

The SMILE Swing (Safe Motion for Inclusive Leisure and Exercise)

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Purpose: An automated swing used for sensory therapy for children and young adults with disabilities.

Importance

- Created in partnership with VME, who have been looking for a solution for local clients for years
- Other universities made attempts with powered swings, but weren't able to solve the problem
- Several requests per year (~5-10) for said swing, as many families are waiting for one to be delivered
- This project will be handed off to VME for continuing impact

Why Swinging?

- 95% of children with autism experience sensory processing challenges
- Swinging offers predictable and soothing input to the vestibular system that help improve sensory processing abilities in individuals with autism
- 5 - 10 minutes of swinging can reset sensory overwhelm and improve focus
- Children with autism have improved emotional regulation with regular swinging after a few weeks
- Multiple studies, such as the Mind Study Center, show a correlation between swinging and calming people with autism

Impact

- Children with disabilities would be able to swing on their own for any given time
- Parents and caretakers will not need to push the swing for them

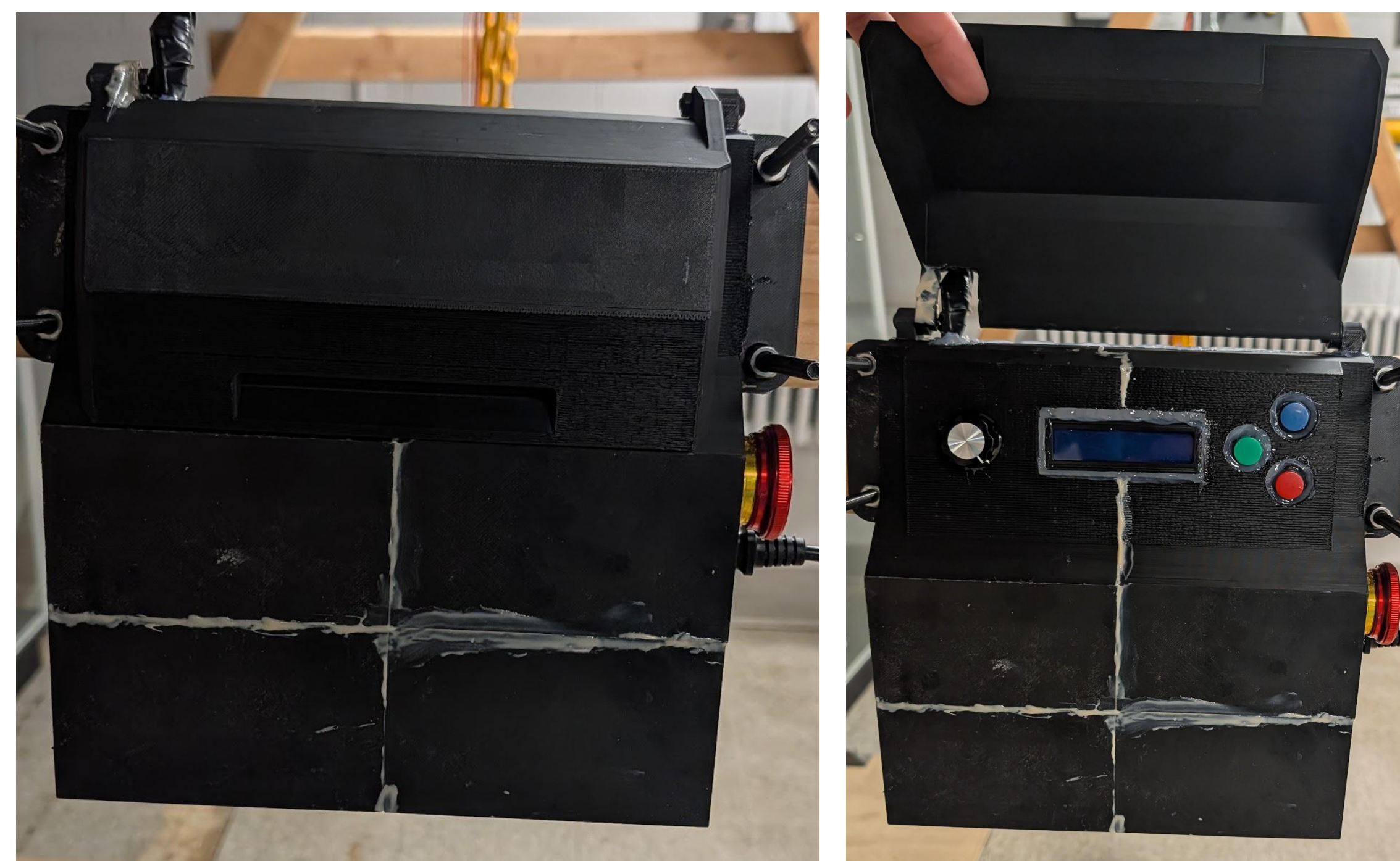


Project History

- This marks the fourth semester of working on this project at the University of Maryland. The project began in Fall of 2024, with continued work throughout the Spring of 2025 and the Fall of 2025, and we picked it up for the Spring of 2026 semester.
- Our focus is enhancing the design to create a final prototype that can be sent to VME to make for other clients waiting for the swing.

Progress

- Weatherproofing for outdoor use
- Cleaned up code for more accurate readings from the IMU
- Smoother interaction between motor, gearbox, and swing
- Load testing to pick out errors



Our Partners:

Volunteers for Medical Engineering (VME)

