

ABSTRACT

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Android Application for *Machine Learning*-Based Sign Language Detection with *Rapid Application Development* Method

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(xii + 90 + Appendix)

Communication is an important aspect of human life, but deaf people often have difficulty communicating verbally. They generally use sign language as their primary means of communication, which is visual and differs from country to country. In Indonesia, there are two types of sign language: the Indonesia Sign Language Sistem (SIBI) and the Indonesia Sign Language (BISINDO), with SIBI being similar to the *American Sign Language* (ASL) as a common sistem. This research aims to develop an Android application for *Machine Learning*-based sign language detection, with a focus on SIBI. The app uses TensorFlow for data training and the *Kamera X* library for *real-time* sign language gesture recognition. The *Deep Learning* method was applied to detect sign language alphabet letters from a dataset of 500 images stored in Googleapis *Storage* and *Mediapipe* models. The purpose of the research is to create an application that can recognize and translate sign language into text or voice, as well as integrate gesture recognition algorithms with the *Rapid Application Development* (RAD) method. The test results show that the app works well in detecting and translating gestures, storing gestures for 2 seconds, and handling *Gallery* features and *Kamera switches* with satisfactory accuracy and reliability.

Bibliography (2019 – 2024)