

# Review Paper on Attendance Application using QR Code, Face Recognition and Location Tracking

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**Abstract:** Attendance tracking is a critical component of academic success. Studies have shown that students who consistently attend school or college are more likely to succeed academically. Various automated attendance systems utilizing biometric recognition, barcode, and near field communication mobile devices have been proposed. However, existing systems that utilize HPB and KNN algorithms have been found to be inefficient in processing time, low in accuracy, and costly to install. To address these issues, we propose an Android-based attendance system that utilizes face recognition and location tracking. Teachers will display a QR code containing course information, and attendance will only be marked after verifying the student's face and confirming their presence within the teacher's location radius. Our system will use Haar cascade and Siamese Neural Network models, with model retraining to ensure that our model stays up-to-date with new registrations. The proposed system is expected to improve performance, automate processes, and reduce human errors.

**Keywords:** Attendance, automated attendance system, biometric recognition, barcode, Android, face recognition, location tracking, QR code, Haar cascade, Siamese Neural Network, model retraining, performance, automation, human errors.

## REFERENCES

- [1]. Salac, Djoanna Marie. (2020). PRESENT: An Android-Based Class Attendance Monitoring System Using Face Recognition Technology.
- [2]. M. Khan, S. Chakraborty, R. Astya and S. Khepra, "Face Detection and Recognition Using OpenCV," 2019 International Conference on Computing, Communication, and Intelligent Systems (ICCCIS), 2019, pp. 116-119, doi: 10.1109/ICCCIS48478.2019.8974493.
- [3]. W. Deng, X. Zhang and Z. Jiang, "A Mobile Application of Face Recognition Based on Android Platform," 2020 16th International Conference on Computational Intelligence and Security (CIS), 2020, pp. 288-292, doi: 10.1109/CIS52066.2020.00068.
- [4]. Bah, Serign& Ming, Fang. (2019). An improved face recognition algorithm and its application in attendance management system. Array. 5. 100014. 10.1016/j.array.2019.100014.
- [5]. S. Dev and T. Patnaik, "Student Attendance System using Face Recognition," 2020 International Conference on Smart Electronics and Communication (ICOSEC), 2020, pp. 90-96, doi: 10.1109/ICOSEC49089.2020.9215441.
- [6]. Ćuk, Aleksa&Miljković, Branivoj&Todorovic, Milos &Ivanović, Aleksandar &Zivkovic, Miodrag. (2019). Application for Student Attendance Based on Face Recognition. 459-464. 10.15308/Sinteza-2019-459-464.
- [7]. Sunaryono, Dwi&Siswantoro, Joko &Anggoro, Radityo. (2021). An Android Based Course Attendance System Using Face Recognition. Journal of King Saud University - Computer and Information Sciences. 33. 304-312. 10.1016/j.jksuci.2019.01.006.
- [8]. C. Song and S. Ji, "Face Recognition Method Based on Siamese Networks Under Non-Restricted Conditions," in IEEE Access, vol. 10, pp. 40432-40444, 2022, doi: 10.1109/ACCESS.2022.3167143.

- [9]. D. TyasPurwaHapsari, C. GustiBerliana, P. Winda and M. AriefSoeleman, "Face Detection Using Haar Cascade in Difference Illumination," 2018 International Seminar on Application for Technology of Information and Communication, 2018, pp. 555-559, doi: 10.1109/ISEMANTIC.2018.8549752.