International Journal of Innovative Research in Engineering
Volume 3, Issue 6 (November-December 2022), PP: 89-91.
www.theijire.com
ISSN No: 2582-8746

A Multi featured Monitoring Spy System

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How to cite this paper: Aaisha Khatoon[1], Amit Raj[2], Deepa Gupta[3], Himanshi Shahi[4], Anshika Singh[5], "A Multi featured Monitoring Spy System", IJIRE-V3I06-89-91.

Abstract: *The most important security requirements of offices, schools, colleges, and businesses require biometric identification with his face. This paper aims to identify a person through face recognition and they give all the details about the person. Face recognition are most useful for security purpose and multidimensional problem, Main Principals Components Analysis based on open cv, Python, is used for face matching decisions. It is a very important part of face verification. The system which converts facial images to feature characteristics of initial training database images is designed in Open CV in python. Facial features are extracted from the face. Eigenvalues are calculated and represented as an Eigenvector. Using the Euclidian distance method, an unknown face image and a database image are compared. The recognized facial image has a minimum Euclidian distance from the database images. When the face is recognized by the Face detection system, open CV , python, or MATLAB Code it will send an SMS to the authorized person using the GSM module and an alarm will be run. Security system using MATLAB and Embedded system design is cost-effective, reliable, and highly accurate, when the face is matched then automatically opens the system, door, and office gate.*

Key Word*: Face Recognitions, Open CV, Database Automatic System, AMS, Histogram Oriented Gradient.*

I. INTRODUCTION

Face Identification: We can be sure that this feature is getting more and more common in our smartphones. We discover it not only in home security cameras but also on our phones and in the automated airport check-in systems. Facial recognition technology is already raising serious concerns about surveillance, privacy, and civil liberties in general as law enforcement invests more in it. Additionally, proposals for governmental regulation are emerging.

These gadgets are available to buy and install in your home, despite the fact that the development of facial recognition technology and video monitoring both present significant ethical issues that you may answer differently from your neighbor . So let's examine the facial recognition cameras we've lately examined to discover which ones are the best and to aid you in deciding whether or not one would be useful for you.

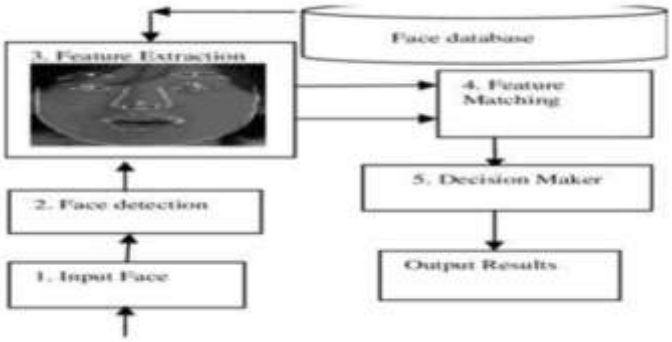
Depending on a number of variables, such as lighting, changing haircuts, and wearing glasses one day but not the next, facial recognition software can be hit or miss. However, as artificial intelligence develops daily, facial recognition technology will get more accurate the more face data that is input into the system.

However, using facial recognition technology adds a new dimension to the testing process. You can construct profiles of certain persons when setting up a camera with facial recognition technology by either taking their photo in real-time and adding it or by utilizing, an image you already have of them. The face recognition camera should therefore be able to separate human faces from all other types of motion activity and identify the people in your database of well-known faces.

If everything is set up correctly, you will receive a notification stating that the camera caught "Chris," "Molly," or another person from your database.

You might utilize, this feature in a variety of situations, but some frequent ones include receiving an alert when your children return home from school, or if a dog walker or family caretaker arrives. When you're expecting someone to arrive and want an automated alert to let you know they've arrived (especially when you're not home to welcome them), it gives you peace of mind.

However, since the camera is essentially telling which faces it recognises and which it doesn't, it also helps in security situations. Instead of having to sift through dozens of generic motion alerts to find the activity, you can more quickly send the information to police officers in the event of an actual break-in or theft if your camera alerts you that it saw someone on your front porch or walking into your house but you don't recognize them.



