**SYNOPSIS**

**Project Title: - Student Attendance System via face recognition**

**ABSTRACT**

We are living in a world where everything is automated and linked online. The internet of things, image processing, and machine learning are evolving day by day. Many systems have been completely changed due to this evolve to achieve more accurate results. The attendance system is a typical example of this transition, starting from the traditional signature on a paper sheet to face recognition.

The main purpose of this project is to build a face recognition-based attendance monitoring system for educational institution to enhance and upgrade the current attendance system into more efficient and effective as compared to before. The current old system has a lot of ambiguity that caused inaccurate and inefficient of attendance taking. Many problems arise when the authority is unable to enforce the regulation that exist in the old system. Thus, by means of technology, this project will resolve the flaws existed in the current system while bringing attendance taking to a whole new level by automating most of the tasks. The technology working behind will be the face recognition system.

The face is one of the easiest ways to distinguish the individual identity of each other. Face recognition is a personal identification system that uses personal characteristics of a person to identify the person's identity. Human face recognition procedure basically consists of two phases, namely face detection, where this process takes place very rapidly in humans, except under conditions where the object is located at a short distance away, the next is the introduction, which recognize a face as individuals. Stage is then replicated and developed as a model for facial image recognition (face recognition) is one of the much-studied biometrics technology and developed by experts.

**Aims and Objectives**

The objective of this project is to develop face recognition based automated faculty attendance system. Expected achievements in order to fulfill the objectives are:

* To detect the face segment from the video frame.
* To extract the useful features from the face detected.
* To classify the features in order to recognize the face detected.
* To record the attendance of the identified faculty.

**Existing system**

To take attendance at College Existing system works like, Lecturer visits class for lecture, takes attendance manually on piece of paper. Lecturer calls student by roll no & particular student responds to his roll call. Lecturer maintains that attendance records of particular class for upto next year. But in this case there are some issues like when lecturer calls student by roll no it is possible that some other student may give attendance of some other students if lecturer doesn’t know students names & roll numbers.

Another issue is that student can attend only some lectures of the day while skipping other lecturers. There is no provision currently to monitor student’s weather they were present whole day or not. As attendance is manual so defiantly human errors will also be there. In some cases lecturers may manipulate attendance as it is totally in their hands so it could affect student’s career. Due to these all issues it is must to replace this manual attendance system. We observed these things so this thought came to our mind like there should be some attendance system which could solve these issues and we developed this proposed system.

**Proposed System**

Our proposed system is a desktop application and we gave it a name Student Attendance System via Face Recognition. This system is meant for used by two persons in college like students and lecturers. Student need to make login and then he will be on student home page where he can View his attendance, his profile, college notice. Lecturer also need to make login and then he will be on admin home page where he can Add New Students details with Face Recording, Update student record, Delete student record, Start Attendance Application for today.

Once Lecturer starts Attendance Application by clicking that button system will start. Now wherever the student comes near the camera he will be recognized by this our proposed Application. Here as student comes in classroom to attend lecture he will be caught and his Attendance In will be recorded for that day Now the most important is that this our proposed application is able monitor student throughout the day. If some student will go out of class before closing time of college, that time will be updated as his Attendance Out time for that day. If he goes out of class and returns before 15 minutes then out time will not be updated. As here camera will recognize face of student so there is no case of putting attendance of other student. As camera and proposed application is monitoring the student and managing their attendance so there is issue of human error. In this way our proposed system works.

**Hardware & Software Requirements**

* HDD: Min. 1GB
* RAM: Min. 2GB
* PROCESSOR: i3
* CAMERA DEVICE: Min. 1
* FRONT END: PYTHON
* BACK END: SQLITE
* IDE: PYTHON IDLE
* OS: WINDOWS 7/8/10

**ADVANTAGES**

1) This our propose system is very useful to take attendance of students.

2) It saves time as compared to traditional attendance systems.

3) It saves cost

4) Physically handicap person can also use

5) No extreme manpower is required

6) It is very easy to handle

**APPLICATIONS**

**School:** This our proposed system is useful to take a attendance of students in schools so as to manage their daily attendance schedule.

**College:** Proposed application is very useful in colleges to take attendance of students so as to manage their schedule.

**CONCLUSION**

In this approach, a face recognition based automated student attendance system is thoroughly described. The proposed approach provides a method to identify the individuals by comparing their input image obtained from recording video frame with respect to train image. This proposed approach able to detect and localize face from an input facial image, which is obtained from the recording video frame. Besides, it provides a method in pre-processing stage to enhance the image contrast and reduce the illumination effect. Extraction of features from the facial image is performed by applying LBP. The algorithm designed LBP able to stabilize the system by giving consistent results. The accuracy of this proposed approach is 100 % for high-quality images, 92.31 % for low-quality images.

As a conclusion for analysis, the extraction of facial feature could be challenging especially in different lighting. In pre-processing stage, Contrast Limited Adaptive Histogram Equalization (CLAHE) able to reduce the illumination effect. CLAHE perform better compared to histogram equalization in terms of contrast improvement.