

# **CHAPTER- 2**

## **LITERATURE REVIEW**

## **2.1 Facial recognition based attendance aystem**

**Author :** Khan Suhel , Zakariya Hussain

### **2.1.1 Description**

**Methodology:** [1] Today in most colleges and universities attendance is done manually or by biometric means which takes a considerable amount of time or require a large number of resources. The pen and paper based attendance system required a large amount of human effort and hence resulting in manual errors. The biometric system requires a large amount of capital cost and the considerable amount of operational cost. Authors proposed a fully software based approach using facial recognition base authentication methods to reduce the nuisance of pen and paper based attendance system, proxies, and the high maintenance cost of the biometrics.

### **2.1.2 Pros**

- The system is portable and can be easily installed and used on any mobile phone running Android OS.
- The authentication model proposed in the system eliminates the nuisance of proxies completely by following a pure software approach, which reduces the cost involved with system considerably.
- The complete process of attendance registration takes place in just a few seconds.

### **2.1.3 Cons**

- Too much authentication and verification steps are involved, hereby only technical people can easily use the software.

## **2.2 Student attendance tracker system**

**Author :** Deniz Mertkan Gezgin

### **2.2.1 Description**

**Methodology:** [2] In many colleges teachers used to take attendance manually. Main objective of student attendance tracker System was to add mobility and automation in the existing attendance process. This system helped teachers to take attendance through mobile and also keep in touch with student in some aspect.

This system allowed teachers to take attendance, edit attendance, view student's bunks, send important documents in .pdf format such as exam time table, question bank etc. and also helps teachers to inform students about the events that college will organize. This system gives a prior intimation to student as soon as his/her attendance goes below the specified attendance deadline in the form of an alert.

### **2.2.2 Pros**

- Improve the accuracy.
- Error free attendance manually.

### **2.2.3 Cons**

- Android phone is the major requirement for this software to work .
- The system consists how effectively the student can bunk the lectures, which is demoralizing the student to attend all the lectures.

## **2.3 Fingerprint based student attendance system Using GSM**

**Author :** Pallavi Verma, Namit Gupta

### **2.3.1 Description**

**Methodology:** [3] This paper provided the design of portable fingerprint based student attendance system using GSM. The system includes terminal fingerprint acquisition module and attendance module. It can realize automatically such functions as information acquisition of fingerprint, processing, wireless transmission, fingerprint matching and making an attendance report.

After taking the attendance, this system send the attendance of every student to their parent's mobile through GSM. Attendance system facilitates access to the attendance of a particular student in a particular class.

This system eliminates the need for stationary materials and personnel for the keeping of records

### **2.3.2 Pros**

- Unique identification

### **2.3.3 Cons**

- Cost effective of hardware

## **2.4 Automation of attendance system using RFID, biometrics, GSM modem with .Net framework**

**Author :** Aamir Nizam Ansari, Arundhati Navada

### **2.4.1 Description**

**Methodology:** [4] In of this paper was discussed a wireless system to detect and maintain the attendance of a student and locate a student. A student ID (identification) card was tagged with an Radio-frequency identification (RFID) passive tag which was matched against the database and only finalized once his fingerprint was verified using the biometric fingerprint scanner. The guardian was intimated by a sms (short message service) sent using the GSM (Global

System for Mobile Communications) modem of the same whether the student has reached the university or not on a daily basis. In every classroom, laboratory, libraries, staffrooms etc. a RFID transponder was installed through which was developed the location of the student and staff was detected a website was developed through which the student, teacher and the guardians can view the status of attendance and location of a student at present in the campus. A person needs to be located can be done by two ways via the website or by sending the roll number of the student as an sms to the GSM modem which will reply by taking the last location stored of the student in the database.

## **2.5 RFID-based students attendance management system**

**Author:** Arulogun O. T., Olatunbosun, A., Fakolujo O. A., and Olaniyi, O. M

### **2.5.1 Description**

**Methodology:** [6] In recent years, there have been the number of applications based on Radio Frequency Identification (RFID) systems and have been successfully applied to different areas as diverse as transportation, health-care, agriculture, and hospitality industry, etc. RFID technology facilitates automatic wireless identification using electronic passive and active tags with suitable readers. In this paper, an attempt was made to solve recurrent lecture attendance monitoring problem in developing countries using RFID technology. The application of RFID to student attendance monitoring was developed and deployed, which was capable of eliminating manual collection of attendance and an opportunity for the educational administrators to capture face-to-face classroom statistics for allocation of appropriate attendance scores and for further managerial decisions.

An automated attendance management system was implemented both in electronic and mobile platform using stationary matrix AR 400 RFID reader with four circulatory polarized antennae and symbol MC9000-G handheld

RFID reader respectively. In the electronic platform, the attendance management system.

## **2.6 Design and implementation of smart attendance system based on raspberry pi**

**Author:** Hayder Fadhil Abdulsada Najaf Technical Institute, Al-Furat Al-Awsat Technical University, 31001 Al-Najaf, Iraq

### **2.6.1 Description**

**Methodology:** [7] In this paper the proposed attendance system was used to manage attendance system in large and branched factory or university from central unit. It consists of terminal units and a central unit. Each terminal unit consists of Raspberry pi, screen GUI, RFID, transponder card with each user (like student) and GSM board. The central unit consists of Arduino, GSM board and a computer. Each unit has a special program to achieve its purpose. The terminal unit is responsible of making a connection with a transponder card to bring its ID's and make a comparison with the names listed in the database of SQL server to get the names of the absentees students and send their serial numbers by using GSM message. The central unit is considered as a heart of the system and it is responsible of collecting all the information from the terminal units, displaying them and making special processing to take a decision about persons whose absence exceed the threshold line.

## **2.7 Attendance management system using wireless fingerprint module**

**Author:** Divya Prajapati, Vidya Prajapat, Bipin Nair, Swapnil D, Ms. Manjiri Pathak.

### **2.7.1 Description**

**Methodology:** [8] Authors have Identified the complexities and brought latest technology for teachers to take the attendance of the students through wireless fingerprint attendance management system using zigbee. This system efficiently reduced the workload on teachers for uploading the attendance, storing lots of papers to maintain attendance record, making the defaulter list etc. And it

reduced the errors made by the faculties at the time of uploading the attendance in the system.

## **2.8 Observations**

**Less user friendly:** The existing system is not user friendly because the retrieval of data is very slow and data is not maintained efficiently.

**Difficulty in report generating:** We require more calculations to generate the report so it is generated at the end of the session. And the students not get a single chance to improve their attendance

**Manual control:** All calculations to generate report is done manually so there is greater chance of errors.

**Semi-automated:** Existing system requires lot of paper work. Loss of even a single register/record led to difficult situation because all the papers are needed to generate the reports.

**Time consuming:** Every work is done manually so we cannot generate report in the middle of the session or as per the requirement because it is very time consume