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FINGERPRINT BASED ATTENDANCE SYSTEM USING ATMEGA328P

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ABSTRACT

Formally, in most of the schools and colleges, attendance of students is marked duplicate on a sheet of paper. They use illegal method for marking fake attendance of student. Fingerprint based attendance system improve the reality of the attendance. This process usually takes 10 minutes to mark the attendance. The attendance is marked after the identification of student. For the identification of student, fingerprint based identification system is used. It is considered as the fastest method for the biometric identification. Additionally, attendance percentages are calculated and make the separate defaulter list and this list are sends to students periodically. The device is brief, which makes it different from the others.

Keywords: Automatic Attendance System, Biometrics, Fingerprint Recognition, MATLAB, Security.

I. INTRODUCTION

In this project, we are going to design a Fingerprint Based Biometric Attendance System. We will be interfacing the fingerprint sensor with Atmega, LCD Display & RTC Module to design the whole project. In this project, we used the fingerprint Module and Atmega to take and keep attendance data and records.

Attendance record play the important role in the academic success of institute students. The main purpose of this project is to mark the attendance of student. So institute or colleges does not make manually attendance records. It marks the original attendance of student

1) Fingerprint Module: R307

R307 is an optical fingerprint scanner module.R30X series produced by a Chinese vendor called Hangzhou Grow Technology Company Limited. R307 Fingerprint Module consists of optical fingerprint sensor, it has the high speed DSP processor, it also has stable performance, simple structure with the fingerprint entry. The R307 fingerprint module has two interface:

1) TTL UART
2) USB2.0

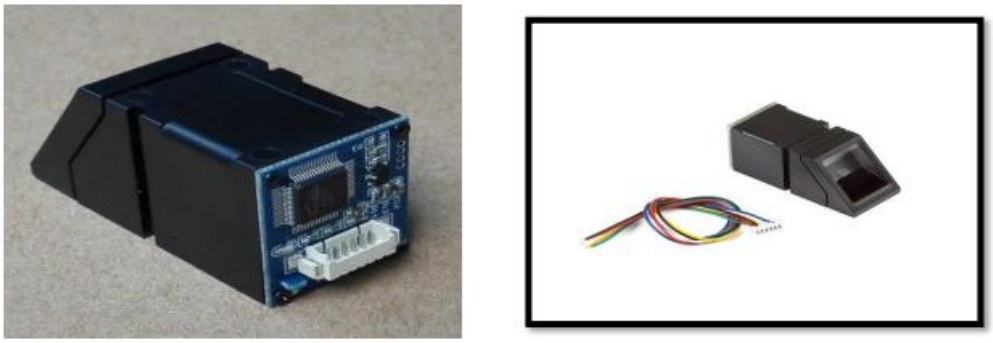

Fig 1: Fingerprint Module R307

2) RTC Module: DS3231

This module is a low-cost model. It is used for the time and date. DS3231 can track the minutes, seconds, hours. It works in the 12 Hrs or 24 Hrs format. This module has the totally 6 pins.

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Fig 2: RTC Module DS3231

1. 33K pin: Its output is stable.
2. SQW pin: outputs a nice square wave.
3. SCL pin: It is a serial clock pin.
4. SDA pin: It is a serial data pin.
5. VCC pin: It supplies power for the module 3.3V to 5.5V.
6. GND pin: It is a ground pin.

3) **Atmega 328P:**

It is the high-performance microchip. It is low power consumption 8-bit AVR microcontroller. This device operates between 1.8-5.5 volts. It is used in the autonomous system when simple low cost microcontroller is needed.

