

# AUTOMATED ATTENDANCE SYSTEM BASED ON RFID TECHNOLOGY AND MOTION SENSOR

G.CHANDHINY  
B.TECH-IT  
R.M.K.ENGINEERING COLLEGE  
KAVARAI PETTAI  
[chandhinygopalakrishnan@gmail.com](mailto:chandhinygopalakrishnan@gmail.com)

T.ARAVINTH  
B.TECH-IT  
R.M.K.ENGINEERING COLLEGE  
KAVARAI PETTAI  
[aravinththangasami@gmail.com](mailto:aravinththangasami@gmail.com)

***Abstract- Whole world and administrators of Educational institutions' in our country are concerned about regularity of student attendance. Student's overall academic performance is affected by the student's presence in his institute. Mainly there are two conventional methods for attendance taking and they are by calling student names or by taking student sign on paper. These methods were more time consuming and inefficient. Hence, there is a requirement of computer-based student attendance management system which will assist the faculty for maintaining attendance of presence. The paper reviews various computerized attendance management system. In this paper basic problem of student attendance management is defined which is traditionally taken manually by faculty. One alternative to make student attendance system automatic is provided by Computer Vision. In this paper we review the various computerized system which is being developed by using different techniques. Based on this review a new approach for student attendance recording and management is proposed to be used for various colleges or academic institutes.***

**Keywords:** Automation, RFID, Motion Sensor.

## I.INTRODUCTION

Old conventional methods for student attendance is still used by most of the universities. As this method is used, many students are helping their friends in their attendance in case of their absence in the class. So while this method is used, attendance records are analyzed and maintained manually by the faculty to know the present and absent student list. The faculty has to take attendance again if the attendance sheet is being lost and in this case absent students get chance to make their present in new sheet and is again the whole process being repeated once again.

This procedure, besides being troublesome for lecturer, it will also affect students as time is expended on signing, verifying and submitting the attendance sheet manually. Therefore, a computerized system that can manage and help the lecturers to take attendance easily and maintain that attendance has to be developed. The faculty can easily access this system. Manipulation and management of student attendance data have to be taken care by the system so that the manual analysis of student attendance by the faculty will be removed. The system should automatically analyze all the data as it was transferred by the faculty.

## II.CHALLENGES IN THE CURRENT SYSTEM

There are many system present for the automation of attendance taking but all them not ensure that the student was attended the full session. The student may have more than one RFID based ID cards and giving incorrect count to the RFID reader. So, incorrect value get updated.

**Biometric techniques** like finger print, retinal scan, voice recognition also have this same problem. These methods does not give the proof about the student attending the full session. A better attendance system is necessity for this.

## III.OUR PROPOSAL

Probability of error is more in the existing system. In order to over come that we have two parts in implementing Automated Attendance System. The first part includes a RFID Reader and RFID based ID CARDS This is used for checking who are present.

The Second part has an Infrared based Motion Sensor This takes the count of number of students entered the class room In case of any mismatch between the RFID reader count and the Motion sensor count the system gives an alert to the Lecturer taking class at that time or to the Administrators.

#### IV.METHODOLOGY

In this section,the implementation details of our proposal is presented.During implementation the importance was given for the RFID system which is important for identifying each student uniquely.RFID has RFID tags which has a unique key for each student.The key is encrypted.RFID card used for this proposal is passive. They are active only inside the range of RFID Reader The details of the student and his corresponding RFID tag details are also entered in to the database. This RFID system has a separate part that checks the total number of students with in the range (Class room ).

The Motion sensor detection has counting part which performs two operations.for example if count is the variable used for storing the student count in the class.For every student entering inside the class room the count value is incremented by one similar way for every student leaving the class it is decremented by one.

For an constant interval (say 15 minutes) we are comparing the values of count from the RFID database and the Motion sensor.In case if the value from Motion sensor is less than the RFID count value,we can conclude that the number of RFID ID cards inside the class room was greater than the total number of students inside the class room.The System alerts the administrators to perform further Actions.

