



Open-Source VR Haptic Glove

Jack Babu

College Park Scholars – Science & Global Change Program
jackbabu@umd.edu – Mechanical Engineering
CPSG230 – College Park Scholars Academic Showcase, May 9, 2025



Introduction

Over the course of this project, I led a team of students in the construction of a virtual reality haptic glove, based on existing open-source projects, with the resources and guidance of the UMD XR Club.

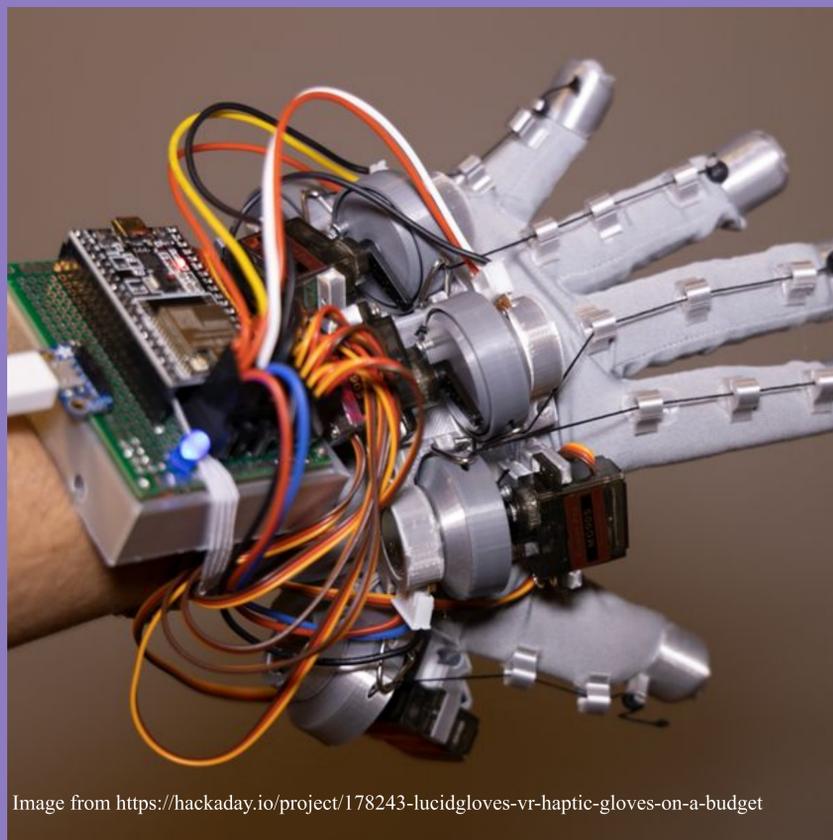


Image from <https://hackaday.io/project/178243-lucidgloves-vr-haptic-gloves-on-a-budget>

Activities:

My activities included both leadership of my project team, and 3D printing, soldering, and assembling parts of the glove myself. Applying my skillset by teaching others was key to bringing this project to its timely completion.

Impact:

Hardware development can be a very daunting subject, especially to students with backgrounds mainly in computer science. Through this project, I aimed to educate and inspire my project team and provide them the confidence to build anything they can dream of.

