ABSTRACT

The problem of resource efficiency is the main topic that arises as a result of the application of a paper-based presence system, in Penguatan Pendidikan Karakter (PPK) activities at SMA Negeri 1 Baleendah. Under ideal conditions, the existing presence system requires 336 pieces of paper per month, 25 officers per day, and takes days to complete the recapitulation of presence data per month. Face recognition implementation in presence systems using the Convolutional Neural Network (CNN) algorithm can have a significant impact on reducing the amount of paper used, reducing the need for human resources, and speeding up the process of writing and recapitulating presence data per month. This study compares two model architectures with different numbers of filters on the convolution layer, namely model 1 and model 2. The model with the best model accuracy performance will be applied to the face recognition presence system. The best model result from this study belongs to model 2, with 97% and a live-test accuracy of 100%. By applying the model to the presence system that has tested on March 1, 2, and 8, 2023, paper usage can be reduced by 83.33%, the number of human resource needs can be reduced by 63.63%, and the data recapitulation process in one month can be completed in 1.85 seconds. In addition, the attendance recording process can be done in under 1 second per person. So, it can be applied to a real-time system.

Keywords— Presence System, Face Recognition, Convolutional Neural Network