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IOT based Automatic Attendance Monitoring System

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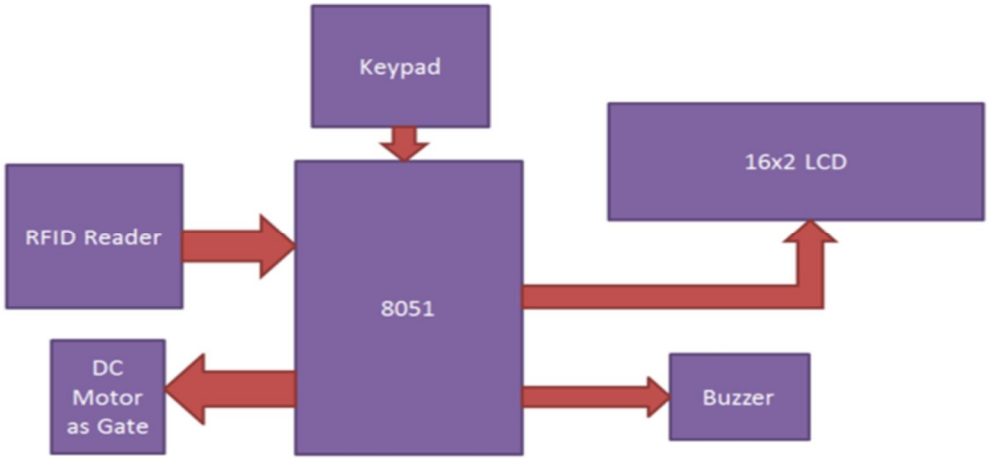
Abstract: Currently industries & organisations are using personal identification strategies like RFID, Iris/Face recognition, Fingerprint identification for taking attendance. Among of all these, face recognition is most natural, time efficient. In this project, a system is implemented, takes attendance for students during lectures, employees in industries, etc. using face detection and recognition technology. In this system Raspberry Pi3 is installed with Open CV library and a Camera module is connected for Face Recognition.
Keywords: Raspberry Pi3, Camera, Sensor.

I. INTRODUCTION

We are implementing an IOT based Automatic attendance monitoring system. IOT involves extending internet connectivity beyond standard devices, like desktops, smartphones etc to any range of traditionally non-internet-enabled physical devices. These devices can interact with each other using internet. They can be remotely monitored and controlled. Attendance is an important task in schools and colleges. Manual attendance takes lot of time which can be used in quality way. Usually manual method of taking attendance is difficult and time-consuming. Hence it is important to construct an efficient method for managing attendance automatically. Another advantage of this type is that inclusion of fake attendance can be prevented.
In our education system we are still using manual method of taking attendance. This consumes lot of time and wastes energy as well. To work on this problem many methods have come into existence such as follows:

A. RFID Based Attendance Monitoring System

RFID uses electromagnetic fields. It automatically identifies and track tags attached to objects. The passive tags gathered energy from a nearby RFID readers interrogating radio waves. Active tags use local power source and may operate hundreds of meters from the RFID reader. People don't use some technologies due to their high cost, so RFID is used for attendance system as it is low-cost device. RFID consists of tag, antenna and IC chip. The IC chip contains unique identification number. To take the attendance of individual student we will be giving a tag to every student that contains unique identification number. But this system has a drawback that any student can mark the proxy of random student just by using the tag of that student. So a video camera has been inserted in this system to overcome this drawback. Every colleges and schools contain images of students that are saved in database. This will be compared with the images captured in real time. So, no student can mark the attendance of the student who is absent.



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B. Biometric Based Attendance Sysytem

In almost all institutions in the developing countries clearance is normally done manually using paper sheets and old file system approach. This paper clearance approaches encourage frauds, impersonation during the examination. Many organizations are trying to identify accurate, safe, reliable techniques to protect access right to their existing services and operations. Biometric is the best answer to these concerns. Biometric attendance system has brought more precise and secure system to measure individual's attendance.

C. Real Time Location Tracking Using Biometric And Rfid

Advancement in technology is increasing rapidly. The main motive of this project is to develop secured and safe web-based attendance system. This system can maintain the records of attendance of both staffs and students in the institutions. Also, this system is used to detect the current location of the students and staffs in the premises. Another important feature of this system is the attendance performance graph which is prepared for each individual including students, teaching and non-teaching staffs depending on individual attendance in a semester. These RFID tags will not only serve the identity card but also mess cards, library cards and other cards required in and outside campus.

D. Wlan Automatic Attendance Management System

These days, almost 99% of student population is using smartphones which has the capability of using and sharing data via Wi-Fi technology. Use of such technology coupled with a background service on the host's smartphone to monitor the phones existing within the range and the amount of time they do so, will enable the host to mark the attendance of such population for which data regarding all students or attendees exist in the host's local database.

