

A Design of E-Voting Using Fingerprint Recognition System for Secured Voting

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Abstract: This paper is used for providing sophisticated voting system using Finger print biometrics. The hardware style incorporates a Finger print scanning device that is employed to match the finger print of the user with the pre-stored finger print of the user. throughout vote, each the finger prints square measure checked for matching and if it doesn't match, then associate degree alert is given victimisation buzzer. Resistive bit screen enabled show|LCD|digital display {alphanumeric display} is employed to display the corresponding appointive candidates and parties and emblem. The user will choose the actual nominators via bit screen device therefore illegitimate vote can not be done since finger print is exclusive for every person. The vote method is allotted as long as the finger print matches with the hold on price. every and each vote take a count can transmit from the actual election booth to the most server.

Key words: PICMicrocontroller(PIC16F877A) • Power supply5v • Finger Print identification module.Alarm • LCD& Resistive Touch screen • scu • EEPROM

INTRODUCTION

This venture is designed for digital vote casting device by using the use of the fingerprint identity method. Right here citizens thumb impressions are used for figuring out the voters. at some point of vote casting whilst the voter maintains his/her thumb within the scanner, the gadget will check whether or not it fits with pre stored impressions inside the database. If it fits then machine will permit the voter to poll his vote and otherwise prevent the voter from polling. We use counting table to claim effects on this paper, firstly related paintings is explained observed via hardware layout and software layout. Experimental outcomes and end is defined ultimately of this paper.

Related Work: In 2015 “Internet voting system” i-vote allows to register and cast their vote using website managed by election commission. In 2015 “Secure and verifiable E-voting” It is an End to End verifiable E-voting system [1, 2, 3] in polling places & used for blind voters to cast secured vote. In 2014 “Draft technical report for VEC vvote system [4]. “This technical report includes

general background, user experience & cryptographic protocols & human process. In 2011” E2E Binding Governmental Election with Ballot Privacy “It provides a ballot voting system [5] with less privacy.

Existing Voting System: electronic voting Machines (“EVM”), idea mooted with the aid of the leader Election Commissioner in 1977. The electronic voting device (EVM) performs a very crucial role in a rustic where government officials are elected into office. The prime cognizance of electoral control and its maximum publicly seen pastime is to organize and perform facilities to be able to offer an opportunity for all eligible persons to take part, via vote casting, within the preference in their representatives of their establishments of governance (reference 1).

As voting is generally a geographically dispersed hobby which regularly needs to be organized and implemented within very tight time frames, imparting a value-powerful vote casting provider for all eligible electorate while preserving excessive standards of integrity, security and professionalism is a main venture to electoral management our bodies.



Fig. 1: Existing Voting System

The vote casting Operations subject matter location deals with the essential business of recording votes. It focuses on the secrecy of and accesses (freedom and possibility) to vote casting. voting Operations considers troubles relating to electoral rules and control, administrative rules, generation and shared obligation for such operations. In current balloting system the voter's database [6] is saved and a voter identity is given to all citizens. at the same time as engaging in the election [7] the citizens have to deliver the voter identity to cast their vote.

The voting gadget consists of button type to choose the candidate and the method are performed manually. eventually it takes much time to claim the result.

Limitations:

- RE-POLLING & RE-CASTING can be done easily
- Time consumption is high

Remedies: The above noted safety issues can be solved by means of other manner which includes taking extra care in maintaining the EVMs secure and relaxed till the time of putting forward the effects, which can be done manually. by using setting Jammers at the ballot vault to avoid the tampering using wi-fi communicate (cellular phones). consequences need to be declared without delay after polling. The hassle of rigging can be eradicated with the aid of giving a completely unique identity to each consumer so that one man or woman can solid his vote only once. That specific identity can be Fingerprint? of every person.

Architecture of the Proposed System: The main components of the voting system is listed as follows,

- PIC Microcontroller (PIC16F877A)
- Fingerprint Identification Module
- LCD & Resistive Touchscreen
- Power Supply (5v)
- Alarm
- Driver circuit
- Signal control unit(SCU)
- EEPROM

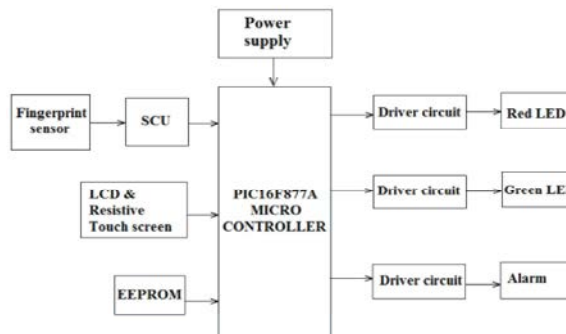


Fig. 2: Block Diagram of Proposed Method

PIC Microcontroller: The hardware abilities of % gadgets range from eight-pin DIP chips up to one hundred-pin SMD chips, with discrete I/O pins, ADC and DAC modules and communications ports which include UART, I2C, CAN and even USB.

