

# Fingerprint Base Attendance using IoT

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**Abstract**— The paper is based upon the idea of making the attendance system automated by using the concept of biometric scanning. The attendance marking system is very tedious when it is done manually. This paper aims at trying to make it digital through the use of fingerprint module and then updating the database by transmitting the information through use of Wifi espes module. The database can also be made available online so that any person can access it and come to know about his/her attendance and it can also reduce the work load of Class teacher by eliminating the need to maintain a register for attendance.

**Key words:** Iot, Fingerprint Base Attendance

## I. INTRODUCTION

Here in this project we have tried to automate a classroom attendance procedure by using a fingerprint recognition module interfaced with microcontroller Atmega-16. A fingerprint recognition system can be used for both verification and identification. In verification, the system compares an input fingerprint to the “enrolled” fingerprint of a specific user to determine if they are from the same finger. In identification, the system compares an input fingerprint with the prints of all enrolled users in the database to determine if the person is already known under a duplicate or false identity. This report also involves the product based design of a physical fingerprint system and also layout of fingerprint matching algorithm. It uses various concepts of embedded system and has tried to make the hardware a marketable portable.

## II. GENERAL INSTRUCTIONS

### A. Basic Idea:

in market to many fingerprint module is available. But make some modification the fingerprint module and introducing (IOT) internet of think

### B. Propose System:

In our proposed system, we improve the student attendance system. The wifi espes module it is send the information is received from microcontroller to peritcular website.

### C. IOT:

(IOT) internet of think communicates information to people and systems such as state and health of equipment. Iot is generally Website to disply information which received in wifi espes module. Iot is display information around the world. You can check in where anytime website.

## D. Block Diagram

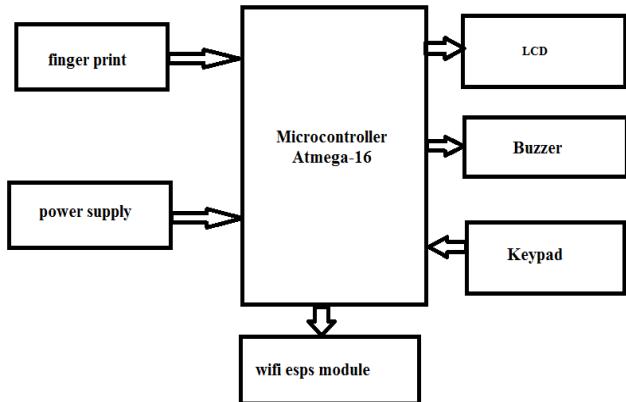


Fig. 1: Block Diagram

## E. Block Diagram Description

Student data base is stored in memory and gives unique id and number. In fingerprint module it takes the input and check the memory find the match unique id.and the id is match with store id it gives the information to controller with unique number. and controller get the information and it match then gives to lcd, lcd display unique id or number and display successfully match and buzzer is on small sound, then give controller give at a time wifi espes module to send information on to website. All progress in real time, keyboard is use to same changes and new entry.

### 1) Why using At-mega 16 microcontroller?

- atmega-16 features
- harvard architecture
- 8 bit microcontroller
- high performance -16 mips 16 MHz
- large program memory
- EEPROM- non-volatile memory
- two 8 bit, one 16bit timer with total 4 PWM channels
- on chip 10 bit ADC, 8 channels
- UART,12c,SPI protocol support

## F. Comparative Study

parameter	Wifi	Bluetooth	Zigbee
Range	0-100m	10-30m	10-100m
Data rate	2-11MBPS	1MBPS	0.25MBPS
Power consumption	Medium	Low	Ultra low
Size	Large	Smaller	Smallest
Cost	Higher	Medium	Very low
Frequency bandwidth	2.4GHz, 5GHz	2.4GHz	868/915 MHz; 2.4 GHz
Channel bandwidth	22MHz	1MHz	0.3/0.6 MHz; 2 MHz

Table 1: Comparative Study

### G. Photographs

#### 1) Fingerprint Module

Finger Chip IC for fingerprint image capture combines detection and data conversion circuitry in a single rectangular CMOS die. It captures the image of a fingerprint as the finger is swept vertically over the sensor window. It requires no external heat, light or radio source. Most reliable biometric for uniquely identifying an individual. In spite of some recent legal challenges in the USA, they are still regarded as giving proof of identity beyond reasonable doubt in almost all cases. The majority of the biometric-based security systems in operation today are based on fingerprint recognition



Fig. 2: Finger Chip IC

#### 2) Wifiesps Module

The purpose of this independent project was to explore the capabilities of the new ESP8266 wireless module. The ESP8266 is a low cost wireless module with a complete AT command library. This allows for easy integration with a Wi-Fi network through serial communication. The ESP8266 was integrated with a microcontroller on a Microstick II development board. Two modes of the ESP8266 were explored: as a station and access point. As a station, the system connects to a wireless network and reads weather data from the internet. This data is parsed and certain measures are displayed on an LCD screen. As an access point, the ESP hosts a small html website while the reads the temperature on demand from a temperature sensor. This mode demonstrates the Wi-Fi chip's ability to host and receive data simultaneously. Overall, the ESP8266 SOC is an easy to use Wi-Fi radio that can be easily added to most microcontroller projects using the serial protocol.



Fig. 3: ESP-13

### III. HELPFUL HINTS

The fingerprint module is taken and it is analyzed in the microcontroller. If the fingerprints are mismatched, then the control signal will not be sent to the wifi esp module. The wifi esp module will send the messages to respective Website.

### IV. CONCLUSION

Thus the developed system provides fingerprint acquisition module and attendance management module in computer. It

can realize automatically such functions as information acquisition of fingerprint, processing, wireless transmission, fingerprint matching, and attendance management. A fingerprint acquisition module and a wireless alarm module were designed by using the fingerprint sensor and wifi esp module respectively. The whole system was implemented wireless alarm through messages and internet in the IoT web. In order to achieve the simple and high real-time system, it realized low-cost and high-performance wireless fingerprint attendance function, which provided a new wireless fingerprint attendance system for enterprises and institutions. To design and develop a low cost and easily mountable advanced fingerprint attendance system using wireless technology for industries, colleges, hospitals, government offices etc..

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