

Portable Attendance System Using Fingerprint Scanner

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Abstract— In the paper-based system, students are issued a sheet in every lecture to mark their attendance. But recording, maintenance, storing and generation of defaulter list along with chances of high number of fake attendances are some major disadvantage of the present system. More problems can be encountered during calculation and generation of defaulter list. There are chances of human errors during the manual process of calculation, generation and even storage of the attendance. Finger print based attendance system is the most secure form of marking attendance of students. Hence the proposed attendance system records attendance and stores as well as maintain the data and generates a list of defaulters. The system is also a portable system thus providing the convenience of marking attendance offered in the traditional method.

Keywords- Attendance, Database Generation, Fingerprint, Portable System, Arduino.

I. INTRODUCTION

The paper-based attendance system requires high maintenance. There is a high probability of attendance sheet getting misplaced or lost during giving and receiving the attendance sheet to students. The main disadvantage of paper-based approach is the false attendance marked by the student. Also, in this system the threat of attendance sheet getting damaged is very high. Recording, storing and maintaining attendance sheet is really a tedious and hectic process.

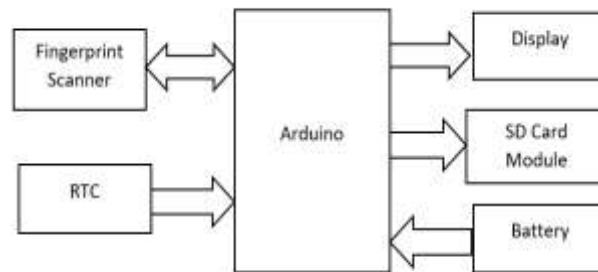
In this project, the attendance system will be designed in a device form which will be given to every student to mark its attendance. Once the attendance of one student gets marked then the device will be passed to another student to mark its attendance. After the marking of attendance of every student the result will be stored in SD card and then the SD card will be inserted in computer to generate the database of student which shows the date, time and lecture particular student have attended and on that bases the defaulter list will be generated.

Each student in the class is assigned with a number. The fingerprint of student is captured and stored in the form of template having their respective number. The Arduino is programmed to generate a defaulter list if over-all attendance is below 75% of any particular student. The calculation and generation of defaulter list is manual work in paper-based attendance system which is done automatically in the project.

II. DESIGN METHODOLOGY

2.1 Block Diagram:

Fig. 1 shows the block diagram of the proposed system. The finger print scanner is used register the student and scan their fingerprint for marking their respective attendance after the one-time enrolment. The finger print scanner is used to capture and record the finger print of the students. The images of finger print are stored in the form of templates. The RTC module helps to update the attendance record of students with the time and date. It's necessary to have the attendance synchronized with the date and time to maintain the records and store it appropriately. The SD card module is used to store the attendance of the students. The data from the SD card module is transferred manually into the database when SD card memory is full. The LCD display is used to display the time and date and message like attendance is recorded or successfully marked/ finger print not found or not registered.

**FIG. 1 Block diagram**

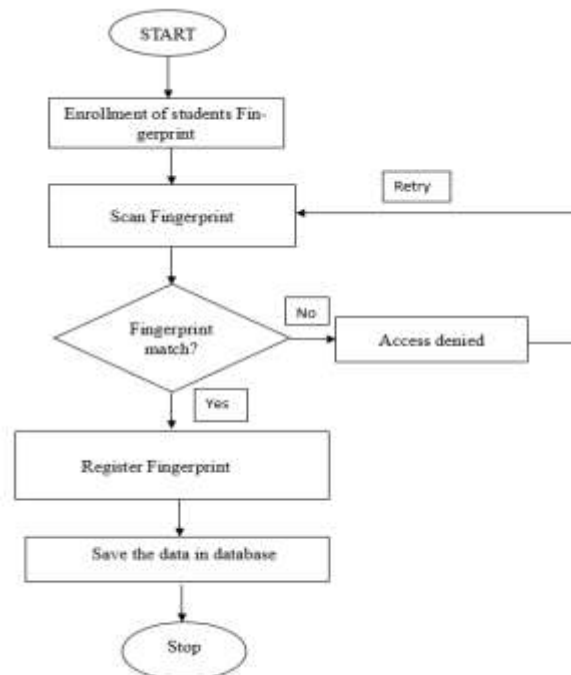
2.2 Flow Chart:

