SIGN LANGUAGE RECOGNITION PROJECT

PRESENTED BY:

Ahmed Elmehalwy
Omar Elzarka
Mohamed Ghazal
Ahmed Fouad

AI DEPARTMENT

جامعة كفر الشيخ
Kafrelsheikh University

Introduction

Our project is an innovative sign language product designed to bridge communication gaps and enhance accessibility for the deaf and hard of hearing community!

Problems

01 Miscommunication

02 Translator reliance.

03 Collaboration barriers

Analysis

Projected number of people with disabling hearing loss worldwide
**in millions*

our goal

Offering real-time sign language translation and making it accessible worldwide at an affordable cost

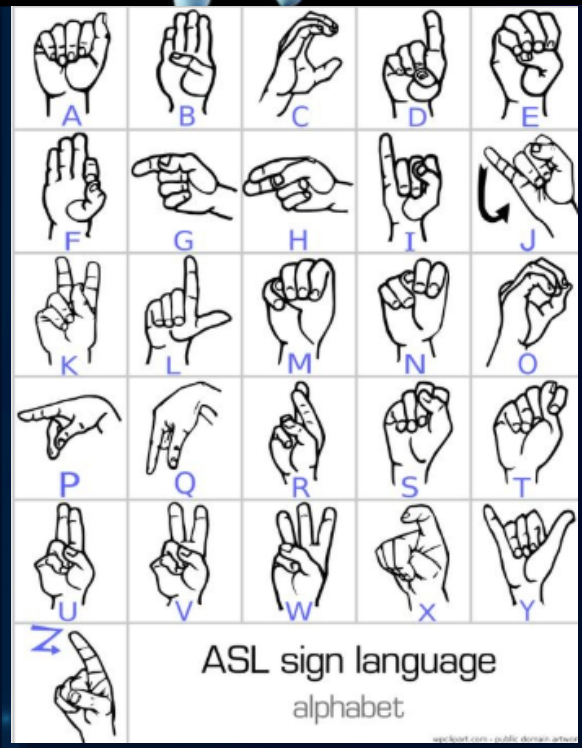
Steps We Followed

1 - Data Collection
Captured hand landmark data using **MediaPipe**.

2 - Feature Extraction
Used 21 key points as input features.

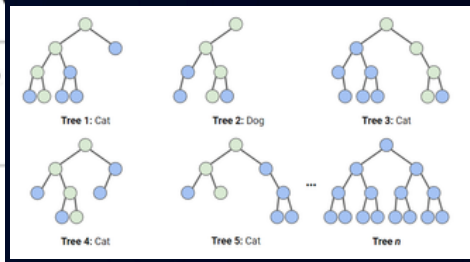
2 - Model Training
Applied Random Forest Boosting for classification.

4 - Real-Time Testing
Tracked hand movements and recognized signs.



Model

Random Forrest Boosting Technique



We used hand landmarks as features, detecting and tracking 21 key points like fingertips, knuckles, and the palm. This enables real-time hand movement tracking.

Methods

Python
Open Cv
Numpy
scikit learn
MediaPipe