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Mobile Biometric Attendance System

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Abstract

Attendance system plays vital role in any institution, schools and colleges where the record of their regularity is noted. In This concepts we have replace the traditional attendance system into moving automated biometric attendance system where teachers don't have to call students name for their attendance. A moving robot will come to student's place where he has to just place their finger on fingerprint Scanner. This concept will save time while taking attendance in manual system. There will be transparency and also authentication will be fully based on the students biometric so no issue of fake attendance. This will increase overall classroom attendance as biometric of students cannot be mismatched.

Keywords: *Raspberry pi, automated attendance, line following robot, Database*

INTRODUCTION

Nowadays digitalization is growing a trend in every sector. Digital India concept is also in trending for development. So one step forward towards digitalization, we are trying to replace our manual attendance system by Mobile Biometric Attendance System. Attendance is a concept that exists in different places like institutions, organizations, hospitals etc. Traditional attendance paper based attendance systems are often lead to unnecessary time spent by teachers. Many times teachers pass the attendance sheet students to mark their attendance but this leads to issue of fake attendance where the students tend to answer or sign for their friends who are not present for that day.

Manual attendance also leads to waste of time which can be utilized for other activities. Overall this leads to save time and work load of teachers with accuracy and transparency.

Biometric technology uses human physical and biometric characteristics which are unique for everyone for identification; even the twins have different biometric characteristics. Therefore, this system is highly accurate and helps in preventing errors and leads to elimination of proxy attendance. In the enrolment process biometric system converts scanned biometric data to computer code and store the information in a database. So the teachers can access the data directly from the database. It also more convenient for the teachers as they don't need to carry the attendance files every time and also not need to count the data on themselves.

In this concept we are using a line following robot as a mobile part which uses IR proximity sensors to follow the line. In robot, we use a Bo motors as we need sufficient torque and speed. Fingerprint scanner used for marking the attendance as students finger we are using as his identify. Fingerprint scanner are very fast and accurate so it will be helpful. LCD display used for the student convenience whether attendance marked or not displays on the screen and students can check on themselves. Raspberry is the heart of all system; it is with 1.2 GHz 64 bits' quad core processor, on board Wi-Fi, Bluetooth and USB boot capabilities. It uses LINUX, WINDOWES 10 IoT core operating systems. Separate SD card slot is given for storage purpose and 1 GB random access memory is given. We can extract all the data from MYSQL database whenever required.

OBJECTIVES

1) As we are moving towards developing future each and every field is focusing on automation. Robotics in any field helps to reduce time and man work.

2) So that's why moving towards development in this technology it's our vision to replace manual attendance system into automated biometric attendance system which is mobile.

3) In this concept we are actually replacing manual attendance system with the advanced biometric technology, where mobile robot will come to student's place and students can give there biometric placing a finger on finger print scanner.

4) The all data will be stored in data base were one can access it via, Wi-Fi or MYSQL database.

5) And it's an intellectual idea because moving robot for attendance is not implementing in any institute until now this idea will going to change overall scenario of the college or any institution.

WORKING

When the teachers enter in the classrooms they have Switch ON the robot. A unique ID will be provided to particular teachers. They have to enter the unique ID after verifying ID Robot will start to move on provided path.

As we have used line following robot it will move on particular line. It will stop near the student where he has place his fingerprint on scanner provided above the robot.

As soon the student places his registered finger his attendance will be recorded. This data will be directly stored in database where any higher authority can access it via there login Id. After recording the attendance of First student it will forward on line to take attendance of next student. Fig 1 shows the block diagram of the attendance system.

