

Motivation & Background

Quality of Life Plus is a nonprofit organization that partners with university STEM groups to provide assistive technology for disabled service members.

QL+ sponsored us to create a functional prototype that allows **individuals with** very limited mobility and almost no upper extremity dexterity to **launch a** frisbee from a motorized wheelchair.

The individuals are **patients at Craig** Hospital, a world-renowned neurorehabilitation and research hospital.

Key Requirements

- Safe for user and those on course
- Launch with an independent trigger
- Launch up to 100 ft
- Weigh less than 60 lbs
- Maintain power for 18 hole game
- Attach to wheelchair
- Accept multiple disc sizes
- Allow user-controlled launch distance
- Include UI indicator
- Cost less than \$2,000

Theory









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Wheelchair-Mounted Frisbee Golf Disc Launcher

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Design Overview

Wheelchair-mounted head switches control launch

> Waterproof box houses electronics



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Electrical System



Testing & Results



Average Distance [ft]

- Maximum launch distance of 77 feet
- Maintains power for a minimum of 200 launches
- Electrical safety limits succeeded 100% of the time
- Weighs 55 lbs

Impact



"These devices allow wounded patriots to get back" to doing the things they love." - Quality of Life Plus