RFID Based Smart Class Attendance System with Absentees using Face verification

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ABSTRACT

In today's world student attendance system in any institution is a lengthy process and consuming the time. Usually we know that RFID card identify the student based on the card. But it allows the bogus attendance .This paper based to approach the compact and reliable classroom attendance system by using RFID card and face recognition technique. Here using MATLAB progress to verify the face of the each student exclusively. Then an individual buzzer is used in this paper. It is identifying the proxy attendance and stored in a log file. Then this paper notices the absentees list and sent the message to respective or predefined number. Here RFID and face verified to use and take attendance system that efficiency is 98%.

Keywords: Attendances system, RFID, KNN algorithms and Face verification.

1. INTRODUCTION

In traditional attendance system are easily marked fake attendance so we are implemented face recognition and RFID system. In the manual attendance system are take attendance and count how many numbers are present and how many number are absent then mark the attendance count out of the all the class number. In the method takes more time to call all the students. If the smaller count class members means it is not difficult but in case of large count class member means it is too difficult. In the biometric method are used in more institutions but it gets 93% efficiency. In the biometric method using fingerprint recognition .we are using our fingerprint to mark attendance but it take more time because some people finger print are not scanning in first attempt. They are tried more than 6 or 7 times to mark their attendance. RFID based attendance systems are used in all the industries, educational institutions, small sector company etc., in this system, students should have RFID card to the reads the number in RFID reader. The RFID tag shown near the reader, its reds the number then goes to further process. If the system process is verify by the database then it marked as attendance. In this method having more malpractices to present the attendance. In this paper, the proposed system we are using RFID card and face verification either absentees RFID card is record but face is not matched means it mark the proxy attendance for the students .NO RFID cards is reader means it the message along with name to the pre –defined numbers.

2. LITREATURE REVIEW

Development of attendance management System using biometrics
Author: O.Shoewh, O.A.Idowu
By using biometric attendance system they have only 93% efficiency and also take more time. It possible to occur mal-practice.

Comprehensive survey on pose-invariant face recognition
Author: Changxing Ding, Daching Tao.A
It works at Wi-Fi connection .If no Wi-Fi means there is no attendance record.

Web-based student attendance system using RFID technology
Author: Murizahkassim, Hasbullah Mazlen, Norliza Zaini, Mohammed Khidin Sallah
Student attendance system in a web application. This application is used to know the attendance of the students. By using serial port communication, through the windows application to record the attendance from the RFID card stored in a database server. Due to this problem the web server not found in the system at that time the attendance will not marked.

Algorithm for efficient attendance management face recognition based approach
Author: Naveed Khan Balcoh, M. Haroon Yousaf, Waqar Ahmad, M.Iram Baig
This system is said to be the region of interest that mean which place will already fix in a region that place pick by camera.

Face recognition based lecture attendance system
Author: Yohei Kawaguchi, Tetsuo Shoji, Weijance Lin, Koh Kakusho
Thus the problems the student can some changes in the sitting and seating process. It will not take the picture from camera. It senses only the front view and it does not give proxy attendance and absentees record.

Study of implementing automated attendance system using face recognition technique
Author: Nirmalya Kar, Mrinal Kantri Debbarma
It does not give the absentees record.

3. SYSTEM DESIGN

In the proposed system, we using automatic attendance system by using two step verification which shown in figure. This circuit contains two steps namely as,

1. RFID Tag
2. Face Verification

In the system, we use the component of Ardunio, GSM for short message, keypad, LCD display, and RFID reader for reading purpose. Ardunio is a open source protocol. It is mainly used to reuse this. GSM used to variation of time division multiple accesses. A basic 12 button keypad for user input the buttons are set up in a matrix format. This allows a microcontroller to scan the 7 output pins to see which of the 12 buttons being pressed. LCD is a technology used for displays in notebook and other smaller computers. Radio frequency identification uses Electromagnetic fields to automatically identify and track tags attached to objects. The RFID tags having stored the information in electronically stored information. Passive tags collect energy from RFID reader interrogating radio waves**.**
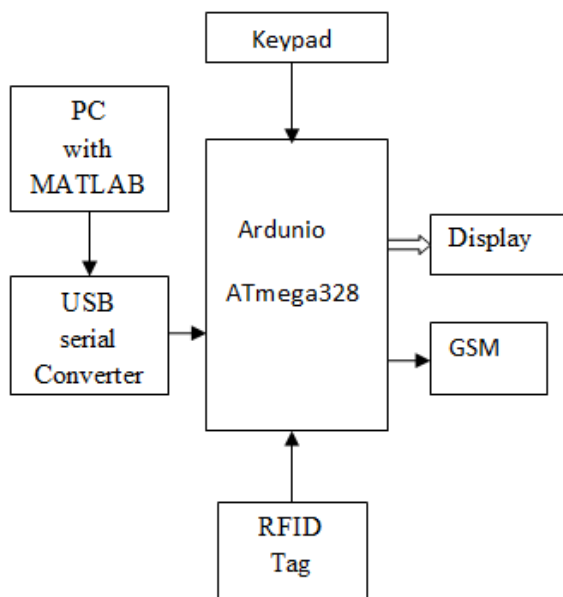
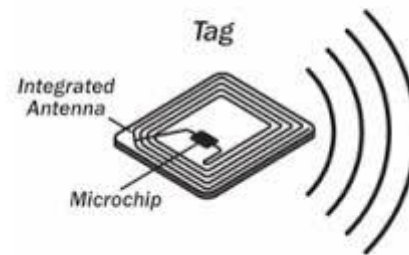integrated Antenna and microchip. In this project, we are using active tag.

