IOT BASED BIOMETRIC ATTENDANCE SYSTEM

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ABSTRACT

The efficacy in the procedure of getting students attendance can be maximized when the IOT Based Biometric attendance system i.e. smart attendance system is used. The student's attendance is recorded using biometric scanner which is fingerprint based and then the data is secured safely over a cloud storage. The system averts the proxy attendance, time will also be saved, thereby the reliability of student's attendance information is also maximized. The student's data are loaded securely over the cloud and can be easily fetched according to the need. This research paper throws a light on simple, easier and portable method for students' attendance in which internet of things is used.

1. INTRODUCTION

In this smart attendance system, the notion of Internet of Things is put-in into an attendance system of a classroom. Due to the increasing development in the area of cloud-based computing, there are various storing systems in which the data is often precisely stored and can be fetched anytime. Basically, fingerprints are considered as the foremost reliable type of thing to be used in biometric systems. The project contains an FPS that identifies the identity of student by scanning the fingerprint. If the biometrics of the fingerprint of a particular student which is scanned get matched with the data records which is present on the database of the cloud, then the attendance of that student is marked as present. This attendance system saves the time and it proves to be highly secured than the usual manual attendance system. The proposed system requires connection to the web, that can be accomplished through a Wi-Fi.

2.THEOROTICAL STUDY

In this paper, the design and development of a portable classroom attendance system based on fingerprint biometric is presented. Among the salient aims of implementing a biometric feature into a portable attendance system is security

and portability. The circuit of this device is strategically constructed to have an independent source of energy to be operated, as well as its miniature design which
made it more efficient in term of its portable capability. Rather than recording the attendance in writing or queuing in front of class equipped with fixed fingerprint or smart card reader. This paper introduces a portable fingerprint based biometric attendance system which addresses the weaknesses of the existing paper based attendance method or long time queuing. In addition, our biometric fingerprint based system is encrypted which preserves data integrity.

In this project our aim is to leverage this lot into the boring attendance system to make it smart and more effective. Most conventional attendance systems available today is to store the information over cloud or server and have to be connected to software via a computer to access the information. Here, we will build a biometric attendance system using ESP32 that scans for finger print and on successful identification of the person it will log the information to a cloud platform like Google Drive by using the ESP32 Wi Fi module.
This information can then be displayed in the google sheet of google drive making it available for the required authorities to view and analysis information over the internet without having any direct physical access the hardware.

IFTT platform help us to send our fingerprint device data on cloud. This platform also help us to stay connected with internet and also help us store it on Google cloud .Thats give us a large space us to store data. This IFTT platform helps us to use real time clock and give flexibility to use by multiple users at a single time at any time

