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IOT Based Biometric Voting System

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Abstract: ***In earlier days, there are so many electoral systems i.e, paper ballots, punch cards. In the existing, fingerprint voting system was implemented using Arduino UNO technology. In this the information is first registered with help of user id and password. This information is checked by the data server and voting is done according to the information. Now we are proposing fingerprint voting system using Arduino Mega256 technology. For Finger print scanning we are using R305 module as a scanner. This module has in-built ROM and RAM. This module can operate in 2 modes they are Master mode and User mode. We will be using Master mode to register the fingerprints which will be stored in the ROM present on the scanner with a unique id. When this module is interfaced to the MEGA256, we will be using it in User mode. When coming to our application, only authorized persons can be available for voting, thereby avoiding rigging. This scanner is interfaced to MEGA256 microcontroller. By using this controller we will be controlling the scanning process. After the scanning has been completed the person has to press a key among available switches, immediately one vote is credited and stored in the server. The wifi module is used for accessing the webpage. After the voting has been completed if he presses the switch again, the vote will not be considered. If an unauthorized person tries to scan his image then an indication will be given by a buzzer which is interfaced to the controller. This project uses regulated power supply of 5V.***

Keywords: Arduino Mega2560, Fingerprint module, Wi-Fi module, LCD display, Switches, Buzzer.

I. INTRODUCTION

Electronic voting reefer's to voting using electronic means to either aid or take care of the chores of casting and counting votes depending on the particular implementation ,e-voting may use standalone electronic machine (also called EVM)or computer to the internet .This concept describe an online electoral system for Indian election is proposed for 1st time there are number of voting system develop all over the world with each of them having it's limitation's this system uses the fingerprint sensor to scan thumb of the voter's in order to provide high performance with high security to the voting counter also as we using internet of thing i.e.(IOT)to make the voting system more practical. This system used to display the data- base of the user (voter). After receiving the instruction from the polling officer, also the voter can use the touch screen to poll his/her vote. The internet of things (IOT) is the inter-networking of physical devices, vehicles, building and other items embedded with electronics, software, sensors, actuators and network connectivity which enables these objects to collect and exchange data. The IOT allows objects to sense or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based system, and resulting in improve efficiency, accuracy and economic benefit in addition to reduce human intervention. In the broadest sense, the IOT encompasses everything connected to the internet, but it is increasingly being use to define objects that "talk" to each other. Simply, the Internet of things is made up of device - from simple sensors to smart phones and wearable's -connected together. For making an IOT infrastructure where we configure the hardware with software and control the devices over the internet this can be with help of raspberry pi and Arduino. The raspberry pi and Arduino is platform for developing the internet of things environment.

II. LITERATURE SURVEY

The Election Commission of India developed the country's EVMs in partnership with two government-owned companies, the Electronics Corporation of India (ECIL) and Bharat Electronics Limited (BEL). Though these companies are owned by the Indian government, they are not under the administrative control of the Election Commission. They are profit- seeking vendors that are attempting to market EVMs globally. The first Indian EVMs were developed in the early 1980s by ECIL. They were used in certain parts of the country, but were never adopted nationwide. They introduced the style of system used to this day, including the separate control and ballot units and the layout of both components. These first-generation EVMs were based on Hitachi 6305 microcontrollers and used firmware stored in external UV erasable PROMs along with 64kb EEPROMs for storing votes. Second-generation models were introduced in 2000 by both ECIL and BEL. These machines moved the firmware into the CPU and upgraded other components. They were gradually deployed in greater numbers and used nationwide beginning in 2004. In 2006, the manufacturers adopted a third-generation design incorporating additional changes suggested by the Election Commission.

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According to Election Commission statistics, there were 1,378,352 EVMs in use in July 2009. Of these, 448,000 were third-generation machines manufactured from 2006 to 2009, with 253,400 from BEL and 194,600 from ECIL. The remaining 930,352 were the second-generation models manufactured from 2000 to 2005, with 440,146 from BEL and 490,206 from ECIL. (The first-generation machines are deemed too risky to use in national elections because their 15-year service life has expired, though they are apparently still used in certain state and local contests.) In the 2009 parliamentary election, there were 417,156,494 votes cast, for an average of 302 votes per machine.

III. EXISTING SYSTEM

In the existing system, the election process was preceding like cast the vote by showing the voter ID card at the polling booth and by pressing the button against the party symbol. But in that there is a chance of rigging. So, to avoid this we are incorporating the embedded systems into the election system by registering the fingerprints of every voter before election.