Low-energy and high-speed versions exist for lots sorts. The producer materials pc software program for development referred to as MPLAB, assemblers and C/C++ compilers, and programmer/debugger hardware under the MPLAB and PICKit collection(reference3). Some open-source gear also are available. a few elements have in-circuit programming functionality; low-value development programmers are to be had as nicely has excessive-production programmers. it's far a serial programming and re-programmable Flash-memory functionality. Transmitter (USART). All of these features make it perfect for more advanced degree A/D packages in automotive, industrial, home equipment and purchaser programs.

Fingerprint Identification Module: That is a fingure print sensor module with TTL UART interface for direct connections to microcontroller UART or to laptop thru MAX232 / USB-Serial adapter(reference2). The user can store the finger print information in the module and may configure it in 1:1 or 1: N mode for figuring out the individual.The FP module can directly interface with 3v3 or 5v Microcontroller. A degree converter (like MAX232)

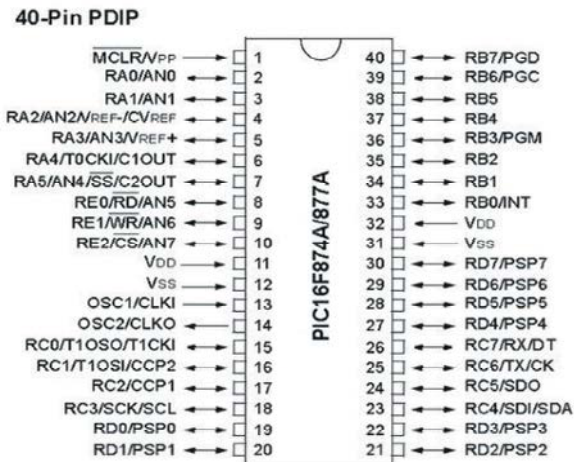


Fig. 3: Pin Diagram

is needed for interfacing with pc serial port. Optical biometric fingerprint [8] reader with splendid capabilities and can be embedded into an expansion of give up products.

Features

- Included photo gathering and algorithm chip collectively, ALL-in-One
- Fingerprint reader can conduct secondary development, can be embedded into a selection of end merchandise
- Low electricity consumption, low cost, small length, excellent performance
- Professional optical generation, unique module production techniques
- Good photo processing skills, can efficaciously seize photo up to resolution 500 dpi



Fig. 4: R305 Module

DESCRIPTION-A Finger print module consists of these

Power DC: 4.5V- 6.0V

Interface UART(TTL logical level)/ USB 1.1

Working current Typical: 100mA

Peak: 150mA

Matching Mode 1:1 and 1:N

mage acquiring time: <0.5s

Template size: 512 bytes

Average searching time: < 0.8s (1:880)

Window dimension : 18mm*22mm

LCD & Resistive Touch Screen: A Finger print module is composed of those liquid crystal display & RESISTIVE touch display screen-A touchscreen is a digital visual show which could detect the presence and region of a hint inside the show vicinity. The time period typically refers to touching the show of the tool with a finger or hand. Touchscreens can also sense different passive gadgets, which includes a stylus.

To interface the touch panel into microcontroller. To read the placement of the contact, we should first examine touch function sequentially i.e. first study X position and then read the Y function. To try this, join X1 and Y2 pins of touch screen to ADC multiplexed GPIO pins of the controller. And connect X2 and Y1 pins of touch screen to easy GPIO pins of the microcontroller.

Power Supply: Power supply unit consists of the following units:

- Step down transformer
- Rectifier unit
- Input filter
- Regulator unit
- Output filter

A regulated strength supply could be very a good deal critical for several electronic devices due to the semiconductor material hired in them have a set fee of current in addition to voltage. The tool may get broken if there's any deviation from the fixed price. The AC energy deliver gets converted into constant DC via this circuit. by means of the assist of a voltage regulator DC, unregulated output could be fixed to a consistent voltage. The circuit is made of linear voltage regulator 7805 together with capacitors and resistors with bridge rectifier made up from diodes. From giving an unchanging voltage supply to constructing assured that output reaches uninterrupted to the equipment, the diodes along side capacitors deal with elevated efficient sign conveyal.