The students are first asked to place the finger on the scanner. The finger print scanner scans the finger for the first time. It captures the images of the finger print of a student and stores it in the form of templates for further process of recording attendance. This process is called as enrolment of the student.

After the enrolment of the students in the class attendance system is ready to use for marking the attendance of the students. The student place their finger on the scanner, it scans the finger and capture the image. The captured images are then compared with the images which are stored in the form of templates in the memory of the scanner.

If the captured images match with images stored in the templates, the student's attendance is marked and if finger print doesn't match with the images stored in templates then student is asked to place the finger again on the scanner. After marking the attendance of all the students, the data is stored in the SD card.

This system will record the attendance of entire day.

**FIG. 2 flow chart**

III. RESULTS AND DISCUSSION

Database using finger print of all the students is captured by the scanner for the enrolment. The data or images from the scanner are saved in the form of templates and are stored in the memory so the it can be used for attendance marking process. Attendance of the particular student is marked when a student place the finger on biometric and it is verified as being registered. The information of the student is displayed on LCD along with date and time.

Fig. 3 below shows the process of data getting downloaded for marking the attendance of the student. After turning on the attendance system the data of finger print images stored in the form of templates are downloaded to begin with further process of marking attendance.



FIG. 3 downloading the data

The Fig. 4 shows that after placing the finger, the student is asked to wait for verification whether the student is authorized or not.

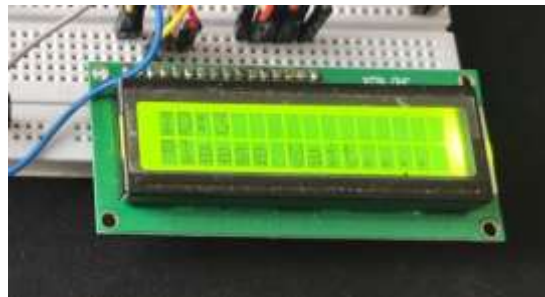


FIG. 4 Processing of after capturing the images from finger print scanner

The Fig. 5 below shows that attendance is registered after capturing the images from finger print and comparing it with the already existing data.

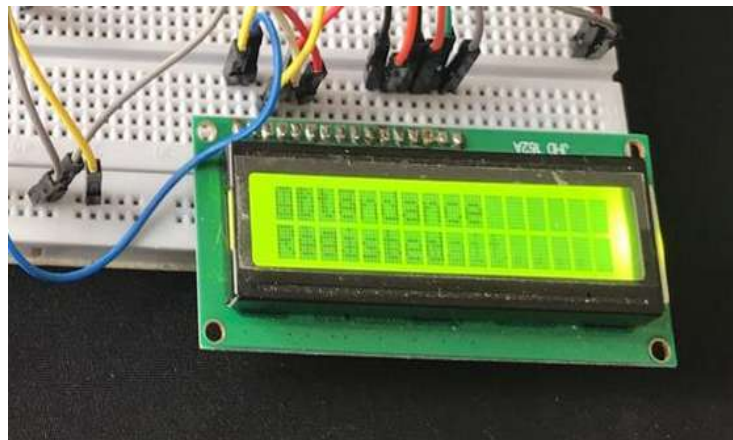
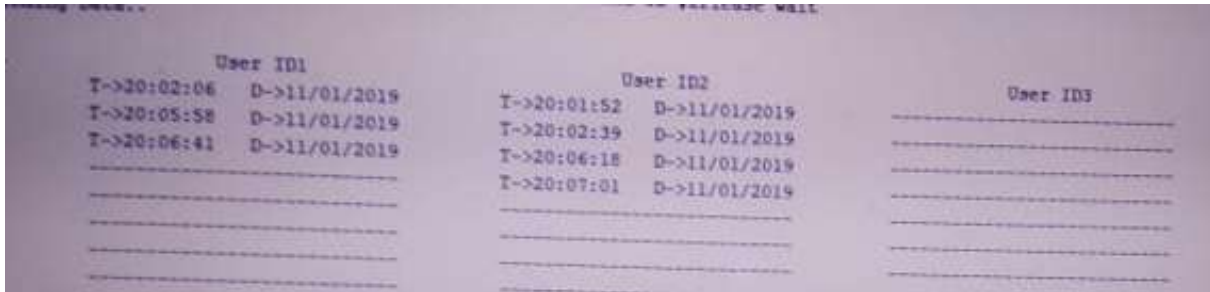