IV. PROPOSED SYSTEM

In the proposed system, we are incorporating the fingerprint module and by using this system, before election we are going to register the fingerprint of every voter and at the time of voting one must show his finger at the fingerprint module to cast his vote. Since finger print was unique for every person and there is no chance of rigging and once the fingerprint was matched then only the person can able to cast his vote.

V. BLOCK DIAGRAM

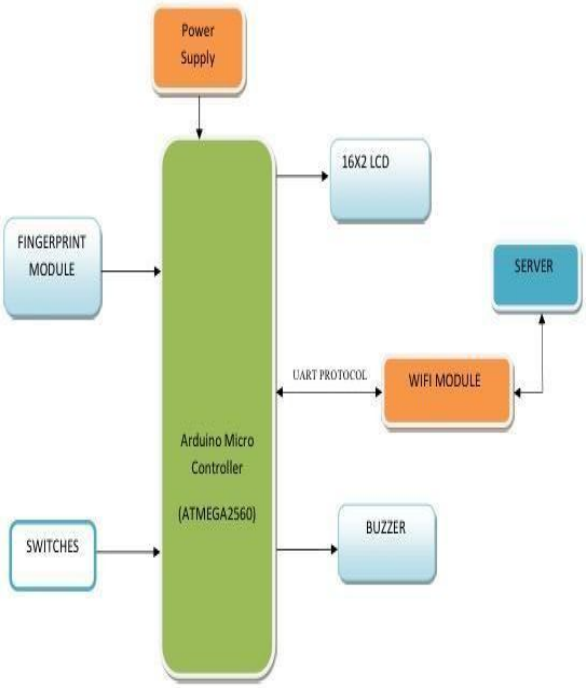

Fig 1: Block Diagram

A. Working

The following block diagram shows the Biometric voting machine with the help of Arduino. The hardware requirements of this voting machine are Power supply, fingerprint module, LCD display, and Arduino. This project is designed by a prototype of a product, biometric voting machine, it allows voters and this product can make easy for registered voters. By using the arduino software the fingerprint can be enrolled. If the person is already voted or not registered then the error message is displayed through this illegal voting is avoided. The total vote can display by the main officer after the actual voting starts and if the fingerprints of the officer should be verified.

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VI. HARDWAREIMPLEMENTATION Arduino Mega (Atmega2560):

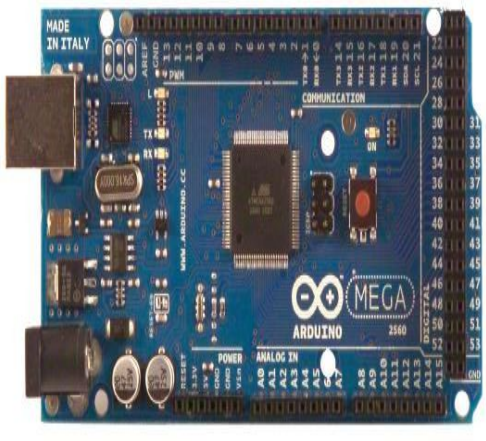

Fig.2: Arduino Mega2560

The Arduino Mega 2560 is a microcontroller board based on the ATmega2560 (datasheet). It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.

A. Iot Wifi Module

Fig.3: Wifi Module

The ESP8266 is a low-cost Wi-Fi microchip with full TCP/IP stack and microcontroller capability produced by manufacturer Express if Systems in Shanghai, China

B. LCD

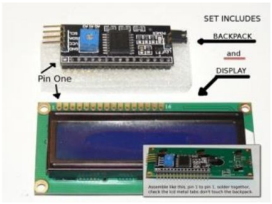

Fig.4: LCD Display

LCD (liquid crystal display) is the technology used for displays in notebook and other smaller computers. Like light-emitting diode (LED) and gas-plasma technologies, LCDs allow displays to be much thinner than cathode ray tube (CRT) technology.

C. Fingerprint Module

Fig.5: Fingerprint module

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This is a figure print sensor module with TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USB-Serial adapter. The user can store the finger print data in the module and can configure it in 1:1 or 1: N mode for identifying the person.

D. Buzzer

Fig.6: Buzzer

A buzzer or beeper is audio signaling device, which may be mechanical, electromechanical, or piezoelectric

E. Switches

Fig.7: Switch

A button is a button, and a switch is a switch, but these translucent arcade buttons are in a class of their own. They're the same size as common arcade controls (often referred to as 30mm diameter).