E. Iot Based Automatic Attendance Monitoring System

We know that in today's world the most widely used methods for taking attendance is Biometric/RFID based attendance system, but there is one more method that will overcome the problems of the existing systems. This method will use face extraction. We know that face is an important feature of any human being. In this system features are extracted from the face and saved as templates in the database. Then the face is captured using camera, detected and compared with the one saved in the database.

II. CONCLUSION

It came to realization that there are extensive variety of methods, for example, biometric, RFID, etc. which are tedious and non-productive. So to overcome this, face recognition method came. Hence, we've done and built a solid and productive participation framework to actualize an image handling algorithm to identify faces in classroom.

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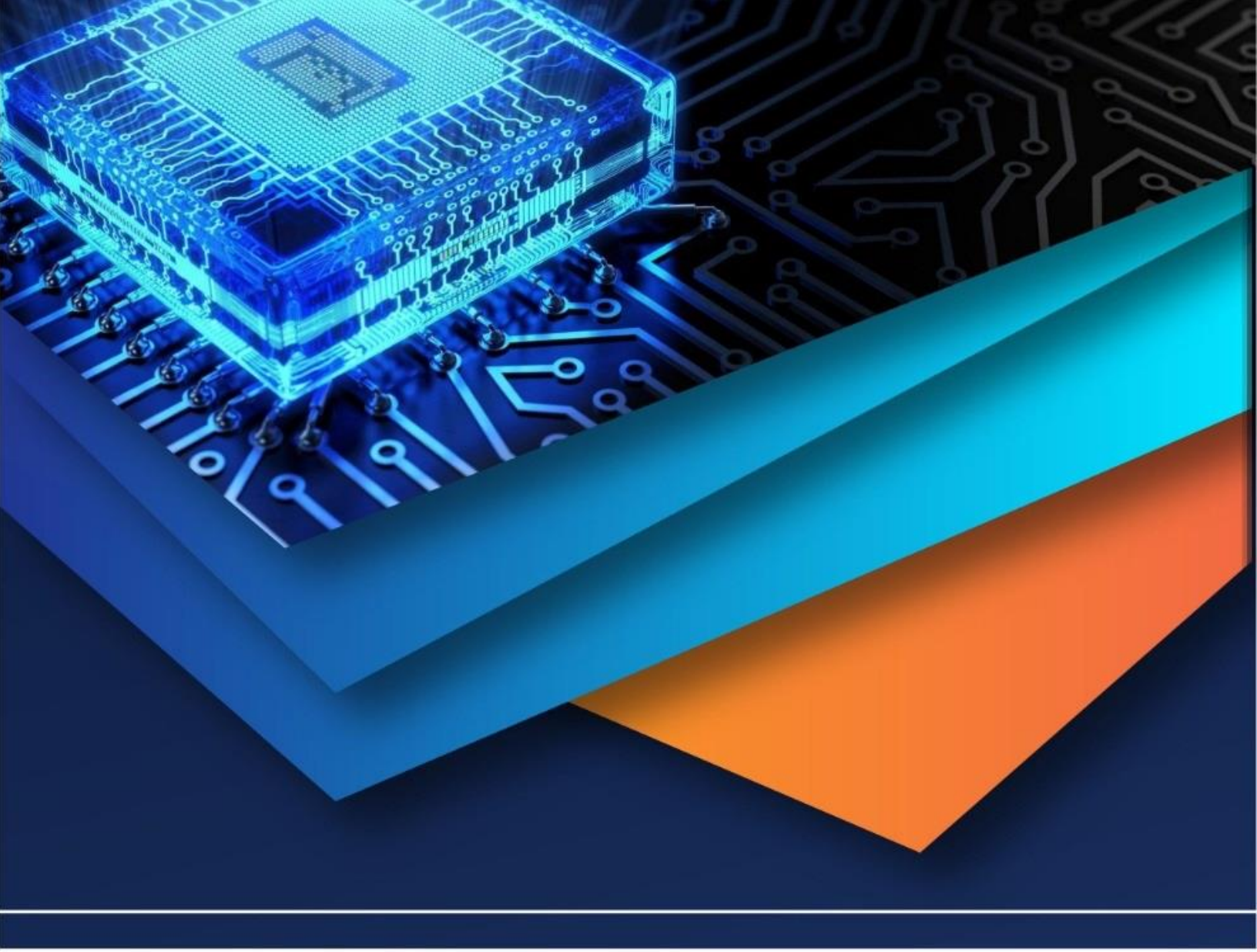

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