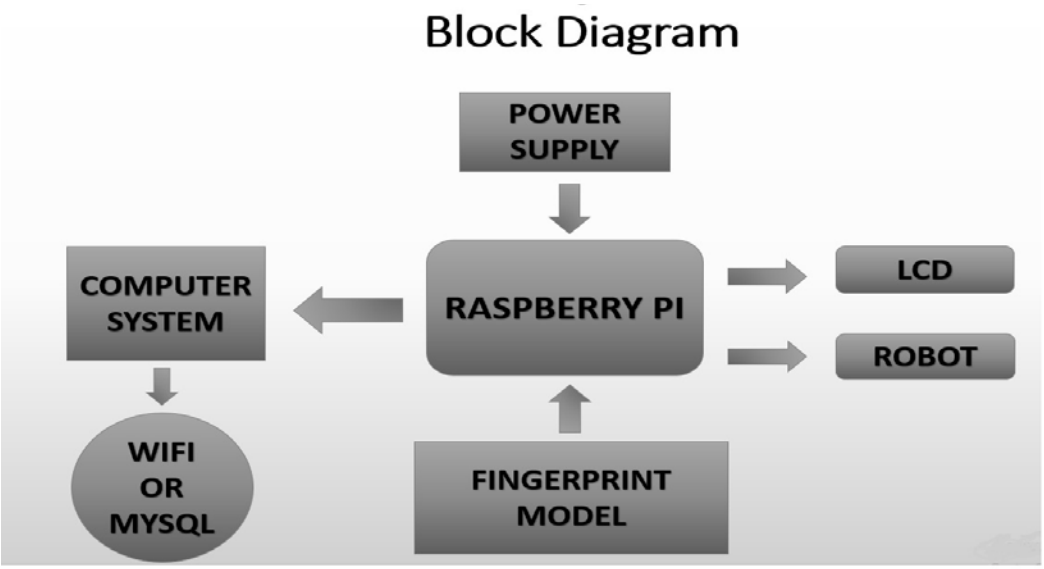

Fig. 1 Block Diagram of System

Fig. 2 Registered attendances

Advantages

- Accurate Attendance
- Convenience
- Increases Efficiency
- Money Saving
- Elimination of buddy punching

Results

1) If there are 30 lectures of one subject and it takes 10 min to take attendance manually means
2) 1 subject = 30 lectures,
3) 1 lecture = 10 min,
4) 30 lecture = 300 min (i.e. 5 hours)
5) By installing it we save 5 to 6 hours of each subject. And it also reduces misappropriation in any data because only biometric of any person is unique.