Fig[1.1] : Face Detection process

II.LITERATURE REVIEW

The most crucial security needs for workplaces, educational institutions, and commercial enterprises call for biometric identification using his face. In this study, a person's identity is determined by face recognition, and all relevant information is provided. Face recognition is particularly helpful for security purposes and for solving complex problems. Python analysis using open cv is utilized, to make decisions about face matching. The system that translates facial photos to feature characteristics of the first training database images is created in Open cv in Python, and it is a crucial component of face verification. Face characteristics are taken from the face. Eigen values are calculated and visualized using an Eigenvector. A database image and an unknown face image are compared using the Euclidian distance approach. A minimum Euclidian distance separates the identified facial image from the database photographs. The Face detection system, open cv, python, or MATLAB code will send an SMS to the authorized, person using the GSM module and activate an alert when the face is identified. A security system designed with MATLAB and an embedded system is affordable, trustworthy, and extremely accurate. The system, door, and office gate open automatically when the faces match.

"Face recognition based attendance marking system," K.SenthamilSelvi et al . We projected the presence administration system based on face detection in the classroom lecture in this projected work, sort to locate the attendance, positions, and face descriptions in the classroom lecture. By using film and ongoing inspection, the system calculates each student's presence and whereabouts. The outcome of our initial experiment demonstrates that regular inspection has enhanced performance for attendance estimation. The system created by Mr. C.S. Patil and colleagues is called "Student Attendance Recording System Using Face Recognition with GSM. The correct and effective approach of keeping track of attendance in an office setting that can replace the previous manual procedures. This method is workable, trustworthy, and sufficiently secure. No specialized hardware is required for implementing the system in an office. It can be created using a computer and a camera. The use of face validation in the student footage system was considered and put into practice . It was examined using various facial photos. This concept is effective with various panels. Every window is independently and equally active. It is vital to significantly increase the detection score if appreciation is to function as a legitimate biometric for validation. This might be achieved in controlled circumstances where lighting and position can be managed Future advancements are more likely to depend on completely utilizing, 3D face models and making better use of video expertise. Mohammed Fuzail and others . "Face Detection System for Class Student Attendance." Any LMS must have a way for regularly monitoring attendance. The majority of the current systems are time-consuming and need the instructor or pupils to complete semi-manual tasks. By including face detection into the process, this approach seeks to clarify the problems. There is still significant space for improvement even though this approach cannot yet identify every student in the class. Since we use a modular method, we can improve each module until we obtain a detection and identification rate that is acceptable.

A method to protect consumers' privacy is another concern that must be taken into account in the potential. If a depiction that you like is saved on servers, it must be hard for someone to use that image. Mathana Gopala and others, p. 4 "Face Recognition-Based Automated Attendance System Implementation." The goal of an automated presence system is to reduce errors that can occur with a traditional (manual) attendance taking system.

III.PROPOSED METHOD

PCA(Principle Component Analysis) (Principle Component Analysis). In the year 1901, Karl Pearson created PCA. For creating predictive models and exploratory data analysis, it is now mostly utilized, as a tool (e.g face recognition). Of the real eigenvector-based multivariate analytics, PCA is the most straightforward. Its operation may frequently be explained by the fact that it reveals the internal structure of the data in a way that best accounts for the variation (main features/ directions) in the data. If a series of photographs or any multivariate dataset is represented as a set of coordinates in a high-dimensional data space (1 axis per variable). When viewed from its (in some ways) most revealing angle, PCA can then give the user a lower-dimensional image, or "shadow," of this item. A mathematical technique known as Principle Component Analysis (PCA) employs an orthogonal transformation to turn a set of values for potentially correlated facial image values into a set of values for uncorrelated variables known as Eigen faces. The total number of original face photos is never greater than the total number of Eigen faces. Eigen Faces 3.2 Due to its simplicity, speed, and capacity for learning it is a suitable and effective method for face recognition. The collection of Eigen faces is employed in the computer vision challenge of recognizing, human faces. The primary faces or an equivalent are the Eigen faces.

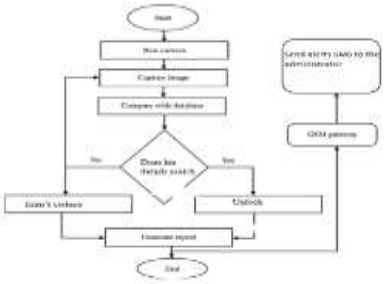


Fig: Proposed ER diagram

IV. CONCLUSION

This method presented an effective and precise way to take attendance automatically in a classroom setting that can take the place of earlier manual methods. This innovative technique is usable, trustworthy, and sufficiently secure. The system can be installed in the classroom without the requirement for specialist hardware. A camera and computer can be used to create it. To enhance the system's performance, it is necessary to utilize some algorithms that can recognize faces accurately. This technology has a variety of uses, including facial recognition, industry, education, and security.

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