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WiFi Enabled in Campus Surveillance System Using HAAR Cascade Algorithm

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Abstract: ***This paper focuses on the development of Wifi Enabled in Campus Surveillance System Using Haar Cascade Algorithm. The system captures and stores images of individuals accessing a building and matches them against a pre-existing database of authorized personnel. If a match is found, the system logs the entry time. Similarly, during exit, the same process will be followed. Unlike access cards or passwords, which can be easily stolen or shared, a person's face cannot be replicated or forged, making it a more reliable means of identification and identify any security breaches. With this system, authorized personnel can simply walk into the building, and their entry is automatically recorded.***
Overall, This system utilizing face recognition technology is a powerful security solution that offers enhanced security, improved efficiency, and real-time monitoring capabilities. Its ability to authenticate individuals based on their facial features is making it an attractive option for organizationslooking to improve their security.
Index Terms: Face Detection, Face recognition, Machine Learning, Haar Cascade, Surveillance,Wifi

I. INTRODUCTION

WIfi Enabled in Campus Surveillamce System using Haar Cascade Algorithm is a software-based system that utilizes face recognition to identify individuals entering and exiting a restricted area. The system works by capturing a digital image of a person's face and comparing it to a database of stored images to determineif there is a match.
Integration with existing security systems: The face recognition system would need to be integrated with existing security systems, such as alarms and access control systems.
Once implemented, the system will provide improved security, increased efficiency, and accurate record-keeping for the organization.

II. RELATED WORK

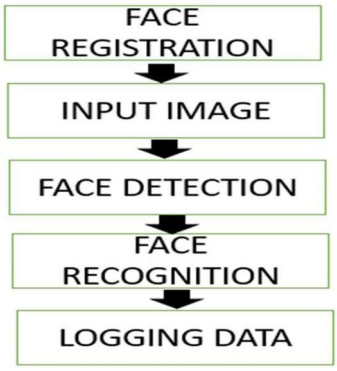
[1] Development of an Automatic & Manual Class Attendance System using Haar Cascade-based Facial Recognition, Mrs. B Rajeswari, SK. Hasan Ahammad, A. Nikhil Kumar, G. Praveen Kumar, P. Murali Mahesh, 2023, Attendance maintenance is a significant function in all the institutions to monitor the performance of the students. Traditional call approach turns out to be a statute of limitations because it is very difficult to call names and maintain your record, especially when the ratio of students is high. Every organization has its own arrangements for student attendance. evolving technology has brought many improvements to a changing world.[2] Attendance System using Face Recognition, Mitesh Chauhan, Mandar Dhakate, Jaiveek Baria, Prof. Nileema Pathak 2022, attendance systems using RFID, fingerprint but these systems cost a lot and proxy attendance canbe marked using someone's RFID card or thumbprint. Face recognition has played a very important part in machine learning and authentication-related activities which uses real-time webcam feed to detect and recognize the face of a human based on various features like nose, eyes, lips, face structures, etc.[3] Automatic Attendance Scheme using Face Recognition System, Dr. M. Navaneetha Krishnan M.E., Ph.D., Mr. M. Gowtham, Mr. U. Maria Livin,2021,They use the concept of face recognition to implement a system that marks the attendance of a particular person by detecting and recognizing the face.[4] Face Recognition for Student Attendance using Haar Cascades Algorithm, Ibrahim Mohamed Ahmed Ali, Abdel-Badeeh M. Salem 2019,Biometric recognition involves matching, within a tolerance of approximation of observed biometric traits against previously collected data for a subject. Approximate matching is required due to the variations in biological attributes and behaviours both within and between persons. [5] Face Detection and Recognition Using Machine Learning Algorithm ,Raktim Ranjan ,NathKaberi Kakoty,Dibya Jyoti Bora, December 2020. [6] Face Recognition based Attendance Management System, Smitha, Pavithra S Hegde, Afshin May 2020. [7] Attendance system using cascade classifier, Abdul Azeem, Ankit Verma, Akansha Bhatnagar, Harsh Choudhary, Ms. Kanchan Singh, Assistant Professor 2020.[8] Attendance Management Using Facial Recognition, Rajath S Bharadwaj, Tejus S Rao, Vinay T R 2019.[9] Face Recognition for Student Attendance using Haar Cascades Algorithm Ibrahim Mohamed Ahmed Ali, Abdel-Badeeh

M. Salem 2019. [10] Face Detection and Recognition Using Machine Learning Algorithm Raktim Ranjan ,NathKaberi Kakoty,Dibya Jyoti Bora, December 2020.

