Project Logbook: The Janitor in Your Head

Dec 2: Finally picked my topic. Going with brain stuff specifically Deep Brain Stimulation (DBS). Thinking about how to make it more efficient using glia cells instead of just neurons.

Dec 5: Did some basic reading on astrocytes Found some papers on gliotransmission.

Dec 14: Trying to figure out the "duty cycle" problem. Most DBS devices just stay on, which wastes battery and overstimulates the brain.

Dec 19: Thinking about a "Glia Gated" system. I'll call it GGDC (Glia Gated Duty Cycle).

Dec 22: Winter break starts! Honestly just organized my folders today. Not doing much else until after Christmas.

Dec 28: I looked up signal processing. Found something called a Butterworth filter. It helps clean up the "noise" in brain signals.

Dec 29: Sketched out a rough diagram of the ARC system (Astro-Response Calibration). It's basically the "brain" of my device.

Jan 22: Spent two hours trying to find a specific data set on glial calcium waves.

Jan 25: Working on the math for the duty cycle. It's basically figuring out when the device should be "on" vs "off" based on the glia activity.

Jan 26: Cleaned up the protocol steps. It's starting to look like a real science project and not just a bunch of random notes.

Feb 3: Started the "Methods" section. Explaining how the Butterworth filter integrates with the GGDC.

Feb 4: Spent the evening fixing the diagrams because the labels were messy.

Feb 5: Focused on the "Astro-Response" part. If the glia aren't responding right, the whole duty cycle fails. Need to make sure the calibration is tight.

Feb 22: Formatting the bibliography.

Feb 27: Finalizing the "Discussion" section.

March 2: Finishing the last few sentences of the research paper right now. Everything is done, just need to hit submit before the deadline. Then I need to start on my physical trifold.