CHAPTER-2

SYSTEM ANALYSIS

2.1 IDENTIFICATION OF NEED

The conventional method of taking attendance is done manually by the teacher or the administrator which requires considerable amount of time and efforts also involving errors and proxy attendance. As the number of students are increasing day by day, it is a challenging task for universities or colleges to monitor and maintain the record of the students. Automated systems involving use of biometrics like fingerprint and iris recognition are well developed in the recent years however, it is intrusive and cost required for deployment on large scale gets increased substantially. To overcome these issues, biometric feature like facial recognition can be used which involves the phases such as image acquisition, face detection, feature extraction, face classification, face recognition and eventually marking the attendance. The algorithms like Viola-Jones and HOG features along with SVM classifier are used to acquire the desired results. Various real time scenarios need to be considered such as scaling, illumination, occlusions and pose. The problem of redundancy in manual records and keeping attendance is solved by this system.

2.2 PRELIMINARY INVESTIGATION

1. **Extended SRC:Undersampled Face Recognition via Intraclass Variant Dictionary by Weihong Deng, Jiani Hu, and Jun Guo**

   (SRC) is a face recognition breakthrough in recent years which has successfully addressed the recognition problem with sufficient training images of each gallery subject.
   Assuming that the intra class variations of one subject can be approximated by a sparse linear combination of those of other subjects, Extended Sparse Representation-Based Classifier (ESRC) applies an auxiliary intra class variant dictionary to represent the possible variation between the training and testing images. The dictionary atoms typically represent intra class sample differences computed from either the gallery faces themselves or the generic faces that are outside the gallery.

2. **Implementation Of Classroom Attendance System Based On Face Recgnition In Class by Ajinkya Patil, Mrudang Shukla**

   The face is the identity of a person. The methods toexploit this physical feature have seen a great change sincethe advent of image processing techniques. The attendance is taken in every schools, colleges and library. Traditional approach for attendance is professor calls student namerecord attendance. It takes some time to record attendance. For eachlecture

this is wastage of time. To avoid these losses,we are about use automatic process which is based onimage processing. In this model they used face detection face recognition.

It identifies difference between face and non face for better results. The otherstrategy involves face recognition for marking the studentsattendance. The Raspberry pi module is used for facedetection recognition. The camera will be connected to theRaspberry pi module.The student database is collected. Thedatabase includes name of the students, there images rollnumber. This raspberry pi module will be installed at thefront side of class in such a way that we can capture entireclass. This system is convenient to carry out attendance within less time.