III. METHODOLOGY

The project involves designing and developing a Wifi Enabled in Campus Surveillance System Using Haar Cascade Algorithm using face recognition technology. The system is developed using Python programming language and OpenCV library for image processing. The system has the following components:

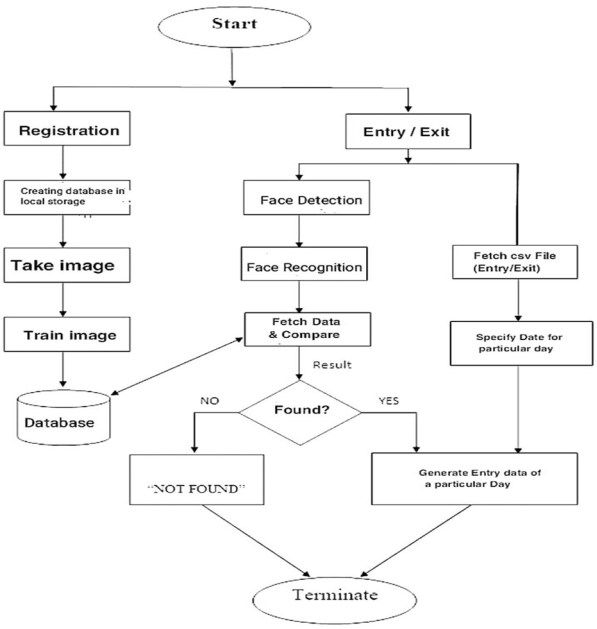
1) Face registration: Initially individual faces have to be registered for sufficient data collection for system.
2) Face Detection: The system will capture an image of a person's face and detect the location of their facial features, such as eyes, nose, and mouth.
3) Face Recognition: The system will compare the detected face with a database of stored faces to identify the person.
4) Logging: The system will log the entry and exit times of individuals, along with their identity.



BENEFITS

a) Unlike access cards or passwords, which can be easily stolen or shared, a person's face cannot be replicated or forged, making it a more reliable means of identification and identify any security breaches.
b) This system is more time efficient way of entry process. With this system, authorized personnel can simply walk into the building, and their entry is automatically recorded.

IV. ARCHITECTURE



V. PROPOSED ALGORITHM

1) Capture the person face using Face recognition.
2) Apply face detection algorithm to detect face from theregistered database.
3) Convert to grey scale and proceed for data processing
4) if person face in database then store in Csv file as well as render in webpage else return end if

VI. EXPERIMENTAL RESULT

The Wifi Enabled In Campus Surveillance System using Haar Cascade Algorithm technology was successfully designed and developed. The system was tested using a database of stored faces, and the results showed that the system was accurate in identifying individuals. The system provides an efficient and secure way to manage the flow of people entering and exiting a building. The system was also able to log the entry and exit times of individuals, along with their identity.

VII. CONCLUSION

The Wifi Enabled In Campus Surveillance System using Haar Cascade Algorithm using face recognition provides an efficient and secure way to manage the flow of people entering and exiting a building. The system can accurately identify individuals. The system can also log the entry and exit times of individuals, providing an accurate record of who entered and exited the building and when. This system can save time and costs associatedwith manual processes, and it can improve the security of the building.

VIII. FUTURE RESEARCH WORK

1) Our future enhancement includes to provide Secured access control for security propose on certain unauthorized cabins using CCTV
2) The system can be further improved by incorporatingadditional features, such as real-time notifications to security personnel or administrators in case of any unauthorized access attempts

IX. ACKNOWLEDGMENT

We owe our deep gratitude to our research guide Ms.J.Joncy who took keen interest on our research paper and guided us all along, till the completion of our research work by providing all the necessary information for developing a good system. We heartily thank him for his guidance and suggestions during this project paper. And also like to thank the Loyola Institute Of Technology for giving us this opportunity to carry out this research paper.

