

SIGN LANGUAGE RECOGNITION

RBTX 2022 : INNOVATION VARSITY CATEGORY

Group Name: UTP2-2.0

Video link:

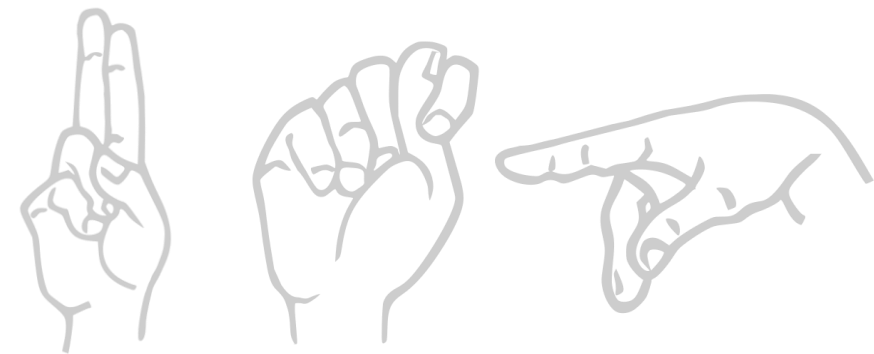
Guardian's name:

Participants Name

- 1.
- 2.



UTP
UNIVERSITI TEKNOLOGI PETRONAS



Problem Statement



Sign language is **manual communication** commonly used by hearing-impaired people. It is a way of communicating using **hand gestures** and **movements, body language** and **facial expressions**, instead of spoken words. **Malaysian Sign Language**, the principal language of the deaf community of Malaysia.

According to data from the World Health Organization (WHO), **360 million individuals worldwide**, including 32 million children and 328 million adults, suffering from hearing disability. Moreover, a survey by Institute of Public Health Malaysia on hearing loss and ear disease showed that prevalence of hearing loss in Malaysia is **21.57% or one fifth of the population**. People who have trouble hearing frequently utilize sign languages to interact with others. However, sign language is largely unknown among hearing people. Given the vast number of people with hearing impairment, it becomes clear how crucial it is to give them the chance to interact with hearing people who do not have knowledge of sign language.

This project is to propose a sign language system based on machine learning for **automatically converting Malaysian Sign Language to text** helps hearing people to bridge the communication gap between hearing people and hearing-impaired people. The proposed system works as following steps: **collecting data, build sign language model and producing text**.

Benefits to community



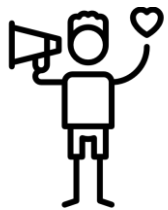
Minimize the gap of communication between hearing-impaired people and hearing people.

The communication between the hearing-impaired people and hearing people is difficult without the help of sign language interpreters.



Increase the opportunities of hearing-impaired people to be employed.

The jobs that is suitable for hearing-impaired individuals is less compared to the other disabled individuals due to communication problems.



Promotes better awareness of and sensitivity to the hearing-impaired community.

Many people do not really have much knowledges on disabilities including hearing-impaired people.

Project significance & SDG Related



Develop a machine learning model to interpret Malaysian Sign Language

Ease the communication between hearing-impaired people and hearing people without sign language interpreters.



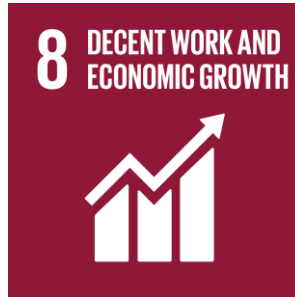
Promote the sign language recognition model to potential companies

Increase humanistic care cultures in more companies.



Require low cost

Only requires a webcam for detection and any computer device for display.