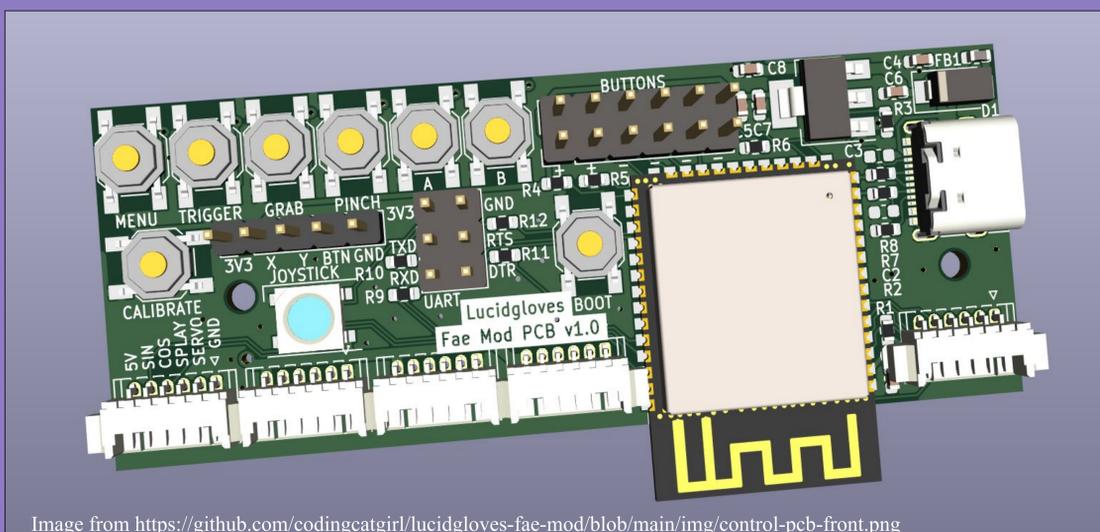


Image from <https://github.com/codingcatgirl/lucidgloves-fae-mod/blob/main/img/control-pcb-front.png>

Site Information:

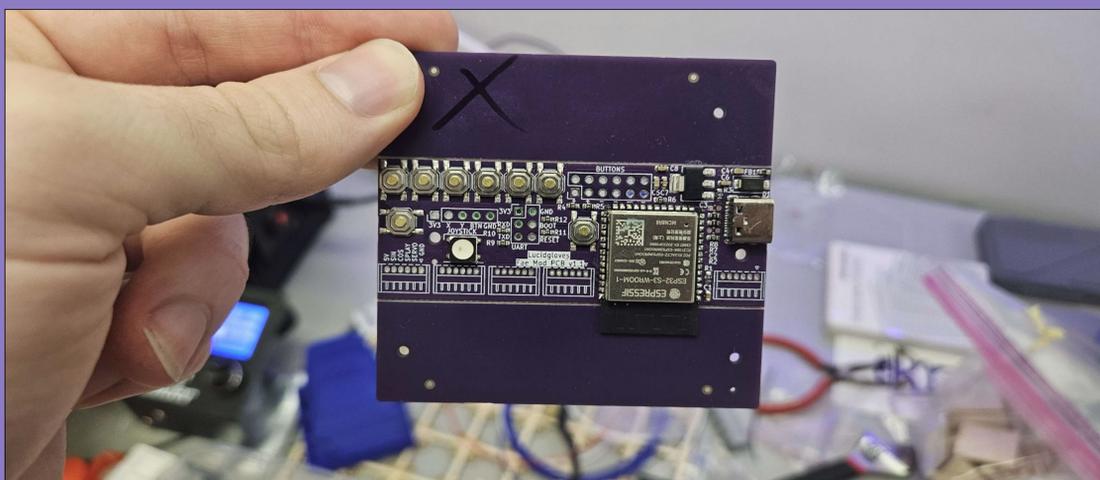
UMD XR Lab

A.V. Williams Bldg, Room 4176

8223 Paint Branch Dr, College Park, MD 20742

Damien Figueroa

Mission: “to foster a community around virtual and augmented reality on campus by providing technologies, mentorship, and specialized hackathons.”



Future Work:

While this project mostly concerned the higher-level design of choosing elements of open-source designs to combine with small improvements, I hope that with the skills I and my team gain, we can innovate original designs of similar complexity. The LucidGlove design originated from the work of an MIT student, and I hope to publish an original project with the XR Club before my time as a student is through.

Discussion:

Throughout this project, I was both teacher and student. Both my and my team’s skills were tested by the task of effectively integrating elements of several different designs, and diving into the details of hardware development was key to overcoming obstacles. Despite that, the greatest challenge of all was project management and avoiding scope creep, something student-led projects often struggle with. In my opinion, these skills are the most important of all those we learned throughout this project.

Acknowledgments:

Drs. Holtz & Merck; SGC Leaders Damien Figueroa; Project Supervisor
Russell Mehta; XR Club President XR Club members; assisted with construction
Lucas @ LucidVR; original LucidGlove design Laura @ codingcatgirl.de; PCB modifications



SCIENCE AND
GLOBAL CHANGE