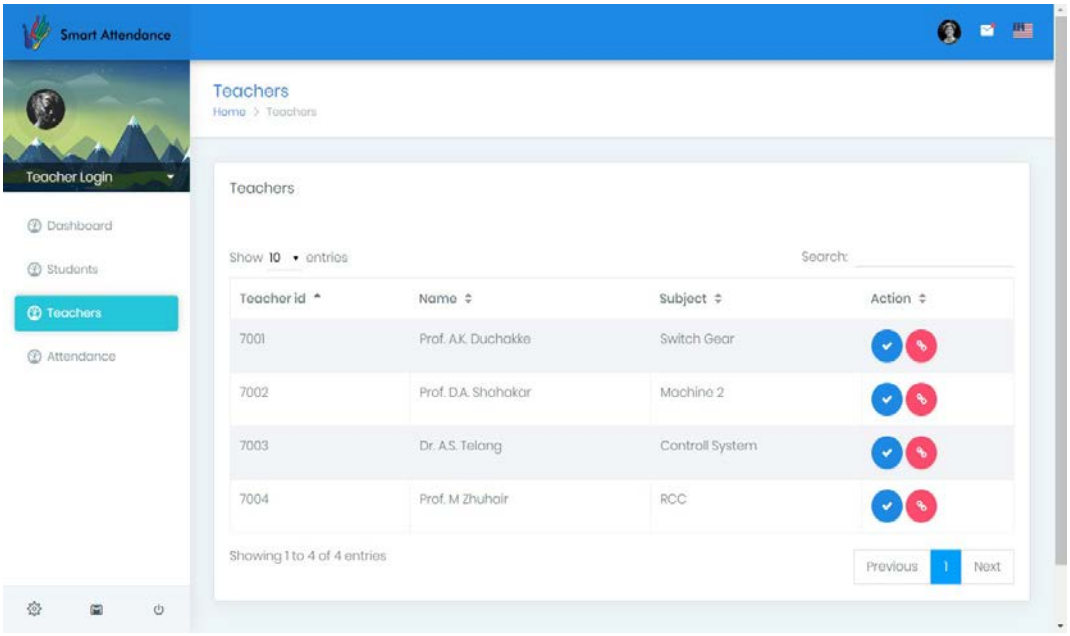

Fig. 3 Dashboard (Teachers)

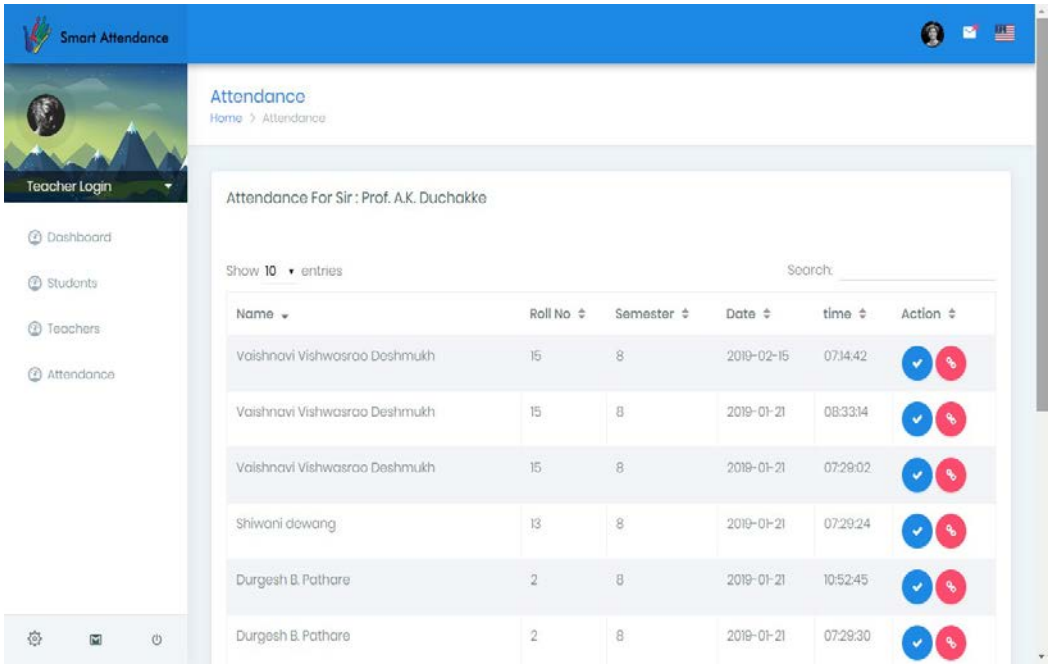

Fig 4 Attendance Registered

CONCLUSION

This is first project which will implement in any institution or colleges. As we use this robot it will change the total image of attendance and also the data which will store in our memory that will be untouched for long time.

As we are moving towards developing future each and every field is focusing on

automation. Japanese are also developing their country by installing robots in various fields and making it easier and convenient to user. So that's why moving towards development in this technology it's our vision to replace manual attendance system into automated biometric attendance system which is mobile. It is also a one step towards digital India.

SCOPE OF FUTURE WORK

1. We can implement this concept in NGOs also it will help in case of any fake registration of children.

2. For election purpose also we can use this idea, so because of that there will be transparency at the time of result and no issue of fake voting.

3. This robot will change the total scenario of institutions, college and in so many various fields where it will be implement.

4. So if we implement this project in our India first then India will become a pioneer of automatic attendance system project

5. We can also implement this idea at various places like institutions, organisations, hospitals, etc. It will help to store the data without any adulteration.

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