Project Title: SignSense: Filipino Sign Language (FSL) Detector

Description:

SignSense is a system designed to detect **Filipino Sign Language (FSL)** using Python and Machine Learning, specifically Object Detection and SciKit. This project aims to bridge the communication gap between hearing and deaf communities, making everyday interactions more accessible for the deaf and mute. By translating FSL gestures into text or speech in real-time, SignSense will promote inclusivity and facilitate communication in public spaces, school and work places, and beyond.

Additionally, **SignSense** addresses the unique challenges of Filipino Sign Language, which is distinct from other sign languages. This makes it crucial to develop AI that specifically caters to FSL, as existing solutions often lack coverage for its specific gestures and expressions. The project will focus on recognizing Filipino Sign Language, including special characters like "*enye*" (ñ) and "ng", as well as basic Filipino phrases like "*Kumusta ka?", "Salamat",* etc. This can be a foundation for paving the way for future advancements in assistive technology for the deaf and mute community.

Rationale:

A report released in 2020 by the University of Santo Tomas (UST) Faculty of Medicine and Surgery, 15% of Filipinos experience moderate or worse hearing loss. Furthermore, not so many people know how to speak FSL, despite having a law that was implemented to improve the PWD community's access to information, not so many people know how to speak the language (The Flame, 2023). Having a platform like SignSense could significantly help bridge this communication gap by providing a solution that enables real-time FSL detection.

Moreover, from the article by Garcellano (2023), there was an exchange discussion where deaf participants said that they are having a hard time in communicating with others. This highlights their daily struggles and the uncertainties that accompany interactions. Awareness alone is not enough, what they need is greater accessibility that breaks down barriers so that they can be a part of an inclusive environment where they can engage confidently and meaningfully.

Objectives:

Given the rationale above, SignSense has the following objectives:

- **Develop a real-time sign language recognition** system capable of detecting and translating FSL gestures.
- **Promote Accessibility and Inclusivity** by creating a safe and supportive communication environment in different settings.

- **Develop a user-friendly interface** that can be accessed in multiple platforms, such as mobile and desktop.

REFERENCES

Garcellano, L. (2023, November 12). The deaf community fights for inclusion and empowerment. VeraFiles. https://verafiles.org/articles/the-deaf-community-fights-for-inclusion-and-empowerment

The Flame. (2023, November 9). PWDs struggle to communicate, find inclusive spaces despite the enacment of sign language law. The Flame. https://abtheflame.net/issues/2023/11/pwds-struggle-to-communicate-find-inclusive-spaces-despite-the-enacment-of-sign-language-law/