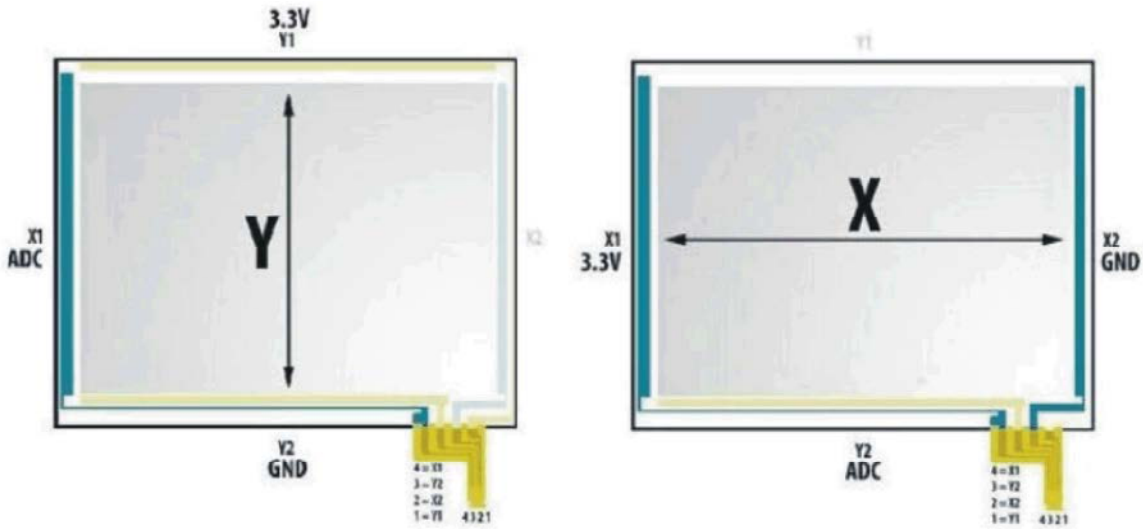


Fig. 5: Interfacing Touch panel to Microcontroller

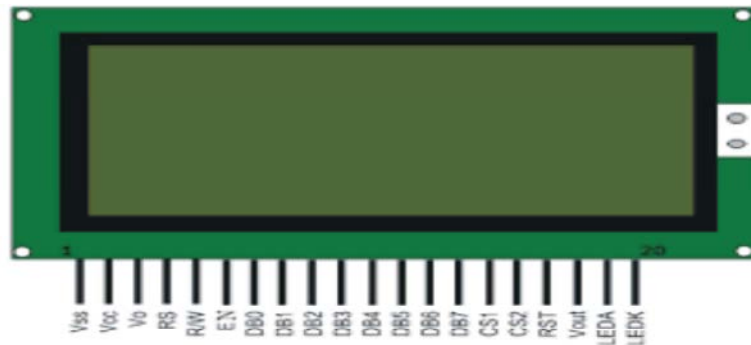


Fig. 6: Pin Diagram

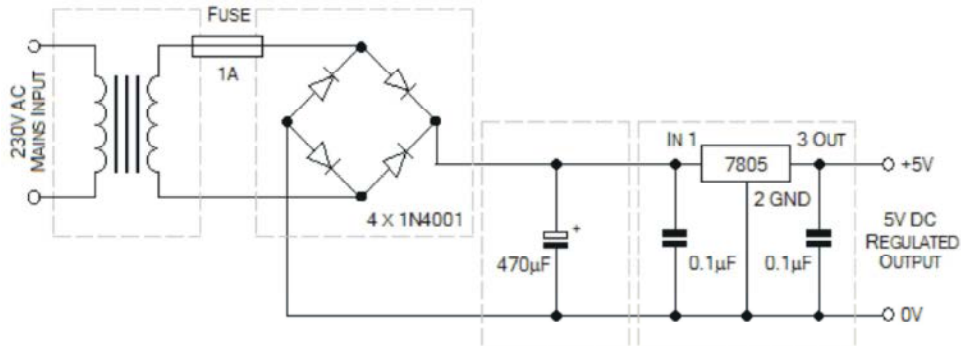


Fig. 7: A 5v Dc Regulated Power Supply

As we've got formerly mentioned that regulated strength supply is a device that mechanized on DC voltages and additionally it may uphold its output correctly at a fixed voltage all the time despite the fact that if there is a great alteration inside the DC input voltage.