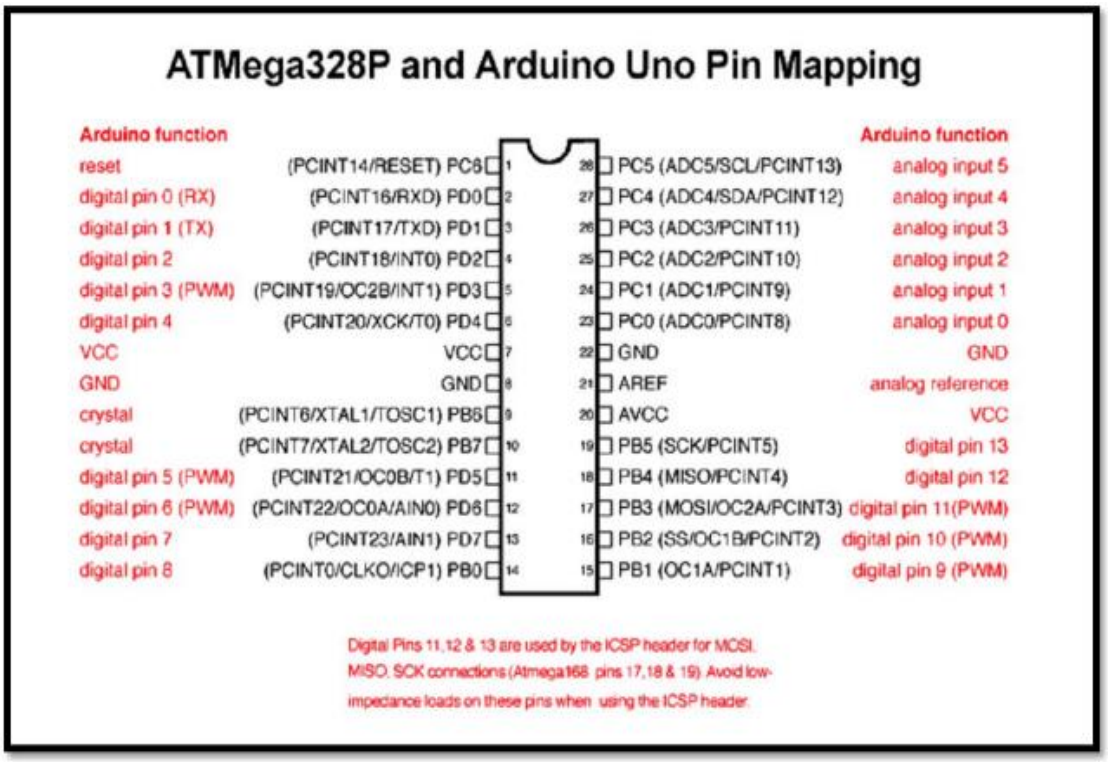

Fig 3: Atmega 328P

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II. MODELING AND ANALYSIS

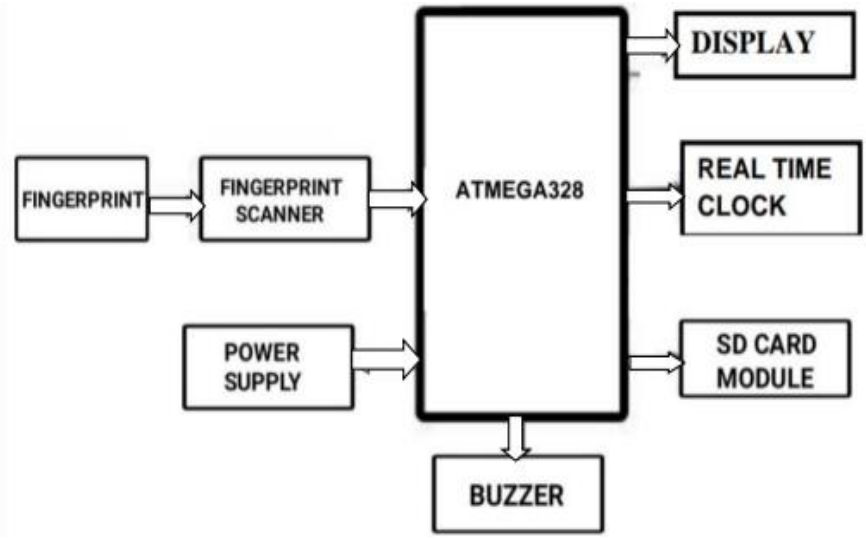

Fig 4: Block Diagram of Fingerprint Based Attendance System.

1. Enrollment: Each person can require to register their fingerprint by placing the finger on the fingerprint scanner.

2. Verification Process: 2nd process is the verification process. When he place finger on fingerprint scanner it compared to stored enrollment templates that already stored in the memory location where the enrollment process was executed. When the comparison is done it display result on the LCD.

3. Data Collection Process: The last process is the data collection process. The data of fingerprint device collected in the form of record to know the attendance of person/student.

III. RESULTS AND DISCUSSION

In this chapter, we will discuss the actual result of system. This System Work automatically by marking the attendance. It technology is time saving technology.

IV. CONCLUSION

Here we developed a Biometric fingerprint based attendance system using Atmega 328P. In this project we used R307 fingerprint sensor which reads Fingerprint and stores in the form of digital data. This system is totally user-friendly and very reliable. Therefore, it can be implemented in organisation or educational institutes.

ACKNOWLEDGEMENTS

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