



GAMING CHOPSTICKS THERAPY

Pick Me Up

Motor skills are essential for daily tasks such as drawing, writing, folding clothes, fastening a zipper and using a pair of scissors. If these motor skills are underdeveloped, individuals may struggle with basic activities, affecting their confidence and quality of life. Apart from the elderly, many individuals, including those suffering from numerous ailments, impairments, post-accident injuries, as well as children with slower motor skill development, require therapy to improve their hand movement and coordination. They are often required to attend therapy sessions at hospitals where therapists guide them to perform basic exercises, but unsupervised home therapy can be hard to track. Older patients also tend to be more resistant and unmotivated to attend therapy sessions.

To address these challenges, the team developed the Gaming Chopsticks Therapy, an interactive rehabilitation device that digitises and gamifies the therapy process. The chopsticks feature inertial sensors to measure different forms of movement, along with force resistive sensors to measure the force applied by user's wrist. Users use the chopsticks to play a series of simple games. The data collected will be used to help therapists personalise therapy programmes. This reduces the reliance on physical therapy sessions, supports remote monitoring and makes rehabilitation more fun and engaging.

Innovators' Inspiration

"Seeing a lack of digital solutions in physical therapy, we saw an opportunity to make a difference by applying our knowledge of sensors, microcontrollers and coding, service design principles, and stakeholder research to develop an innovative solution. While it was a steep learning curve, especially as we had to explore areas beyond our syllabus, such as creating graphical games and learning new programming languages, our class advisor guided us through the technical challenges. There were times we felt like giving up, but our passion kept us going. Through this process, we learned to be adaptable, communicate effectively and work together as a team."

~ Ang Teng Poh

What's So Special

- The device is lightweight and user-friendly.
- It reduces the reliance on physical therapy sessions while allowing therapists to monitor patients' progress remotely.
- The device serves to encourage patients through the aspect of gamification and the element of fun.
- This serves as a good foray into therapy device development.

Members:
Elisha Lee Jia Xuan

Ang Teng Poh
Lai Siang Rui Jae
Wayne Soh Kai
Gavin Siew Kah Juen

Course & College:
Higher Nitec in Service Management

Higher Nitec in Mechatronics Engineering

ITE College West