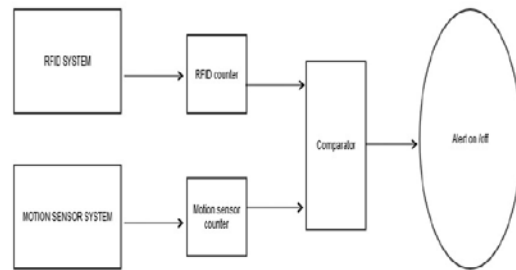
**Biometrics** refers to metrics related to human characteristics. Biometrics authentication (or realistic authentication) is used in computer science as a form of identification and access control. It is also used to identify individuals in groups that are under surveillance.

Instead of administrator performing some actions, we can use here some biometric techniques to prove that a genuine person has attended his class completely. If a person is carrying a duplicate card, the final result would change and create confusion. To avoid that Biometric methods like either face detection or finger print evaluation techniques could be used.

If a student from the class is wearing another student's id card, then the system will fail. For this adding any biometric method like retina scan etc., could be used to make the system stable.

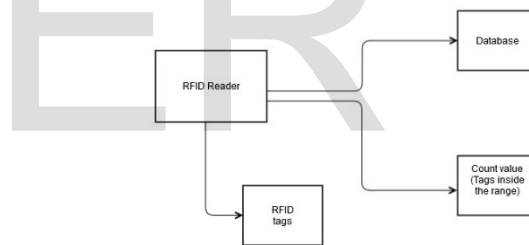
#### V.IMPLEMENTATION

The Design of our Automated Attendance System is implements as below.



**Fig 1 Automated Attendance System**

Figure 1 shows the working model of the automated system.RFID reader section is used for reading the values from the RFID tags and the Motion sensor system is used for counting the total number of students entering the class.



**Fig 2 RFID System**

Fig2 explains the working of RFID part of the system and Database updation



**Fig 3 Motion Sensor System.**

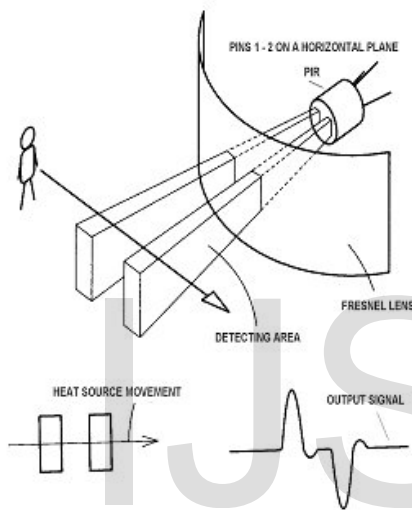
Fig.3 explains the basick working of the motion sensor system.

#### A. About the program:

The program for this system consist of three module. The RFID part works separately and collects the Data from the RFID tags. The Motion sensor takes care of the number of students inside the class room. These two modules sends the information to the third module which compares the value and returns the Decision based on that.

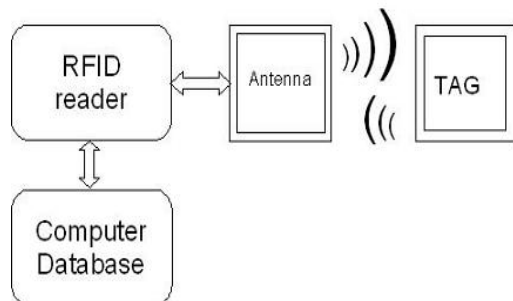
### B. Motion Sensor

The infrared based motion sensor is used for detection of the students entering or leaving the classroom for this detection the human body acts as a heat source from that heat



Generated the student is identified

### RFID



**Radio-frequency identification (RFID)** is the wireless use of electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information. Some tags are powered by electromagnetic induction from magnetic fields produced near the reader. Some types collect energy from the interrogating radio waves and act as a passive transponder. Other types have a local power source

such as a battery and may operate at hundreds of meters from the reader.

### VI. CONCLUSION

Thus the proposed Automated Attendance system is Secure, efficient, cost effective and Simple design which can be used for diverse Applications.

### VII. APPLICATIONS AND FUTURE ENHANCEMENTS

This technology can be further extended to the office environment where we can measure the amount of time a person spend in office can be analysed.

An RFID tag actually stores data in non-volatile memory and is capable of storing up to 8 kilobytes of data in certain tags. So it can be used for storing the details about the student.

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