switch channels and reduce hardware costs.

Acknowledgements
A special thanks to our client and sponsor Gautam Kumar from the University of Idaho Chemical Engineering Department

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<tr>
<th>Item</th>
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<tr>
<td>Electrodes</td>
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