International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 01 | Jan 2020 www.irjet.net p-ISSN: 2395-0072

# Review Paper of Design and Implementation of an Intelligent Biometric Attendance System using IoT

**Prerna Srivastava[1], Siddhartha Tripathi[2]**

[1]*Computer Science & Engineering, Naraina College of Engineering and Technology, Kanpur, U.P, India*
[2]*Computer Science & Engineering, Naraina College of Engineering and Technology, Kanpur, U.P, India*

---

**Abstract -** *In case we talk about the current circumstance of our preparation structure, by then we found that we have a lot of progressions to use yet in the meantime we are following the ordinary system. If we talk about the cooperation system in universities and schools, teachers did that work physically. Instructors take the interest and update it physically in the database. In case we merge the special finger impression sensor an IOT (Internet of Things) by then we can do it normally and there is no convincing motivation to do it by teachers. We can use IOT and exceptional imprint sensor for better execution. IOT data is clearly secured on a server continuously so we can get to it from wherever and at whatever point which will outfit us with better capacity and flexibility.*

***Key Words*: *Biometric Attendance, Finger Print, IOT.***

## 1. INTRODUCTION

The Concept of the Internet of Things was first presented by Kevin Ashton in 1999. These days, there are a lot of computerized instructive apparatuses to offer additional help to addressing understudies. By providing a blend of advanced office equipment and programming equipment, by turning a physical reality to computer-generated simulation status, Scholastic offers facilities and effectiveness in creating a domain committed to enhancing instructive courses.

Web of Things (IoT) slopes to make every physical thing to be connectable. It incorporates keen and self-designing hubs (things) interconnected in a dynamic organize foundation [1]. By and large, IOT is considered by physical world little things, usually conveyed with restricted capacity and preparing aptitude and including consistency, introduction, security and protection concerns. Consequently, three noteworthy components: character, knowledge and correspondence are featured in any IOT answer for encourage thing the executives, the usefulness of utilization and information stream, separately. The singularity of each associated thing will be remarkable to affirm the Accessibility from one side to the opposite side when a tremendous measure of things are interconnected. Associated things offer information trade and these information will be astutely handled for certain application. Every communication between things will be standardized and institutionalized for confirmation of giving definite information under a definite conference and collaborating with all gadgets, for example, the need to verify the thing, either send or reproduce the information .

Subsequent to incorporating IOT we can get to the database from anyplace and whenever, anybody and any gadget. Fundamentally, The IOT enables individuals and things to be associated Anytime, Anyplace, with anything and anybody, in a perfect world utilizing any way/arrange and any administration.

A development e-participation framework implies a framework which has a cutting edge innovation and it is electronically intended to gauge participation where Internet of things (IOT) is utilized for ongoing following and information putting away of participation. This is a Hybrid framework where we are utilizing Finger Print sensor together which will assist us with recording participation independently with better capability. Cloud access is a helpful innovation in the present time that we can store our information safely in a spot and by utilizing IOT ongoing checking can likewise be given. So we can say that a continuous development e-participation framework is a finished framework to give record of participation of an individual in a successful way.

In the IOT based cooperation system, there are an IOT of gadgets to lessen the weight and we can subsequently keep up the support. Here cloud is used for limit. This interest can be checked ceaselessly on the site or android application, where an understudy can check his/her cooperation. The present support the system requires a teacher to measure investment by calling the move number of the understudies, which has various drawbacks, for instance, false cooperation, the extra risk of educators finding out the interest rate, even tally botches occurs. All of these issues can be avoided by using this investment structure, go-between support can't be stepped, interest is sent to the server consistently, all of the figurings are done by the server and understudies can check their cooperation logically.

## 2. LITERARTURE SURVEY

ATTENDANCE SYSTEM USING RFID an article participating in the board structure using the RFID strategy has created a partnership structure for business reasons that use RFID innovation to deal with participation in schools or universities. The setting started by them can send an email and as a result, a SMS alert can be given to parents or parents of understanding at a particular time allotted at a particular time. Need to understand that with the RFID tag they will contact the RFID tag to stamp the participation on the door and the information will be

Sent to the server at the school or school. The server will provide RFID information on that point process and will print the information of the participant and after this, the parents will send a partnership through SMS, whose children are absent on that day. The disadvantage of the proposed structure is that RFID tags given to understand can be used by another sensible to keep the involvement of the trident with their card.

In [11], [12] a RFID peruser has been organized with the usage of a microcontroller, a handset chip for correspondence, a consecutive correspondence IC, a LCD, a USB interface, a power supply module, etc as the parts for design reason. Exactly when any part in the staff of the association animals their card in contact or in closeness of the RFID peruser/scanner then the data from the card is sent to PC overseer application which is used to check the data and besides to isolate the information of the person, for instance, his ID and his passageway time in the association, which is amassed in the customer's database. The working of the RFID system is showed up in fig 2.1.

