

ABSTRACT

Sign language is a form of communication that involves a combination of hand movements, facial expressions, and body movements to convey a word or a set of words. However, this language is generally not understood by the majority of people. This problem can be overcome by building a real-time sign language detection system. This research aims to contribute to solving this problem through the implementation of the SIBI alphabet detection system. The system is designed to accurately detect 26 SIBI alphabet gestures that can be generated from the right and left hands using Mediapipe Hands technology. The algorithm used to classify this SIBI alphabet is Support Vector Machine (SVM) because of its superiority with Mediapipe Hands in training data. The training data of this study showed competitive accuracy with previous research at 98.23%, thus proving its superiority. The results were then compiled, implemented, and tested in real-time on a built prototype application. The parameters tested were the detection accuracy of each alphabet gesture up to 1 meter and the testing of related gesture detection in various positions up to 2 meters. The detection test results show that the system can detect all alphabets well with an accuracy of 83.23% for the right hand and 85.34% for the left hand. The detection results in various positions for related gestures only yielded results of 66.66% because there are certain positions that cannot be detected by the system due to lighting factors.

Keywords: *mediapipe-hands, realtime, sign language, SIBI, SVM*