**AUTOMATIC STUDENT ATTENDANCE**

**SYSTEM USING FACE RECOGNITION**

1. **STATEMENT OF A PROBLEM**

This paper is about the biometric attendance management. The automatic attendance management will replace the manual method, which takes a lot of time consuming and difficult to maintain. There are many biometric processes , in that face recognition is the best method. In this paper we are going to describe the attendance without human interference. In this method the camera is fixed in the classroom and it will capture the image, the faces are detected and then it is recognized with the database and finally the attendance is marked. If the attendance is marked as absent the message about the student's absent is send to their parents.

**2. SYSTEM ANALYSIS**

**1. Present system:**

In recent times many applications uses biometric verification to authenticate the persons. Finger print, Iris recognition and face recognition are the different biometric verification. Among this, Iris recognition needs proper matching algorithm because capturing the iris and matching itself difficult. As well as, it takes longer time. Next model is the face recognition which involves the matching the face with the database. Here the main problem is memory and time delay involves in storing the database and matching.The traditional method involved old-fashioned punch clock,signature on paper sheets,or some other kind of manual system that requires human oversight. Digital [time and attendance systems](https://www.mitrefinch.ca/product/time-attendance/) have also been used in many countries for a couple of decades, typically with excellent results. Still, there is an ongoing debate whether it is justified to invest in hardware and software necessary for automated accounting of work hours. This system can be effective if they are executed consistently and fairly but systems of this kind are relying on the human factor too much and are particularly poorly suited for large and complex systems

**2.Limitation of present system**

* Manual process
* Time consuming
* More human efforts needed
* Several algorithms were developed to reduce the storage capacity

**3.Proposed system**

Automated Attendance Management System performs the daily activities of attendance marking and analysis with reduced human intervention. The prevalent techniques and methodologies for detecting and recognizing face fail to overcome issues such as scaling, pose, illumination, variations, rotation, and occlusions. The proposed system aims to overcome the pitfalls of the existing systems and provides features such as detection of faces, extraction of the features, detection of extracted features, and analysis of students' attendance. The system integrates techniques such as image contrasts, integral images, color features and cascading classifier for feature detection. The system provides an increased accuracy due to use of a large number of features (Shape, Colour, LBP, wavelet, Auto-Correlation) of the face. Faces are recognized using Euclidean distance and k-nearest neighbor algorithms. Better accuracy is attained in results as the system takes into account the changes that occur in the face over the period of time and employs suitable learning algorithms.

The system is tested for various use cases. We consider a specific area such as classroom attendance for the purpose of testing the accuracy of the system. The metric considered is the percentage of the recognized faces per total number of tested faces of the same person. The system is tested under varying lighting conditions, various facial expressions, presence of partial faces (in densely populated classrooms) and presence or absence of beard and spectacles. An increased accuracy (nearly 100%) is obtained in most of the cases considered

The software program uses Python Language thus, within the system deliver high precision and provide great processing speeds and fully reliable system. The OpenCV library provide a great image processing engine that ensures powerful and precise processing capabilities.

**4. Advantages and Features of Proposed System**

* Detection of unique face image amidst the other natural components such as walls, backgrounds etc.
* Extraction of unique characteristic features of a face useful for face recognition.
* Detection of faces amongst other face characters such as beard, spectacles etc.
* Effective recognition of unique faces in a crowd(individual recognition in crowd).
* Automated update in the database without human intervention.

**3.Feasibility Study**

A feasibility study is an analysis of how successfully a project can be completed, accounting for factors that affect it such as technical, economic, behavioural, operational factors. When a new project is proposed, it normally goes through the feasibility assessment. Feasibility Study is carried out to determine whether the proposed system is possible to develop with available resources & what should be the cost of consideration.

Various types of feasibilities are,

* Technical Feasibility
* Economic Feasibility
* Operational Feasibility

If the proposed system is not feasible to develop, it is rejected at this very step.

**1. Technical Feasibility**

The proposed system uses the language Python. Based on this criteria, we can strongly say that it is technically feasible, since there will not be much difficulty in getting required resources for the development & maintaining system as well. All the resources needed for the development of the software as well as the maintenance of the same is available in the organization. Here we are utilizing the resources which are already available so it’s very well technically feasible that we can implement flood detection system.

**2. Economic Feasibility**

It is found that the benefit from our system would be more than the cost and time involved in its development. In our system the implementation cost over production is economically feasible. Economic analysis is the most frequently used techniques for evaluating the effectiveness of the proposed system more commonly known as cost/benefit analysis the procedure is to determine the benefits and savings that are expected from a proposed system and compare them with costs.

**3. Operational Feasibility**

The proposed system satisfies operational feasibility in the way that the customers needs are satisfied. The system is adaptable to the customers and acceptable to the common people who use this. Operational feasibility assesses the extent to which the required software performs a series of steps to solve business problems and user requirements. This feasibility is dependent on human resources (software development team) and involves visualizing whether the software will operate after it is developed and be operative once it is installed. Operational feasibility also performs the following tasks:

* Determines whether the problems anticipated in user requirements are of high priority
* Determines whether the solution suggested by the software development team is acceptable
* Analyses whether users will adapt to a new software
* Determines whether the organization is satisfied by the alternative solutions proposed by the software development team.