

## ABSTRACT

Attendance is an important activity and cannot be separated from a teaching and learning activity to calculate and see student attendance. Attendance systems that are carried out manually such as student signatures on paper can cause opportunities for fraud and require a long time in processing data for the calculation of total attendance at the end of time. Meanwhile, the attendance system that is carried out digitally using RFID (*Radio Frequency Identification*) also still has many shortcomings and opportunities for cheating in its attendance. To deal with this, a attendance system for facial recognition is needed by utilizing *Image Processing* in the hope of reducing fraud and *human error*.

In this Final Project, research on the automatic attendance system is carried out through facial recognition identification (*face recognition*) using *a webcam* as a system input, then the resulting image capture results from each image will be processed with the LBPH (*Local Binary Pattern Histogram*) method and the KNN (*K-Nearest Neighbor*) method and the help of *OpenCV* library-based *Python* software.

The research in this Final Project obtained an average accuracy value in facial recognition using LBPH (Local Binary Pattern Histogram) of 88%, with an average FAR value of 8% and an average FRR value of 3%. For the classification of KNN (K-Nearest Neighbor) using four distance variations, namely Euclidean, Manhattan, Cosine and Correlation Distance, the highest average accuracy at the time of  $k=1$  was 98.9% with an average computational time of 144 ms. So that the system can be applied in real-time conditions by having a high percentage of accuracy.

**Keyword:** *Attendance, Face Recognition, Local Binary Pattern Histogram (LBPH), K-Nearest-Neighbor (KNN).*