

ABSTRACT

This research presents the development of an Android application named DeteksiSholat, designed to detect the main movements in Islamic prayer (sholat), namely rukuk (bowing), sujud (prostration), and standing up from sujud, as well as to automatically count the number of rakaat based on the correct sequence of movements. The system utilizes a YOLOv5 deep learning model that has been trained and converted into TensorFlow Lite format to run efficiently on mobile devices. Detection is performed in real-time using the front camera, with bounding boxes and labels displayed on the screen. The application also offers a selection of obligatory prayer types (Subuh, Dzuhur, Ashar, Maghrib, and Isya) to automatically adjust the required number of rakaat. Based on evaluation using a confusion matrix, the model achieved an overall detection accuracy of 82.20%, with individual accuracies of 73.81% for rukuk, 87.04% for standing from sujud, and 86.36% for sujud. These results indicate that the system is capable of recognizing prayer movements with reasonable accuracy and can assist users in performing prayers in a more structured manner. This application is expected to serve as an intelligent and adaptive tool for both learning and supporting Islamic worship.

Keywords: Sholat Detection, YOLOv5, Deep Learning, TensorFlow Lite, Android, Automatic Rakaat Counter.