

## Salma Rifai - CYSF Logbook

<b>Name</b>	Salma Rifai
<b>Grade</b>	Grade 10
<b>Project Title</b>	Next-Gen Prosthetics: Merging Myoelectric and Brain-Controlled Technology for Seamless Limb Function

Date	Information / Data / Accomplishments
December 18, 2024	On this date, I decided that my topic would be on combining myoelectric and brain-controlled technology for increased prosthetic limb function.
December 19, 2024	On this date, I filled out my CYSF platform basic information.
December 24, 2024	On this date, I wrote the problem that would be addressed; limitations to regular prosthetics), and then gave in my solution of creating a hybrid prosthetic.
December 25, 2024	Background research on the brain
December 26 , 2024	Background research on the brain <ul style="list-style-type: none"><li>- Motor and premotor cortex</li><li>- Their functions</li></ul>
December 28, 2024	Background research on the brain <ul style="list-style-type: none"><li>- Neurons</li><li>- How neurons transmit signals</li></ul>
December 29, 2024	Background research on the brain <ul style="list-style-type: none"><li>- Neural oscillations (brainwaves)</li><li>- Frequencies of neural oscillations and how they affect movement</li></ul>
December 31, 2024	Background research on the anatomy of the human hand <ul style="list-style-type: none"><li>- Focus on the anatomy of the human hand</li><li>- The three nerves in which he hand's muscles and skin get their signals; radial, ulnar, and median</li></ul>
January 1, 2025	Finalized my abstract and wrote it down
January 3, 2025	Researched about BCI
January 7, 2025	Researched about myoelectric control and prosthetics
January 9, 2025	Looked into the gaps in existing knowledge ; made inferences and came to conclusions

January 16, 2025	Explained my idea on how to combine the two systems while providing factual information to prove that my idea could possibly work. I compared the two and explained the advantages to combining the systems.
January 19, 2025	Explained my idea on how to combine the two systems while providing factual information to prove that my idea could possibly work (cont..) .
January 20, 2025	Created a proposal idea; so I spoke about what I would want my prosthetic to have, what its functions would be, its abilities, and so on.
January 21, 2025	Wrote about Medical and Societal impact. Also wrote about challenges that could possibly be faced in the development of a prosthetic using my idea.
January 22, 2025	Wrote my conclusion
January 23, 2025	Formatted everything+edited
January 27-28, 2025	Formatted everything+ edited (cont...) - Also created a slideshow ver of the whole thing so that I could present it
January 29	Completed