ABSTRACT

Attendance process is a crucial aspect for students in the realm of academia. However, the recapitulation methods employed by some educational institutions still involve manual procedures such as signatures on paper or barcode scanning. This approach is deemed ineffective due to the potential for students to engage in dishonest practices. Hence, a presence system utilizing face recognition technology can be implemented to enhance the efficacy of recapitulation. Addressing this issue, this research emerges as a solution. This study utilizes the Haar Cascade classification method to record student attendance through a Biometric system. The facial recognition attendance system is designed using the Haar Cascade Classifier method based on Open CV, incorporating Local Binary Patterns Histograms (LBPH), and Artificial Neural Networks (ANN) for student data training. Research findings demonstrate that the system can identify student faces within a range of 20 cm to 40 cm. Under optimal lighting conditions (268 lux), the system achieves an average accuracy of approximately 93%, even when faces undergo rotation and accessory usage. Despite lower light conditions (86 lux), accuracy remains notably high at around 90%. However, at distances of 60-100 cm, the attendance system encounters challenges in recognizing student faces, both in well-lit and dimly-lit environments. Despite conducting tests involving face rotation and accessory utilization, these challenges have not been fully overcome. Collectively, this research presents a promising solution to address the constraints in student attendance systems by integrating facial recognition technology. Consequently, it is anticipated that this system can serve as a positive step toward more accurate and efficient attendance management.

Keywords: Attendance, Biometric, Haar Cascade, LBPH, ANN