ALARM-A security alarm is a system designed to come across unauthorized entry.the Voter need to go into their vote for first time and their finger print is readed.

After that they check the already saved picture statistics in the fingerprint reader.if the fingerprint is matched the alarm isn't always activated in any other case the alarm jewelry and used to notify that man or woman. If already voted man or woman again enter to position their vote the fingerprint is readed and again the alarm rings the voter is unauthorized and it prevents from Re-polling and Recasting.

Driver Circuit: In electronics, a driver is an electrical circuit or different electronic factor used to control every other circuit or element, inclusive of a excessive-electricity transistor, liquid crystal show (liquid crystal display).

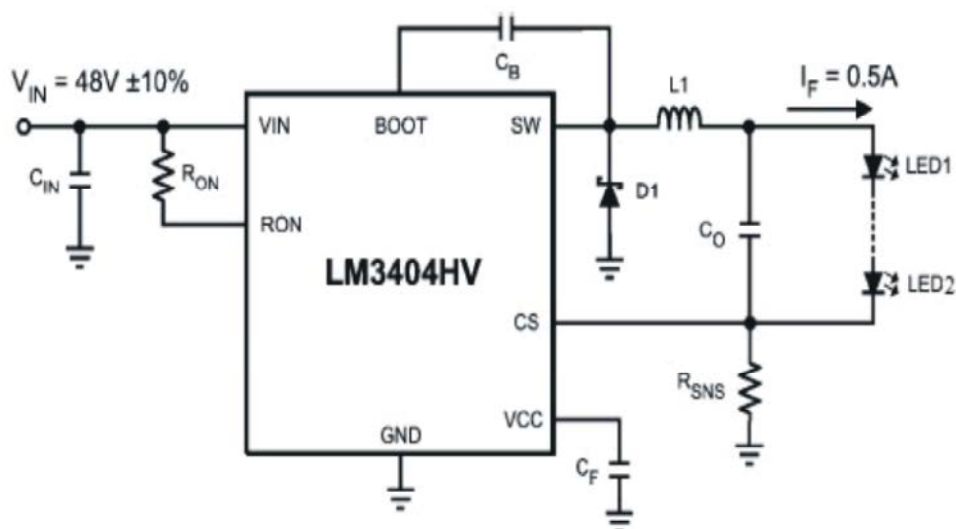


Fig. 8: Driver circuit

Signal Control Unit (SCU): A manage unit handles all processor control signal. It directs all inputs and output float, fetches code for education from microprograms and direct other units and fashions by means of presenting manage and timing signals. A scu aspect is considered the processor mind as it issues orders to pretty much the whole lot and ensures correct instruction execution SCU functions are as follows:

- It Controls sequential practise execution and translates coaching.
- Regulates and controls processor timing. It sends and gets acontrol indicators from different pc gadgets.
- It handles more than one duties.along with fetching, deciphering, execution coping with and storing results

The SCU are especially used for microprogram controls. The microprogram are stored in a special manipulate memory and are based totally on flowcharts. They're replaceable and best because of their simplicity

Eeprom: The EEPROM stands for Electrically Erasable Programmable study-only memory and is a form of non-risky memory utilized in computers and other digital gadgets to keep tremendously small amounts of information but allowing character bytes to be erased and reprogrammed in contrast to most other types of

non-unstable memory, an EEPROM usually lets in bytes to be study, erased and re-written in my view. EPROMs are erased with the aid of exposing a chip to ultra-violet light to erase its whole contents. Flash EPROMs are electrically erased and programmed however most effective as agencies of bytes, ranging from tens to tens of hundreds of bytes for one of a kind devices.

Future Scope:

- This system can be used for elections because it offer whole protection and will offer accurate effects and keep time and expenditure.
- This can be modify through interfacing it with a pc through a serial port so that it will offer extra security.
- The end result can be declared easily after a polling and recaste polling may be averted completely..

CONCLUSION

This project can be used for vote casting because it overcome all the draw backs of everyday voting machine additionally provide extra security. Its foremost gain is that on the grounds that fingerprints of all and sundry is specific and as a result this system completely reduces the threat of invalid votes. The gadget can be manufactured absolutely as well as reasonably-priced.

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