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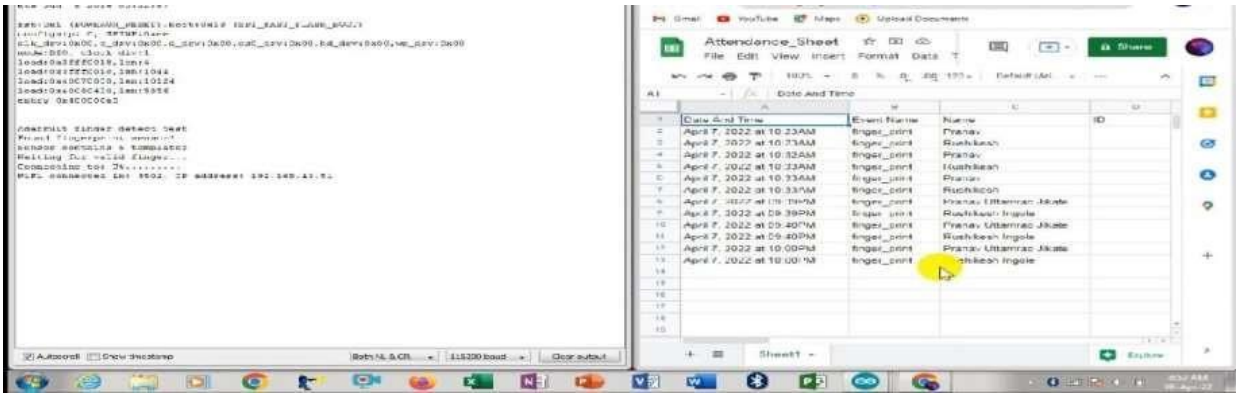
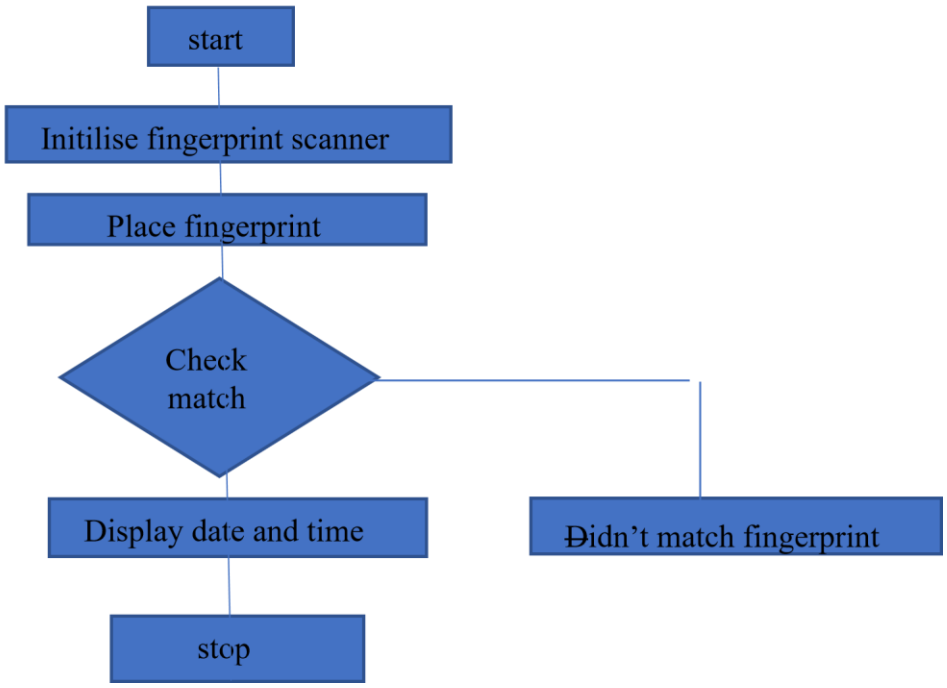


3.PROPOSED WORK PLAN

The main aim of the project is to automatize the procedure attendance The flow chart will be as follows.

Figure 1 Flow chart of implementation



1.Procedure Starts

2. Selection of choice of enrolling a new finger print or deleting the previous one's.

3. Scans for the Wi-Fi network (if nothing is selected).

4. Then it displays all the available networks.

5.It starts scanning for the fingerprints when the connection is established successfully.

6. Students can scan their fingerprints now.

7.When it analyses and matches any student's fingerprint, it uploads the fingerprint ID to the server

8. As far as the server acquires the biometric data from the system, it updates the presence of the student

4.IMPLEMENTATION:

1. The Finger Print Sensor is interfaced with the Arduino board.
2. At the beginning, your finger will be scanned by placing your finger on the scanner
3. Once your finger is scanned, the scanner will generate template by Image Processing method which will be stored for comparing
4. Like this we will store all the templates of different people
5. So when we place our finger, the scanner will scan the finger and it will generate template and this template will be compared with previously stored templates

