CHAPTER -5

TECHNICAL PART

AUTOMATED ATTENDANCE SYSTEM THROUGH FACIAL RECOGNITION AND DETECTION IN MACHINE LEARNING

5.1 Concept:

Automated Attendance System has been envisioned for the purpose of reducing the errors that occur in the traditional (manual) attendance taking system. The aim is to automate and make a system that is useful to the organization such as an institute. The efficient and accurate method of attendance in the office environment that can replace the old manual methods. This method is secure enough, reliable and available for use. No need for specialized hardware for installing the system in the office. It can be constructed using a camera (preferably CCTV) and computer.

5.2 Application:

1. **Maintains Overall Records:**
   An automated face recognition attendance system maintains the overall presence record of the students in the institution. Leaves taken by the students, date of absent each data is stored in the system.

2. **Get Rid of Pen & Paper System:**
   The newest technology helps in replacing the older paper register method efficiently. It also saves money that the organization uses to spend on the paper. Face-recognition time attendance system gives better maintenance of data as it supports the electronic medium of data storage. Also the system gives a good impression about the organization in front of the business clients and other concerned people.

3. **Financial Benefits:**
   The face-recognition time attendance system helps in saving time, eliminates the manual mistakes and controls the overall system. Since the face recognition system controls every single event electronically therefore, reduces the possibility of error. The attendance is noted down electronically therefore it saves time of the lecturers which they can use efficiently in lecturing

4. **Easy Integration:**
   Integrated Biometric facial systems are also easy to program into any computer system. Usually they will work with existing software that one has in their place.

5. **High Success Rate:**
   Facial biometrics technology today has a high success rate, especially with the emergence of 3d face recognition technologies. It is extremely difficult to fool the system, so one can feel secure about the system.

6. **Proxy attendance is eliminated:**

Attendance is taken automatically by the camera placed in the classroom therefore there will be no chances of proxy attendances.

7. **Saves Time:**
   In traditional attendance marking system Lecturer calls each student's name with respect to their ids which is a very much time consuming job this system restores the time consumed for calling attendance by automatically marking attendance

8. **Less Mistakes:**
   There will be chances of making mistakes while manually marking attendances by lecturers, while taking attendance automatically there will not be any chances of mistakes since the system is computer based.

9. **Virtual Classroom:**
   Virtual classrooms are the class rooms without the lecturers to teach as students will be learning online. This system is very useful in virtual classrooms where there will be no lecturers to take attendances this system will automatically manage the attendances of the students.

10. **Simple Algorithm & Flowcharts:**
    This system uses a simple algorithm and flowchart which is easy to understand as there are no complicated sections, information flow is simple as there is less hardware's components used therefore each section is clearly understood.

5.3 Overall Description:

In this system we have implemented an attendance system for a lecture, section or laboratory by which lecturer or teaching assistant can record students' attendance. It saves time and effort, especially if it is a lecture with huge number of students. Automated Attendance System has been envisioned for the purpose of reducing the drawbacks in the traditional (manual) system. This attendance system demonstrates the use of image processing techniques in classroom. This system can not only merely help in the attendance system, but also improve the goodwill of an institution.