

IoT Based Payroll Management System using Biometric System and RFID Technology

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Abstract: *Proposed a portable system which maintains the attendance record of students automatically. Our system, takes the attendance list over a significant piece of time, fair amount of time wastage, composing and marking. Students are neglecting as well as ignoring to sign the attendance paper and lecture attendance. It is necessary to move away from this conventional system and need to provide better solution for the problem which is being faced. IOT is the key medium to solve the said problem. This system uses a biometric and RFID concept to facilitate the attendance system in educational institutes. A biometric device is used to mark the attendance without the intervention of the teacher. This project enables the easy way of maintaining class attendance with fewer efforts, this will save time wasting on calling out names and it gives a full-proof method of attendance marking.*

Keywords: Payroll Management, RFID, Performance Appraisal, Attendance Monitoring, Biometric

I. INTRODUCTION

Our project presents a simple and portable approach to employ attendance in the form of an Internet of Things (IOT) based system that records the attendance using fingerprint based biometric scanner and stores them securely over cloud. The idea of this project was taken to overcome all the issues in all previous technologies and make data in digitized way. Attendance is a concept that exists in different places like institutions, organizations, hospitals, etc. during the start and end of the day to mark a person's presence. Since the past, the traditional way of taking attendance in a class includes a pen, attendance book or registers and a person. Thus the drawbacks arise as it consumes time, needs manual work and the most important, information or the attendance can be manipulated. Also, there are chances of employ not responding to their attendance and later claiming for the attendance. The new procedure of taking attendance using fingerprint is easier and therefore overcomes all the above mentioned drawbacks. Apart from this, forging a signature in an attendance sheet may also happen. The work in-creases much more if the class strength is more. Hence, a lot of work force has to be put into attendance verification and analysis.

In any IOT based system, the hardware consists of a combination of sensors, microcontroller, display, and the most important, hardware providing access to the internet. The Fingerprint technology serves as an identity proof to take the attendance of students. This project uses the concept of Internet of Things to set up a smart attendance tracking system.

II. LITRATURE SURVAY:

RFID Based Attendance System using IoT by B. Nandhakumar, K. Naveen kumar, M. Vijay, A. Sriram:

In this proposed system, authorized student is given an RFID tag. Thus, the data stored in this card is referred as the identification/attendance of the person. Once the student places the card in front of the RFID card reader, it reads the data and verifies it with the data stored in the microcontroller from 8051 family. If the data matches, then it displays a message on the LCD confirming the entry of that student else displays a message denying the attendance. The status of a student's attendance can be retrieved from this system by pressing the status button interfaced to the microcontroller. Hence, a lot of time is saved as all the students attendance is directly stored in the data base.

Development of IoT-Based Biometric Attendance System Using Fingerprint Recognition by Prasun Chowdhury, Debnandan Bhattacharyya, Asis Prasad :

This paper presents a system of IoT-based online attendance monitoring using fingerprint as biometric feature. It can eliminate fraudulent attendance problem faced by other attendance monitoring systems like RFID. Individual have to be present physically to register his or her attendance by giving own fingerprint impression. The system will also reduce problems such as keeping records in papers manually which can be lost or damaged easily. In the proposed method, firstly, fingerprints of the candidates have to be stored in a remote database through user interface using IoT. During verification, fingerprint sensor will check the impression of particular candidate with the pre-registered template, and the result will be shown in OLED display. Continuous assessment of attendance will be recorded in Web database which can be accessed by both candidate and admin.

Leave management system works on request-approve method where the users can apply for pre-leave/post-leave of various types like EL, CL, ML, etc. Also, the system allows the admin to publish public notices that can be accessed even without login. Implementing this system in corporate will help the authority to keep track of the attendance of employees and to increase transparency to promote proficiency in work-culture.

Design-Based Fingerprint Time Attendance System Using IOT With MCU Node ESP8266 by Nesha Putri Pratama, Agung Triayudi, Deny Hidayatulloh:

The purpose of this study is to design a tool that would be used for a fingerprint recognition system. The attendance system design through the process of identifying the fingerprint pattern. Fingerprints identified by C3 Fingerprint sensor will indicate that the employee is absent from work. The fingerprint pattern has previously been registered in advance and recorded is the name, Fingerprint ID, position and time of entry. Once the data has been inputted kedatabasemaka be directly recorded that the employee is coming Works. The results of testing this system has a fingerprint identification accuracy with an average of 86.67%, and the average time matching fingerprintsebesar.

