

Gesture Recognition System for Sinhala Sign Language using Machine Learning

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Abstract

According to the World Health Organization, approximately 9% of the Sri Lankan population has the disability of hearing loss. Sri Lanka Sign Language (SSL) is mainly based on BSL (British Sign Language). However, SSL has now been extended to include many different and unique signs.

Since the Sinhala sign language only used in Sri Lanka, the main reason for communication challenge between mute and non-mute people is, lack of the Sinhala sign language interpreters. Most deaf and mute people try to understand non-mute people by reading their lips. But when it comes to understanding the mute person's message without knowing the sign language, it is a huge challenge. However, there are several methods to overcome this barrier. With the development of the technology, technology based sign language interpreters help a lot to translate between mute and non-mute persons.

But there are various issues with the technology-based interpreters. For example, most technology-based interpreters use hardware components to identify the signs. Also with the systems which don't use hardware components has issues with the accuracy of identifying the correct sign.

After considering all the conditions and situations, proposed a project for implementing a system that allows video interpreting for Sinhala sign language. The main goal of the project is to implement a Sinhala sign language video interpreter using machine learning techniques with the aim of identifying hand gestures accurately. For the implementation, python and flutter chose as main technologies.

Keywords: Sinhala Sign Language, CNN, Video Capture, Gesture Recognition, Machine Learning