5.EXPERIMENTAL RESULT ANALYSIS

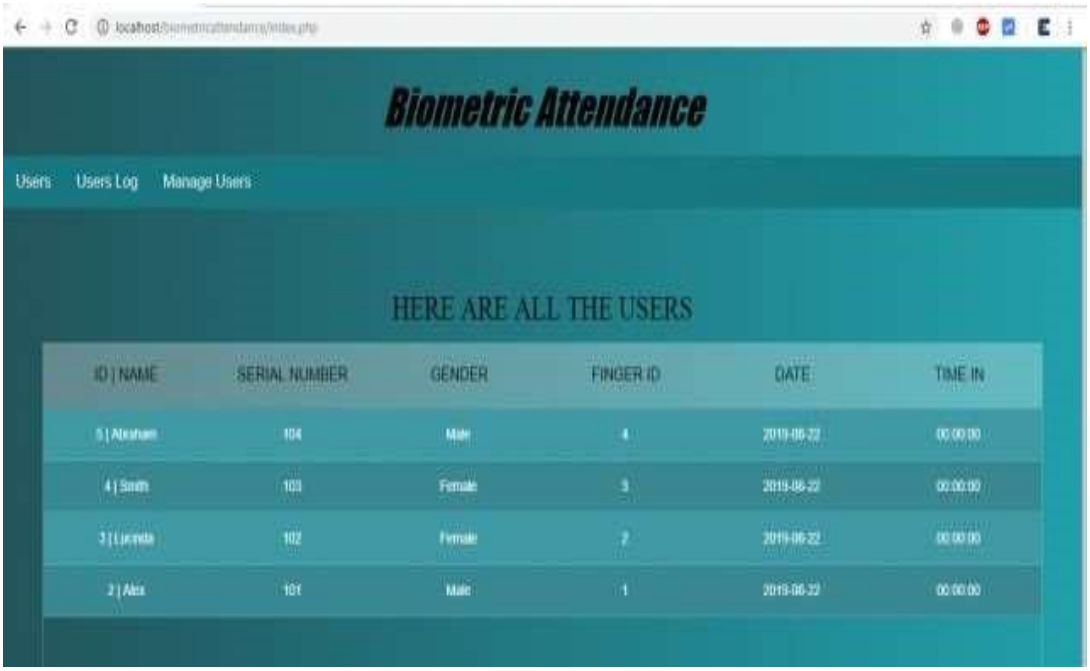
The IOT based biometric attendance system can store the biometrics of every student, thereby making the process easier and more reliable. While enrolling the fingerprint fingers must not be swollen and should not have scratches. Also, they should be neither damp nor dry. Styent's fingerprints must be properly clean. Orientation of fingers on FPS is also necessary.

Table 1 Problem that may occur during fingerprint scanning

Problems	Fingerprint Snapshot	Problems	Fingerprint Snapshot
Finger misplacement		Dirty finger	
Orientation		Skin problem	
Wet finger			

The Result after the implementation is as follows :-

Table 2 result after implementation



6. CONCLUSION

The usual procedure of taking manual attendance and keeping students' attendance is very difficult, inefficient and highly time-consuming task. The IOT based biometric attendance system is supported with biometric identification features which has the capability to automatize whole process. An attendance system with 3 broad features i.e. Internet of Things (IoT), Cloud computing and FPS yields a huge value to various institutions. Due to these considerations, it manifests that it is highly reliable with high security. This system is user friendly due to its lack of complexity.

7.REFERENCES

[1] Colin Dow, "Internet of Things Programming Projects: Build modern IOT with the Raspberry Pi 3 and Python", Paperback, October 31,2018, Packt Publishing.

Pradeeka Seneviratne, "Hands-On Internet of Things with Blynk: Build on the power of Blynk to configure smart devices and build exciting

IOT projects", Paperback, May 28,2018, Packt Publishing.

[2] Snehal R. Shinde, A. H. Karode and Dr. S. R. Suralkar, Review on IOT Based Environment Monitoring System, International Journal of Electronics and Communication Engineering and Technology, 8(2), 2017, pp. 103–108.

[3] Leo Louis. "Working Principle of Arduino and using it as a tool for study and research", IJCACS, April, 2016.

[4] Viswanath Naik. S, S. Pushpa Bai, Rajesh. P and Mallikarjuna Naik. B, Iot Based Green House Monitoring System, International Journal of Electronics and Communication Engineering & Technology (IJECET), Volume 6, Issue 6, June (2015), pp. 45-47.

[5] Pradip Patil,Sumit Sharma,R. B. Gajbhiye, "A Study- Impact of Internet of Things (IOT) For Providing Services for Smart City Development", June 2015.

[6] Trideep Singha Roy, Soumalya Ghosh, Rimpi Datta, Arpita Santra, IoT Based Home Automation Using Raspberry PI, International Journal of Computer Engineering and Technology 10(3), 2019, pp. 70-74.

[7] Pranava Madan, Lakshay Dhama , Rajiv Dahiya , Ruchika Doda, A Review Paper on Arduino Research Papers", InJournalResearch,2019.