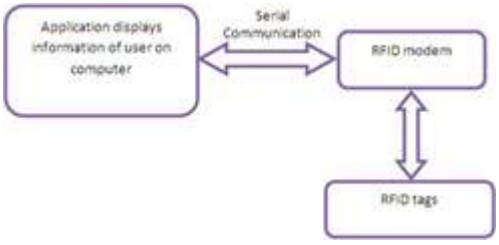


**Fig 2.1: Functioning of the RFID System**

In another proposed structure dependent on RFID, where RFID Peruser is used to use the ID of understanding along with that date and time, during which it has been understood and after that it was created by the planner or client Databases are put in. Outline on server

**FINGERPRINT BASED ATTENDANCE SYSTEM**

In an article, M.K.P Basheer and C.V Raghu structured a unique mark framework that is utilized for participation purposes. The understudies can check their participation by putting their finger on the gadget's sensor.

They structured a handheld gadget built and controlled through the assistance of a microcontroller (PIC18F4550) with and different parts to be specific, the unique finger impression module, RTC, catches, LCD, Memory, and so on., and a GUI application on the host PC for the participation the executives' reason, utilized for the exchange of understudies' participation to the PC database. [9]

Seema Rao and Prof. K.J. Satoa, have proposed another strategy for the participation the executives utilizing unique mark as the biometric. In their proposed framework, the check of fingerprints is completed by the utilization of details include extraction system and the whole procedure of participation is robotized. It extricates the highlights of the individual who has set their finger, contrasts them and those put away in the database and imprints the participation [16].

Neha Verma, Komal Sethi and Megha Raghav proposed a unique mark based recognizable proof framework for understudy check. In the proposition, the unique mark layout coordinating time is diminished by the division of the database. The unique mark scanner is utilized to include the unique mark of educators/understudies into the PC programming. [14]

Villain Jain, Dr P.S Ramkumar and Dr K.V.S Sairam have proposed a biometric get to framework for the participation reason where the unique finger impression information of the clients enlisted with an id is sent to the database on the web server. [1]

In the works done by Piyush Devikar, Ajit Krishnamurthy, Aditya Bhange and Mohit Singh Chauhan, an IoT based framework is structured, where understanding of participants is checked and put into Google cloud. At that point when the

participation by the customer is punctured, the unique fingerprint at that point is confirmed by the unique fingerpropher sensor from its stockpiling and if the unique mark is coordinated, then the endorsement of the partnership on Google Cloud Gone and move is considered in a spreadsheet, which can be seen to check the partnership whenever it is.[3]

In another proposition given by Nadar Prince, Abhishek Sengupta and Keerthi Unni, a framework is structured which is utilized to stamp the subject savvy participation of the understudies in a database which will be obvious on the site page through the roll no. of the understudy. In the proposed framework, the day savvy participation of the understudies can't be seen. [2]

After looking at all the above mentioned settings, we have considered the fluctuation of each one of them and have planned a framework that will effectively display the date of participation, on the ID basis and also a considerable number of Full rate partnership understanding of.

Wireless Fingerprint Attendance Management System by Penta Anil Kumar, Maddu Kamaraju.

This paper exhibits the plan approach of a straightforward and high ongoing Zigbee - a biometric framework for simple and efficient participation the executives utilizing the fingerprints of the representatives at any association alongside with the worker approaching and active log upkeep. Right off the bat representative's fingerprints are filtered by programming and a recognizable proof number is designated as their enlistment. During the participation time when workers dazzle their fingerprints, against the scanner, the framework analyzes the new unique mark designs and the association between different focuses in the unique finger impression with the enlistment database. A match is recorded as a thump practicing procurement, handling, transmission, coordinating. Through this programmed framework, time and labor are diminished as it were.

Student Attendance System in Classroom Using Face Recognition Technique by Samuel Lukas, AdityaRama Mitra, Ririn Ikana Desanti, Dion Krisnadi.

This paper proposes a strategy for understudy participation framework in study hall utilizing face acknowledgment procedure by consolidating Discrete Wavelet Transforms (DWT) and Discrete Cosine Transform (DCT) to remove the highlights of understudy's face which is trailed by applying Radial Basis Function (RBF)for ordering the facial articles. From the tests which are led by including 16 understudies arranged in study hall setting, it results in 121 out of148 effective faces acknowledgment.