VII. SOFTWARE REQUIREMENTS

A. Arduino Software

You also need a standard USB cable (A plug to B plug): the kind you would connect to a USB printer, for example. (For arduino, you'll need an A to Mini-B cable instead). The Arduino Uno, Mega, Duemilanove and Arduino Nano automatically draw power from either the USB connection to the computer or an external power supply. If you're using an ArduinoDiecimila, you'll need to make sure that the board is configured to draw power from the USB connection. The power source is selected with a jumper, a small piece of plastic that fits onto two of the three pins between the USB and power jacks. Check that it's on the two pins closest to the USB port. Connect the Arduino board to your computer using the USB cable.

Opening The Arduino Window

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VIII. FLOW CHART

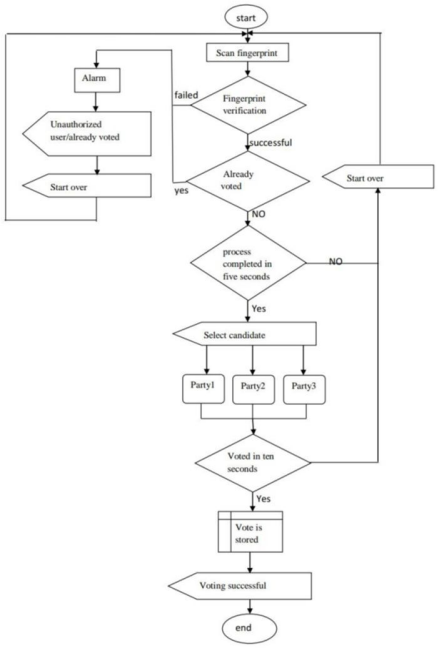

Fig.9: Flow chart

A. Advantages

1) No manual errors
2) No false voting
3) Need not to remember any password
4) Need not to carry any card

B. Applications

1) Government elections
2) Company / corporate internal elections
3) Union elections

IX. RESULT

The project “Iot Based Biometric Voting System” was mainly intended to develop free and fair way of conducting elections which are basis for democratic country like India. Circuit is implemented in Orcad and implemented on the microcontroller board. The performance has been verified both in is completely verified functionally and is following the application software. It can be concluded that the design implemented in the present work provide portability, flexibility and the data transmission is also done with low power consumption.

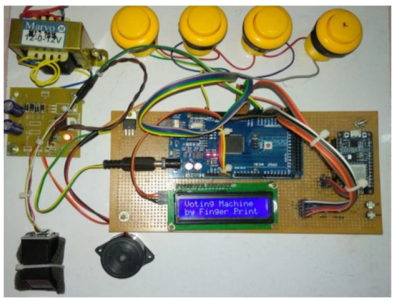

Fig: Vote is casted

X. CONCLUSION

For over a century, fingerprints have been one of the most highly used methods for human recognition; automated biometric systems have only been available in recent years. This work is successfully implemented and evaluated. They arrived results were significant and more comparable. This project enable's a voter to give his/her vote and avoid proxy vote or double voting and provide highly secure, quick to access and easy to maintain all information of voting ,highly efficient and reliable due to use of fingerprint scanner it reduce or remove unwanted human error. In addition this voting system is capable to handle multiple modules in various centers and provide better scalability for large election.

REFERENCES

[1] A. K. Agarwala, D. T. Shahani, and P. V. Indiresan. Report of the expert committee for evaluation of the upgraded electronic voting machine (EVM). Sept. 2006.

[2] Wikipedia. Results of the 2009 Indian general election by parliamentary constituency SanjayKumar, Manpreet Singh, “design of a secure electronic voting system using fingerprint technique” ,ijcsi International Journal of Computer Science Issues, Vol. 10, Issue4, No 1, July 2013.

[3] Ashok, Kumar D. and T. Ummal Begum, 2011. A Novel design of Electronic Voting System Using Fingerprint.

[4] Timaedeepkaurameja, jasleenkarubassi, D amanjeet kaur" Implementation of electronic voting machine through FPGA" International journal of soft computing and artificial intelligence volume-2,isshu[9] Hari K. Prasad J. Alex haldermanRopGonggrijp "security analysis of India's electronic voting machine,"proc.17th ACM Conference on computer and communication security (CCS'10).

[5] Salil Prabhakar, 2001"Fingerprint Classification andmatching using filter bank.