III. RESEARCH METHODOLOGY

A Biometric and RFID based Attendance System is a highly specialized system that records Employee attendance by comparing a single fingerprint image with the fingerprint images previously stored in a database and RFID card information provided for each employee. This proposed attendance management system uses biometric identification and RFID card. This system compares an individual's biometrics and Tag with every record present in the database. In general, biometric recognition consist of two stages:

i. Enrolment and ii. Authentication During enrolment process the fingerprint and RFID card unique number of the user is captured with unique features and stored in a database with the Employee ID. During checking, the fingerprint and tag of the user is sensed again and the stored data are compared with the records present in database. All data and information required for the proper recording of attendance are stored in database. The employee places his/her fingerprint on the fingerprint reader and RFID Tag. If data in matched both by finger print and RFID tag then attendance is stored in cloud. The prototype captures new fingerprint to be stored in the record; scanned fingerprint placed on the device sensor and compared them against those stored in the database successfully.

IV. CONCLUSION

This system can be implemented many offices and institution for better management of attendance. This system will save time to reduce the amount of work and the administrator has to do and will replace the stationary material with and electronic device. Hence, a system with expected results has been developed but there is still for improvement.

REFERENCES

- [1]. "IoT Based Automatic Student Attendance Monitoring System," Chandrappa.S, Dharmanna L,Deekshith K, Jagadeesha S, Volume-6, Issue-2, Feb 2018, page no-329.
- [2]. "Biometrics in Internet of Things (IoT) Security", R.Subha, Volume 5, Issue 5, September- October, 2017, page no-37.

- [3]. "Fingerprint based attendance management system", L.S. Ezema, C.K.A. Joe-Uzuegbu, J. N.Eneh and I Amanze, Volume 6, Issue 7, July-2015, page no-1623.
- [4]. "Fingerprint Based Attendance System", Vol. 4, Issue 3, March 2015, and Karthik Krishnamurthi, S. Irudaya Mary, B. N. Sumalatha, page no-621.
- [5]. "Smart Attendance System Using RFID in IOT", MaheshSutar, Mahesh Patil, Sachin Waghmare, Volume 5, Issue 4, April 2016, page no-1155.
- [6]. "Fingerprint Based Attendance System Using IOT", Mr. Gore N S , Mr. Bafana S J ,Miss.Bele A M, Miss.Barbole M S, Volume 7 Issue 2, Mar - Apr 2019, page no- 64.
- [7]. "Biometric attendance monitoring system using raspberry pi and finger print", Volume 3, Issue 11, Huzefa Shabbier Sadikot, 2Omkar Ravindra Kavitar, 3Krishna Bajaj, page no-1.
- [8]. "Fingerprint Based Attendance System Using Arduino", Khin San Myint, Chan Mya Nyein, Volume 8, Issue 7, July 2018, page no-422.
- [9] M. Y. Shverdin, D. R. Walker, D. D. Yavuz, G. Y. Yin, and S. E. Harris, "Generation of a single-cycle optical pulse," Phys. Rev. Lett., vol. 94, p. 033904, 2005.
- [10] H.-S. Chan et al., "Synthesis and measurement of ultrafast waveforms from five discrete optical harmonics," Science, vol. 331, pp. 1165–1168, 2011.
- [11] H.-S. Chan, Z.-M. Hsieh, L.-H. Peng, and A. H. Kung, "Compact optical function generator," Opt. Lett., vol. 37, pp. 2805–2807, 2012.
- [12] G. Krauss et al., "Synthesis of a single cycle of light with compact erbiumdoped fibre technology," Nature Photon., vol. 4, pp. 33–36, 2010.
- [13] S.-W. Huang et al., "High-energy pulse synthesis with sub-cycle waveform control for strong-field physics," Nature Photon., vol. 5, pp. 475–479, 2011.
- [14] S.-W. Huang et al., "Optical waveform synthesizer and its application to high-harmonic generation," J. Phys. B, Atomic, Mol. Opt. Phys., vol. 45, pp. 074009-1–074009-14, 2012.
- [15] A. Wirth et al., "Synthesized light transients," Science, vol. 334, pp. 195–200, 2011.
- [16] M. T. Hassan et al., "Invited article: Attosecond photonics: Synthesis and control of light transients," Rev. Sci. Instrum., vol. 83, pp. 111301-1–111301-19, 2012.
- [17] A. Baltuska, T. Fuji, and T. Kobayashi, "Controlling the carrier-envelope ϕ phase of ultrashort light pulses with optical parametric amplifiers," Phys. Rev. Lett., vol. 88, p. 133901, 2002.