COMPUTER INPUT DEVICE FOR INDIVIDUAL WITH MUSCULAR DYSTROPHY

Andrew Bertram, Joe Decker, Matt Parlato, Stephen Welch
Clients: Richard Kunz, Mary Sesto, Ph.D Advisor: John Webster, Ph.D
Department of Biomedical Engineering University of Wisconsin-Madison

Abstract

The client has muscular dystrophy, and has motion only in his fingers. This causes him trouble when trying to use a personal computer. The solution found incorporated two components – a clicking device, and an adjustable arm support system. Future work involves a third component for cursor control.

Problem Statement

Richard's current input device allows him to use his computer, but it is inefficient and time consuming to set up. The stability of the current design is also an issue. Components of the current device often slip, and need to be constantly readjusted. Richard's new computer input device should be more reliable and easier to use.

Design Constraints

1. Cannot irritate client's skin
2. Easy to set up and take down daily
3. Requires little technical skill to assemble
4. Minimal effort needed to use

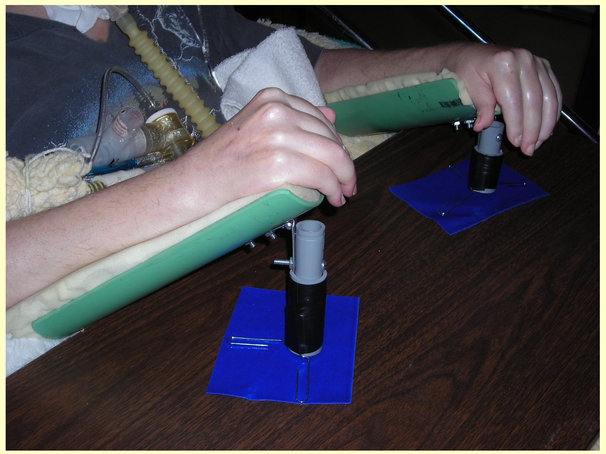

Figure 1: The arm supports. The support is made from a length of PVC pipe, with tempurpedic foam for support. The stand is a telescopic rod resting on dysum to prevent slip.

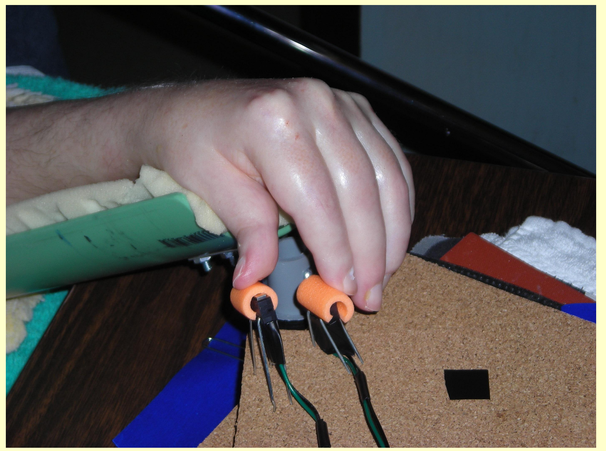

Figure 2: The clicking device. Microswitches are wired to an existing mouse and mounted onto corkboard in a position that is fitting for the client's use

Figure 3: The current design

Testing

The client was able to use the device with adequate proficiency. Setup time took around 10 minutes, which is an improvement, but could still be trimmed. The client said the device felt comfortable.

Future Work

- Increase Setup Efficiency
- Cursor Control Component

References

Mi, Takami, Kim, and Webeckes. Computer Input Device for Individual with Muscular Dystrophy. 2007.