Decent Work and Economic Growth

- ✓ Increase the employment of hearing-impaired people



Industry, Innovation and Infrastructure

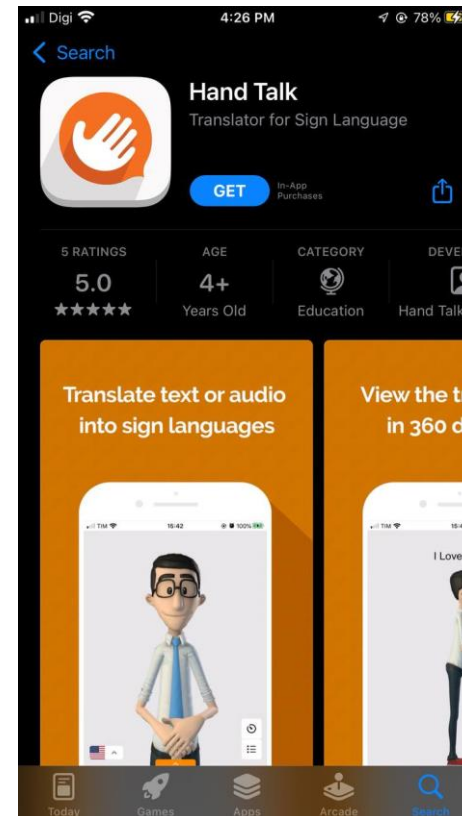
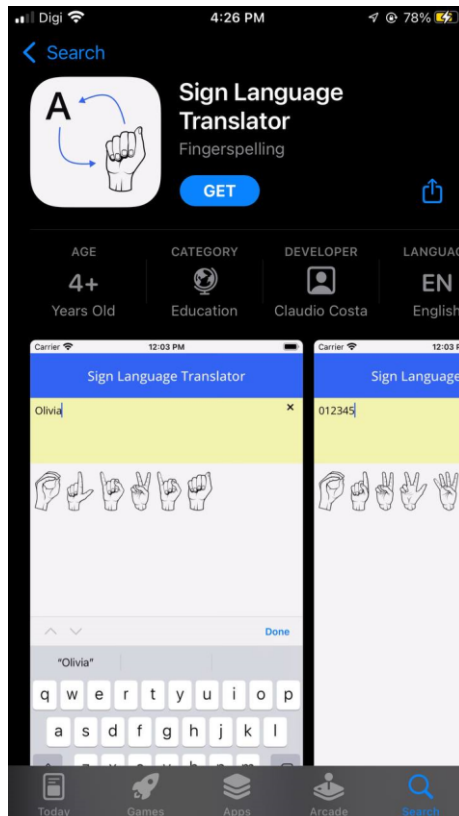
- ✓ New algorithm to aid in the communication between hearing-impaired people with hearing people

Commercial Value



No Competitors in the Market

There are **no similar products** in the market. Most of the product in the market are more on **translating text into animated sign language** rather than translating sign language into text.



Commercial Value



No Competitors in the Market

There are no similar products in the market. Most of the product in the market are more on translating text into sign language rather than translating sign language into text.



Increase the Culture of Humanistic Care in Companies

The sign language recognition can help to increase the awareness of more companies to hire hearing-impaired people and help to increase the job equal opportunity of hearing-impaired people.



Affordable Price

The actual product will be affordable since it is a low budget product. The small companies who wish to hire hearing-impaired people will be affordable to purchase the product.

Potential SME for Project Enhancement

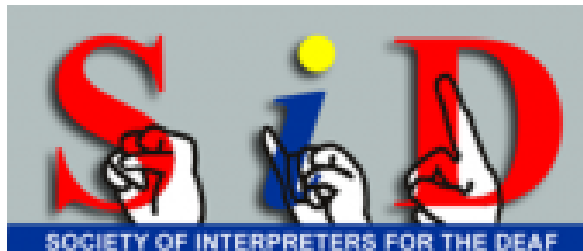
1. Community Service Centre For The Deaf (CSCD)



✓ Providing teaching materials on the Malaysian Sign Language for data collection purposes.

✓ Providing consultation to improve our prototype

2. Society of Interpreters for the Deaf (S.I.D)



✓ Connecting to the hearing-impaired communities to try our prototype and give us feedbacks.

Thank You