Dipali Patil et.al in 2017 has presented an IOT based shrewd participation framework utilizing GSM. As we probably am aware in IOT, physical and virtual "things" have characters, physical properties and virtual characters and utilize astute interfaces. The physical and virtual things are consistently coordinated into the data arrange GSM which shapes a significant building obstruct for the IOT. The move calls have been finished by the pack itself and the educator simply need to press keys in like manner. In the wake of completing that procedure the entire information will get spared in PIC microcontroller and will be sent to the fundamental server for example manager official by GSM with the assistance of IOT. The other GSM-based framework has confronted scholarly participation checking issue consequently they made this framework completely computerized and it doesn't require any human mediation with the exception of setting the underlying time. LCD and PC interface both are furnished with GSM-put together participation with respect to the spot on LCD or remotely from a PC. Again as talked about in past paper GSM has some confinement which raises the issue of obstruction.

Mr Vijay Jadhav and Mr Lakshman K. in 2017 have distributed a paper dependent on "Office computerization and participation framework utilizing IOT". There are essentially two pieces of their task. One office has the office control to use the IOT and the second is to measure worker participation by RFID and to store it on the cloud using the IOT. This framework enables the proprietor to control its office apparatus via an Android application for easy access to the web and uses a NodeMCU microcontroller for the reason of this framework. Inbuilt Wi-Fi modem is used to get instructions on the web. This data is then given to the microcontroller. The microcontroller now creates this information and switches the pile through the transfer. In this way the workplace computerization framework enables the client to remotely control their office using IOT innovation. Here he used the Atmega328 microcontroller to process all the activity. They used the ESP8266 Wi-Fi module to broadcast information on the web. They used the Think Talk site to transfer information to the cloud. Similarly, they were showing who checked the RFID card with the help of an LCD show. This work can be seen as a total arrangement, though it is difficult to just use the RFID approach but it is difficult to cheat, hence the system needs to be arranged on which we are working.

## 3. MY APPROACH

In the wake of analyzing past works I found where all of those system are missing and what their limitations are. In past works conceivably they are using solitary system or complex twofold technique which needs elective in case of frustration. To be sure, even a couple of systems have data storing which can be viably changed along these lines we are exhibiting a cream structure that diminishes the mediator interest similarly as proximity of alternative if one misses the mark. IOT makes the structure consistent advancing toward that data direct exchange to server and can be checked immediately in the wake of stepping present. One thing that isn't used in any of the past work is control fortification and data stacking which thrashings the loss of data due sudden power off.

## 4. Conclusion

We are living in an era where science and innovation are currently a piece of our life. As is the time for innovation and new composition at the present time, we use the time in taking old strategies for participation in partnership. We need a framework that requests less support and the strategy is easier to use, so this proposed gadget is not yet valuable and is understood in a simple way and maintaining record of workers. It costs less, so it can be seen roughly in schools, universities or in any thinking union.

## REFERENCES

[1] Divil Jain, Dr. P.S. Ramkumar and Dr. K.V.S Sairam, " IoT based Biometric Access Control System", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 5, May 2016, pp. 555-559

[2] Nadar Prince, Abhishek Sengupta and Keerthi Unni, "Implementation of IoT based Attendance System on a dedicated Web Server", International Journal of Scientific and research Engineering, Vol. 7, Issue 6, June 2016, ISSN 2229-5518, pp 351-355

[3] Piyush Devikar, Ajit Krishnamoorthy, Aditya Bhanage and Mohit Singh Chauhan, "IoT based Biometric Attendance System", International Journal of Advanced Research in Computer and Communication Engineering, Vol. 5, Issue 2, Dec. 2016, ISSN 2319-5940, pp 10-13

[4] Seifedine Kadry* and Mohamad Smaili, "Wireless attendance management system based on iris Recognition", Scientific Research and Essays Vol. 5(12), pp. 1428-1435, 18 June, 2010, ISSN 1992-2248.

[5] Research note, Automatic time and attendance: low hanging ROI, Proceeding in Nucleus Research, January 2008.

[6] S. K. Jain, U. Joshi, and B. K. Sharma, "Attendance Management System," Masters Project Report, Rajasthan Technical University, Kota.

[7] M. Mattam, S. R. M. Karumuri, and S. R. Meda, "Architecture for Automated Student Attendance," in Proc. IEEE Fourth International Conference on Technology for Education (T4E 2012), pp.164-167, 18-20 July 2012, doi: 10.1109/T4E.2012.39.

[8] M. Strommer et al., Smart NFC Interface Platform and its Applications, in T. Tuikka and M. Isomursu, (Eds.), Touch the Future with a Smart Touch,2009

[9] M. K. P. Basheer and C. V. Raghu, "Fingerprint attendance system for classroom needs," in Proc. India Conference , 2012 Annual IEEE, pp.433-438, 7-9 Dec. 2012.

[10] BISAM-BIS attendance Management System by BIS Software Development Services PVT Limited. [Online]. Available: http://www.softwarehouse.co/school-attendance-brochure.pdf

[11] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.

[12] R. Nicole, "Title of paper with only first word capitalized," J. Name Stand. Abbrev., in press.

[13] K. Elissa, "Title of paper if known," unpublished.