Fig.2. RFID tag

When the user enters into room, they show the RFID tag in the front of RFID reader. Once the reader reads the number in the tag which is available at tag before its manufacture. when the input enter into the reader its verify by the database and if the process is success then it goes to face verification process or failure in the process it mark as the absence and it's send the message for pre-determined number.
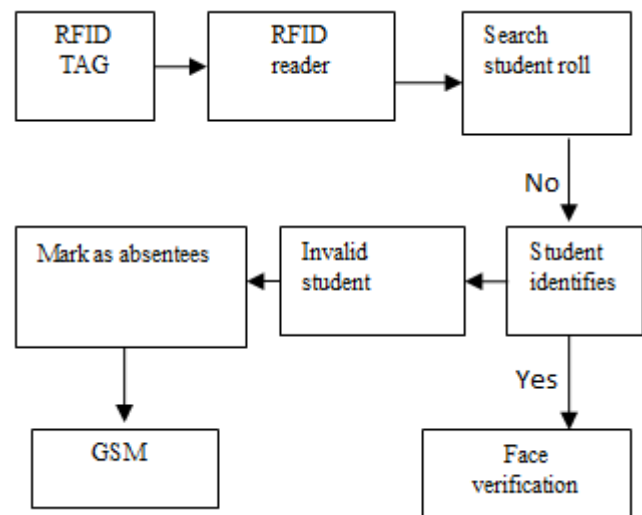

Fig.1. Block diagram of the system

Fig.3. RF Identification System

4. WORKING OPERATION

Radio-Frequency Identification system RFID works under the electromagnetic field to identify the tag automatically which is attached on an object. RFID contain two parts such as tags and reader. In the tag, it can be either passive or active tag.

The other name for active tags is battery- assisted passive which in builds small battery on the boards and is activated at presence of RFID reader. In the passive tags, its collect the energy from nearest reader which is producing electromagnetic waves. RFID is used for identifying the student individually. The working principle of RFID system is shown in figure. In the tag contain two component
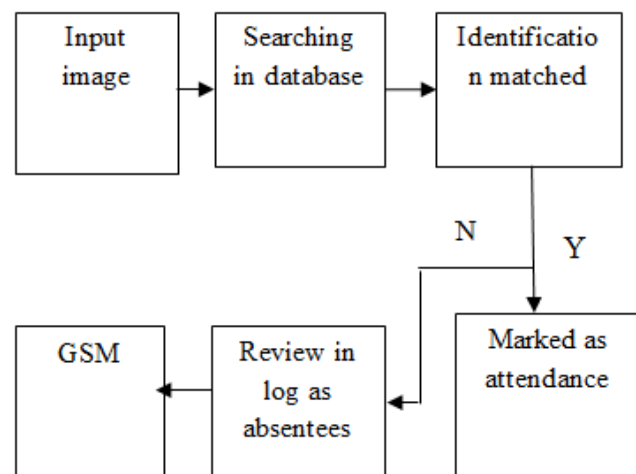

Fig.4. Block diagram of Face verification system

4.1 Face verification system

In the face verification system, we were using MAT LAB algorithms for Face verification. The system waits for images, if the input image enters then searching in the document. Once the input image is gets succeed then moves to mark as attendance. If the system gets failure to input image then sudden move to next step of the system and marked as absentees for the unauthorized students. This is block diagram of the face verification process.
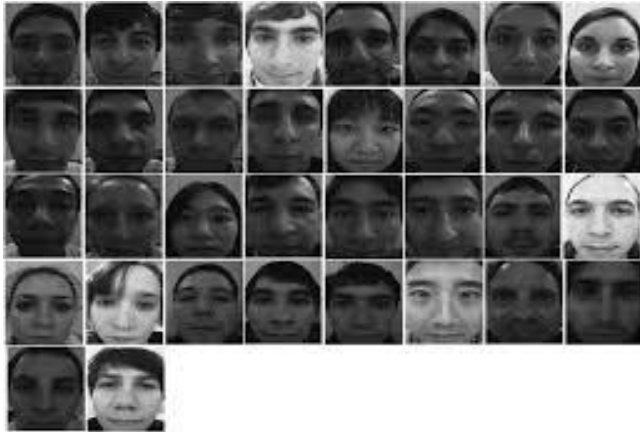

Fig.5. Face verification input

5. TESTING AND TRAINING

To testing this method by using RFID and face verification .In our project assign the RFID roll database of check the both card number as well as face poses of the student .In case the difference of the face and using student card this system verify and immediately store in the proxy attendance, additionally this method is find out the absent members. Incase students are not scan their card at the particular time then the message will send to the respective number by using GSM module.

6. RESULT

The method is virtual and experienced in MAT LAB 2016.The System used in our demonstration in INTEL15.248GHz with 8GB RAM .The method is trained and verifies for 100 students. The RFID identifies the student and marked as attendance. The face verification method is verified by Web camera. The absence are sent to pre determine number with name.

7. CONCLUSION

This attendance system is proposed by using RFID, face verification and absentees record which supports the student's recognition. This method can reduce the time when compared with another technology .It will record bogus attendance .The performance evaluation using KMN algorithm in Arduino. The system can be implemented by using camera and RFID reader. In Future this system is very useful for all institutions and organization.

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