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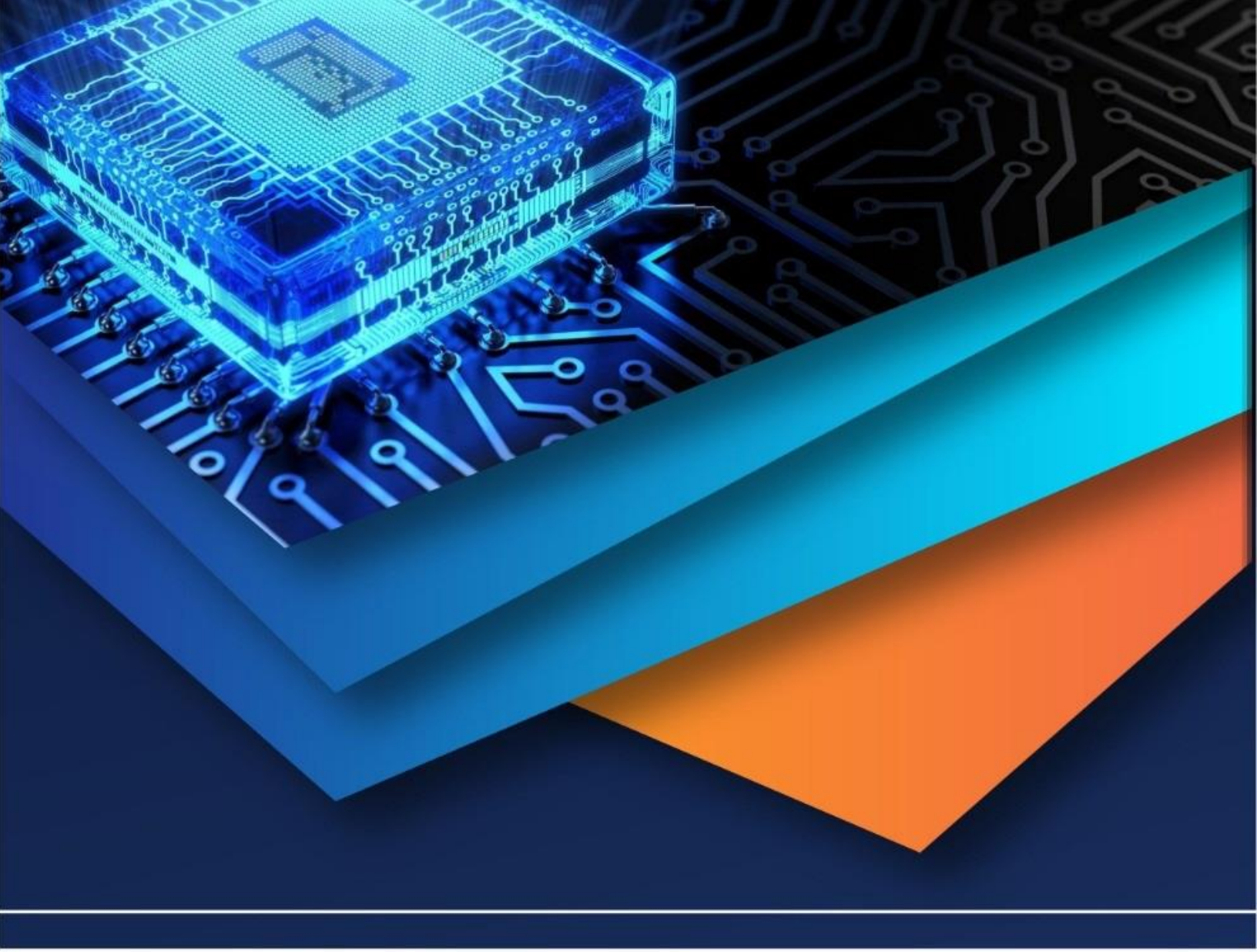

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