[6] DavideMaltoni, Anil K. Jain, 2009,"Handbook of fingerprint Recognition 2nd edition.

[7] Ashok Kumar D. Unmalsariba Begum T.,"A novel design of electronic voting system using fingerprint", International Journal of Innovative Technology & creative Engineering (ISSN: 20458711) ".,vol1 no 1.pp:12 19,January 2011

[8] Junichsakamoto,2008 "Hybrid fingerprint Recognition.

[9] Election Commission of India.

[10] Vishal Vilas Natu,2014. Smart-Voting using Biometric “International Journal of Emerging Technology and Advanced Engineering.

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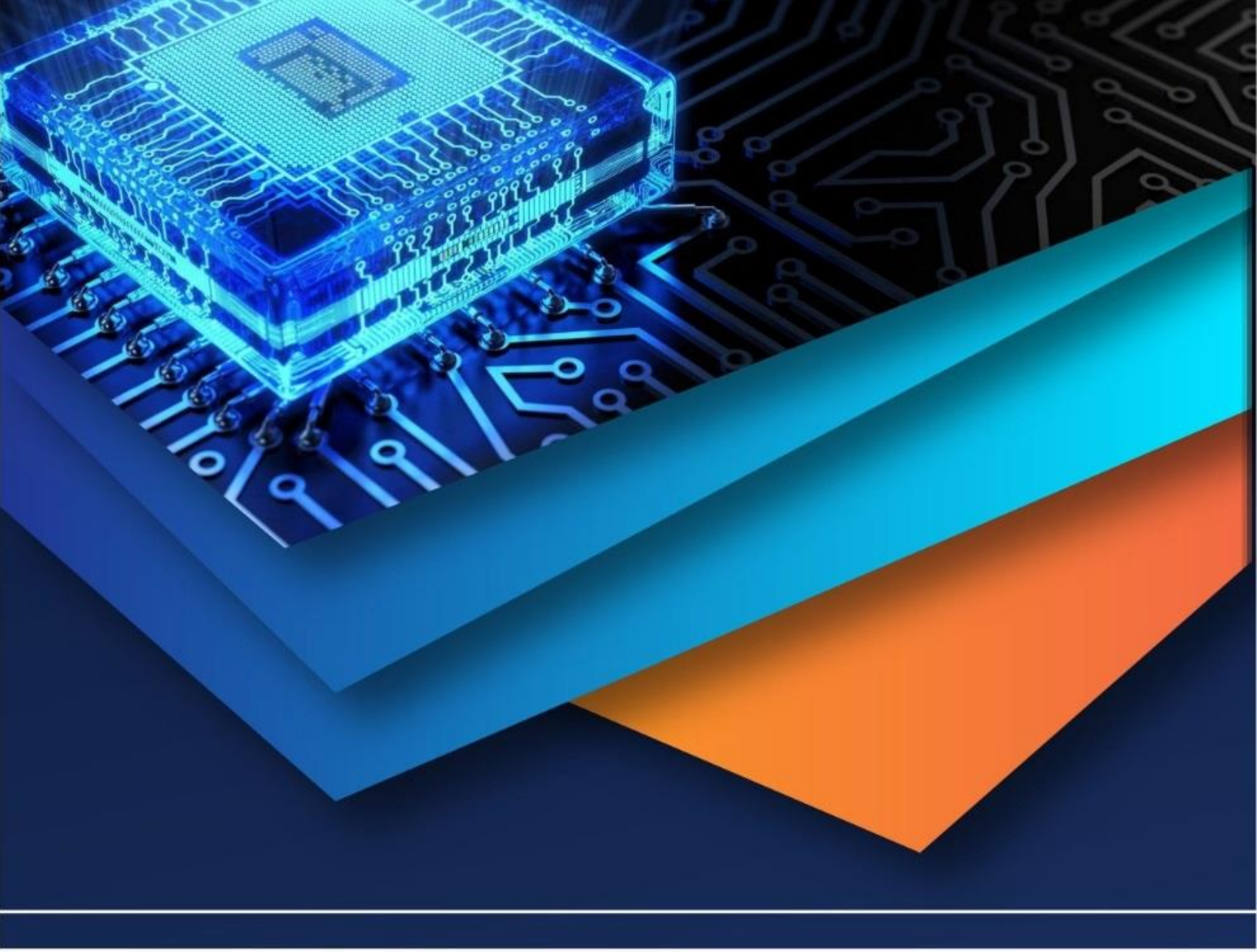

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