FIG. 5 attendance registered.

Fig. 6 below shows the record of students present for the lectures.



User ID1		User ID2		User ID3
T->20:02:06	D->11/01/2019	T->20:01:52	D->11/01/2019	
T->20:05:58	D->11/01/2019	T->20:02:39	D->11/01/2019	
T->20:06:41	D->11/01/2019	T->20:06:18	D->11/01/2019	
		T->20:07:01	D->11/01/2019	

FIG. 6 record of the students present.

IV. CONCLUSION

The project reduces the manual work required to maintain the paper-based attendance system it also saves the time required in calculation for generation of a defaulter list. Probability of marking false attendance is also eliminated. The proposed system is portable and it can be easily circulated in the classroom without creating any chaos in lecture or classroom.

ACKNOWLEDGEMENTS

It gives us immense pleasure to express with our deepest sense of gratitude to our respected guide Meena Perla, Asst. professor, EXTC Department, VIVA Institute of Technology, Virar, for her valuable guidance & help in this project. We would like to express our sincere thanks to principle Dr. Arun Kumar, principle, for whole hearted support. We also wish to express our gratitude to Asst. Prof Archana Ingle, HOD, Electronics & Telecommunication for kind hearted support. Finally, we would to thank our friends, family & staff of department for their help and support provided directly or indirectly during this project work.

REFERENCES

- [1] Zhang Yuru, Chen Delong and Tan Liping. "The Design of Wireless Fingerprint Attendance System". School of Computer and Information Engineering, Harbin University of Commerce, 150028 Harbin, China.
- [2] M.A. Meor Said, M.H. Misran, M.A. Othman, M.M. Ismail, H.A. Sulaiman, A. Salleh and N. Yusop. 2014. "Biometric Attendance", 2014 International Symposium on technology Management and emerging technologies. (ISTMET 2014). Bandung, Indonesia. 978-1-4799-3704-2.\
- [3] Nur Izzati Zainal1, Khairul Azami Sidek1, Teddy Surya Gunawan1,3, Hasmah Mansor1, and Mira Kartiwi2, "Design and Development of Portable Classroom Attendance System Based on Arduino and Fingerprint Biometric". 1 Department of Electrical and Computer Engineering, Kulliyah of Engineering. 2 Department of Information Systems, Kulliyah of Information and Communication Technology International Islamic University Malaysia, Kuala Lumpur, Malaysia.
- [4] Maddu Kamaraju and Penta Anil Kumar. "Wireless Fingerprint Attendance Management System". Department of E.C.E Gudlavalleru Engineering College Gudlavalleru, Andhra Pradesh, India. 978-1-4799-6085-9.
- [5] Shailendra, Manjot Singh, Md.Alam Khan, Vikram Singh, Avinash Patil and Sushma Wadar, "Attendance Management System", in IETE sponsored 2nd international conference, 2015, 978-1-4788-7225-8.