



## ABSTRACT

Face recognition has been developed and applied to various systems recently. It becomes the most popular biometric-based authentication and security systems in the past decades. It is more secure, robust, reliable and user-friendly than conventional methods such as token, and personal identification number or FingerPrint. Technically, it remains challenging and attracts researchers until present days. The accuracy of face recognition suffers from sensitivity caused by various factors such as direction, position, quality of face and distortion.

Attendance of students in a large classroom is hard to be handled by the traditional system, as it is time-consuming and has a high probability of error during the process of inputting data into the computer. In this research is proposed automated attendance marking system using face recognition technique. The system deployed Haar cascade to find the positive and negative of the face and eigenface algorithm for face recognition by using python programming and OpenCV library. The proposed method using PCA to resolve the problems such as lightning of the images, noise from the camera, and the direction of the student face. In addition, we have conducted the Euclidian distance to verify the distance between eyes that we can get high accuracy to reject or accept face. The attendance of the student was updated to the Excel sheet after student's face has been recognized.

To evaluate the new proposed system, two devices have conducted to compare the accuracy of our system. Both of the device given a good result that we can accept the new system design and fix the unknown recognition in OpenCV. The computational time is 3.1% faster than the previous system. From the result, we can conclude the new system design is high accuracy and easier to implemented than the old conceptual model of attendance marking system.

Keywords: Face recognition, K-Nearest Neighbor, Euclidian distance, Attendance Management System, Attendance Marking System.



## ABSTRACT

Face recognition has been developed and applied to various systems recently. It becomes the most popular biometric-based authentication and security systems in the past decades. It is more secure, robust, reliable and user-friendly than conventional methods such as token, and personal identification number or FingerPrint. Technically, it remains challenging and attracts researchers until present days. The accuracy of face recognition suffers from sensitivity caused by various factors such as direction, position, quality of face and distortion.

Attendance of students in a large classroom is hard to be handled by the traditional system, as it is time-consuming and has a high probability of error during the process of inputting data into the computer. In this research is proposed automated attendance marking system using face recognition technique. The system deployed Haar cascade to find the positive and negative of the face and eigenface algorithm for face recognition by using python programming and OpenCV library. The proposed method using PCA to resolve the problems such as lightning of the images, noise from the camera, and the direction of the student face. In addition, we have conducted the Euclidian distance to verify the distance between eyes that we can get high accuracy to reject or accept face. The attendance of the student was updated to the Excel sheet after student's face has been recognized.

To evaluate the new proposed system, two devices have conducted to compare the accuracy of our system. Both of the device given a good result that we can accept the new system design and fix the unknown recognition in OpenCV. The computational time is 3.1% faster than the previous system. From the result, we can conclude the new system design is high accuracy and easier to implemented than the old conceptual model of attendance marking system.

Keywords: Face recognition, K-Nearest Neighbor, Euclidian distance, Attendance Management System, Attendance Marking System.