STUDENT ACHIEVERS' AWARDS 2025

Lee Kuan Yew Technology Award

ASSISTIVE COMMUNICATION DEVICE

Voice for All

Children with intellectual disabilities or speech disorders face challenges in communicating their needs. Visual communication cards featuring pictures of items and words can help them express themselves. However, many of these children and their parents may find such cards inconvenient or uncomfortable to use, especially in public.

This prompted the team to create a mobile device that features a digital version of visual communication cards. Users can select from a range of images paired with corresponding words and objects to communicate with others. When an image is selected, an audio output reads the word aloud. The device can display up to four images on-screen at a time, allowing users to form a simple sentence that could be read aloud.

Innovators' Inspiration

"While interning at AWWA School as a teaching assistant, I saw how children with intellectual disabilities or speech disorders struggled to communicate. They would often throw tantrums when they were unable to express their needs. The parents I met there shared that they and their children did not like to use physical communication cards, due to stigma. These experiences had a significant impact on me and inspired us to develop a solution that could help children with speech disorders communicate more effectively. Through our creation, we hope to empower everyone with the opportunity to express themselves and feel included in society."

~ Ong Xuan Hui

What's So Special

- The device is small and lightweight, making it portable and convenient for use.
- A parental control app is available for parents to download on their own mobile devices, allowing them to customise and add words to their child's device by capturing images of objects that the child can relate to.
- A passcode must be entered to exit the assistive communication app on the device, which prevents the child from misusing the device for other purposes.
- The device supports multiple languages, catering to users from different linguistic backgrounds.

Members:

Ong Xuan Hui
Ng Jun Cheng
Loke Jen Lin
Fong Sze Jun

Course & College:

Higher Nitec in
Electronics Engineering

ITE College Central