

OpTrack

Collaborative Project 2017 - 2018

Reliable & Robust Foot-Mouse that can be used by a single foot by the disabled or those with RSI, Tendinitis and Carpal tunnel syndrome (CTS)

Clinical Leads

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The Challenge

Accessibility has become a universal requirement with the onset of technology integrating into all aspects of our life. This influx in technology accompanied with the globally rising population of disability has led to an emerging landscape of integration and empowerment through assistive technology. The project aims to design and develop a foot controlled input device to enable computer access for individuals with upper body impairments due to congenital or acquired conditions.

This project was carried out in collaboration with the North Thames Regional Environmental Control Equipment Service (NTRECES) based at Hillingdon Hospital.

Existing Products



Product Requirements

- The device should be usable by single foot user to perform all PC entry by foot
- The product should reduce hand/wrist stress and help heal Carpal Tunnel Syndrome in users with CTS.
- The foot mouse shall allow a user to move the cursor to any point within a computer display, perform right and left mouse clicks and is to be usable by either foot.
- The product must minimize stressful positioning of a user's legs and feet.
- The foot mouse should have aesthetics that are aligned with those of technology devices for fully able users.

Ideation and Development



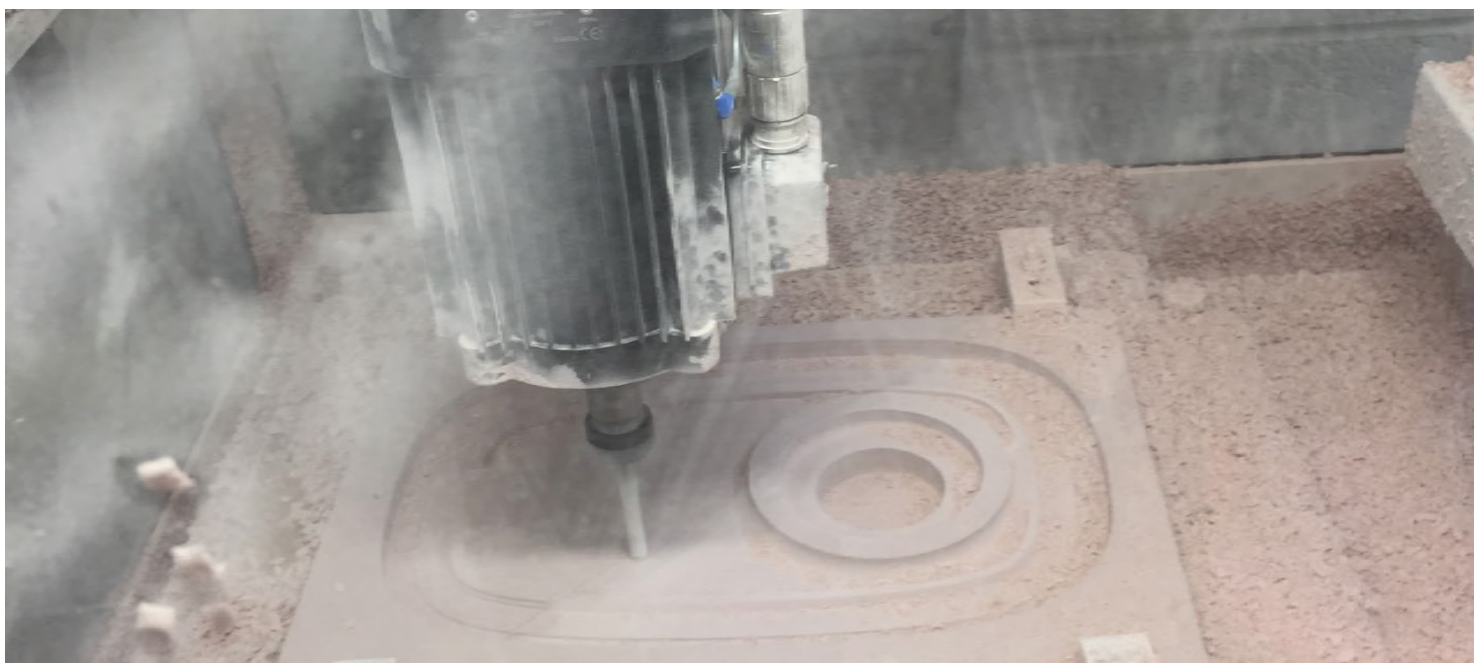
Test rig prototypes in foam and wood



Testing of the Electronic components

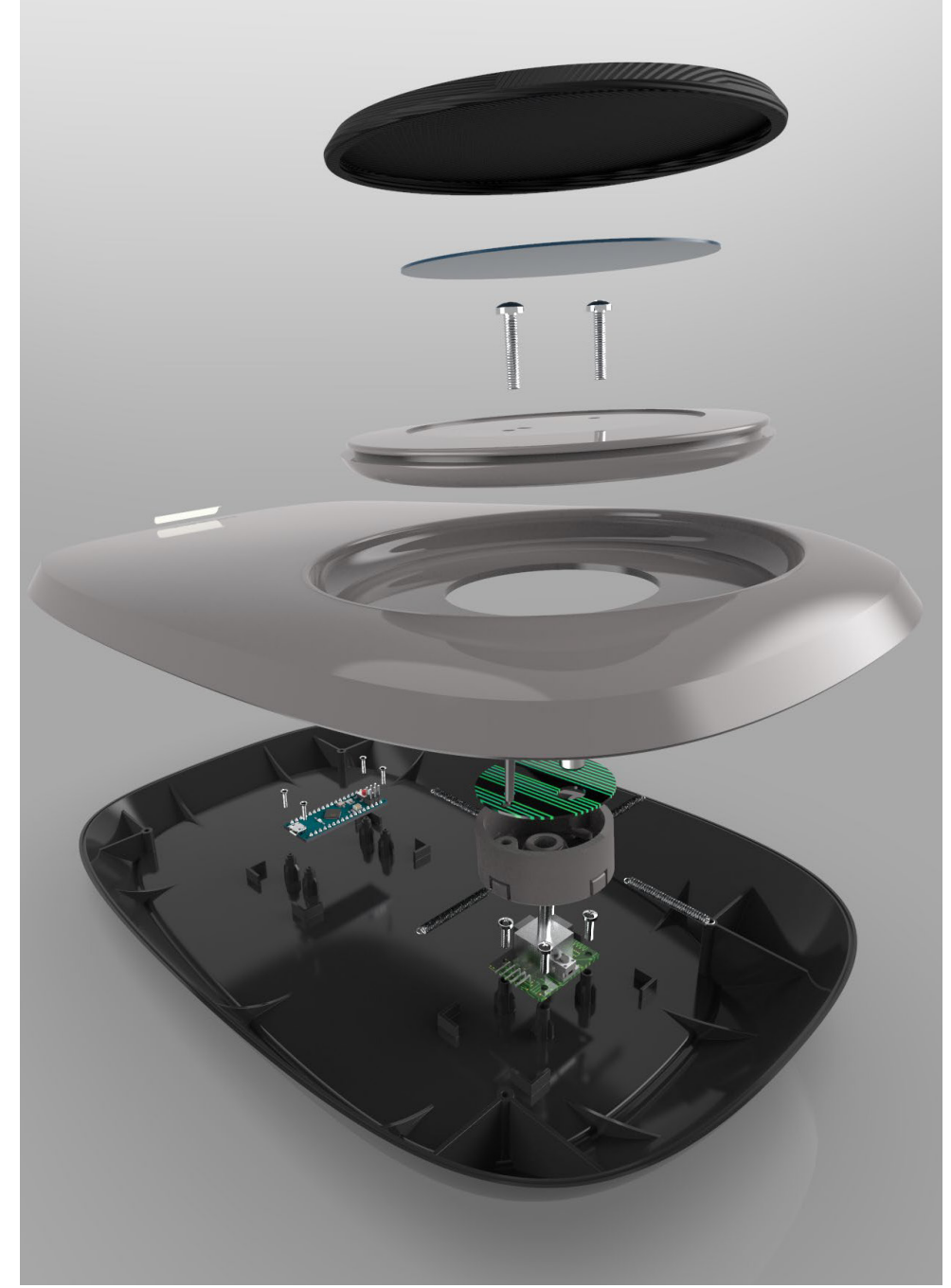


Machining for Casting

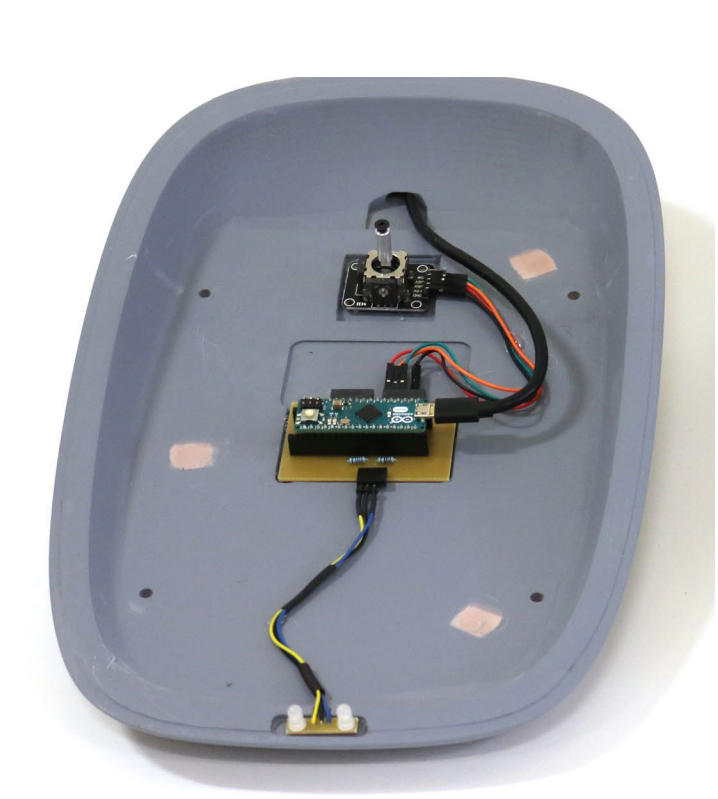


Final Prototype

Exploded view of the final prototype and its components



Lower shell with final electronic installed mouse



Upper casing with large movable foot controlled mouse



Prototype in use



"We were able to adjust the cursor speed and click sensitivity to her requirements thereby facilitating an adaptable experience."