

Sign Gestures to Sinhala Language

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Declaration

I declare that no portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institution of learning. Further, all the work in this dissertation is entirely my own, unless referenced in the text as a specified source and included in the bibliography.

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Abstract

This research is based on the Sign language. However, there is a communication problem between deaf and normal persons unless there's no translator accessible.

This project tries to find out what are the situations in society that the disable person faces any difficulties. As an example, if he goes to a reception of a place, there are set of frequently used signs to communicate. So this project focuses on a specific situation and tries to identify what are the common symbols which need to be used by the disabled person. Since Sri Lankan sign language contains more than 2000 sign based words, in the initial step, this project tries to identify frequently used set of words needed by disabled people more often.

As the initial step of the proposed system, it needs to track the gestures of the disables person. Proposed system use to hardware device for Microsoft Kinect embedded camera. This will capture the video frames and track the hand gesture to generate the sign character. Tracked information will be sent to the gesture dictionary which is trained for range of hand gestures formerly. So gesture information input should match with dictionary information and identify the most matched word related with the gesture. Finally normal person will see the Sinhalese word related with the sign, sent by disabled person.

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List of Abbreviations

DTW –Dynamic Time warping

NN – Nearest Neighbor

HMM – Hidden Markov model

IR – Infrared

SDK – Software Development KIT

API – Application Program Interface

SLT – Sign Language Translation

BSL - British Sign Language