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Biometric System Based Electronic Voting Machine with security algorithm and password protection on ARM Microcontroller and GSM

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Abstract

Electronic voting meant for casting vote and counting votes electronically. This voting technology include punch cards, optical scan voting systems and Direct-recording electronic (DRE) voting systems. It can also involve transmission of ballots and votes via telephones, private computer networks, or the Internet. Electronic voting systems has much more advantages compared to other voting techniques. An electronic voting system can be involved in any one of a number of steps in the setup, distributing, voting, collecting, and counting of ballots, and thus may or may not introduce advantages into any of these steps. The main aim of this project is develop a Electronic Voting Machine with maximum security facilities.

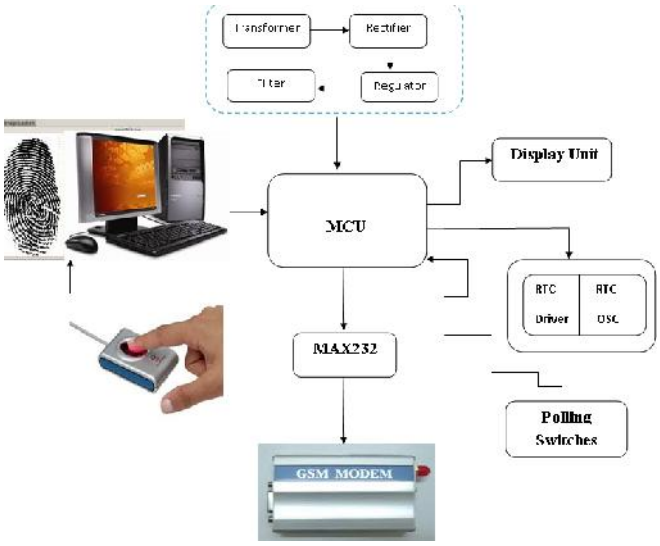
Key words- e- voting, DRE, counting ballots.

INTRODUCTION

E-voting has been a very controversial topic ever since the presidential elections in the U.S. in 2000.Many security flaws were found . the standards for the implementation of e-voting systems were shown to be too weak and many
(scientific) experts expressed their negative opinions on e-voting . Nevertheless, efforts are still made to introduce evoting in countries that use traditional paper ballots. E-voting is an election method in which the votes are cast or collected electronically . A computer system whose main element is an software component that maps the voting procedure electronically is called an e-voting system. A *direct recording electronic* (DRE) machine is a special case of such a system as it implements all steps in the voting process, from registration and ballot casting to counting.

There are two different forms of voting: distance and presence voting . In presence voting, a voter can cast his or her vote in a polling station under the supervision of the election's administration. Examples for presence voting are
conventional elections in polling stations or voting with e-voting machines. In distance voting, the voter acts ithout the supervision of the electoral commission and casts his or her vote from a place other than a polling booth, such as casting absentee ballots via mail or internetvoting.

1.1 BLOCK DIAGRAM:



1.2 BLOCK DIAGRAM DESCRIPTION:

- The finger print sensor gets the finger print of the voters and sends to the PC. In PC the

finger print image is compared with existing image

- If the image is matched, the computer sends the command the person is valid to the micro controller and displayed.
- If any one try to poll their vote beyond the time limit, system will be blocked.

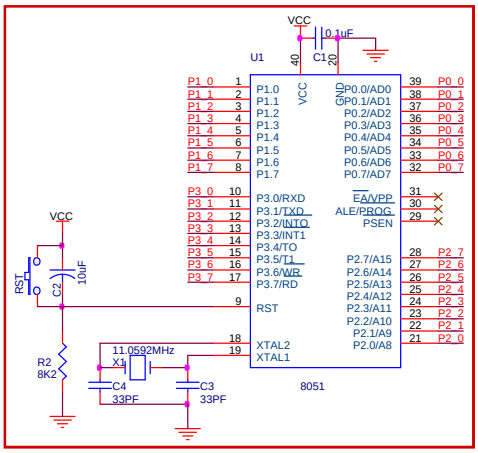
1.3 EXISTING SYSTEM:

- The system allows the Evil Practices held in the manual Voting system.
- Electronic voting systems may offer advantages compared to other voting techniques.
- An electronic voting system can be involved in any one of a number of steps in the setup, distributing, voting, collecting, and counting of ballots, and thus may or may not introduce advantages into any of these steps.

1.4 PROPOSED SYSTEM:

- Electronic voting (also known as e-voting) is a term encompassing several different types of voting, embracing both electronic means of casting a vote and electronic means of counting votes.
- It can also involve transmission of ballots and votes via telephones, private computer networks, or the Internet.

1.4 CIRCUIT DIAGRAM



1.5 CIRCUIT DIAGRAM DESCRIPTION

The operation of power supply circuits built using filters, rectifiers, and then voltage regulators. Starting with an AC voltage, a steady DC voltage is obtained by rectifying the AC voltage, Then filtering to a DC level, and finally, regulating to obtain a desired fixed DC voltage. The regulation is usually obtained from an IC voltage regulator Unit, which takes a DC voltage and provides a somewhat lower DC voltage, Which remains the same even if the input DC voltage varies, or the output Load connected to the DC voltage changes.

CHAPTER 2
POWER SUPPLY UNIT

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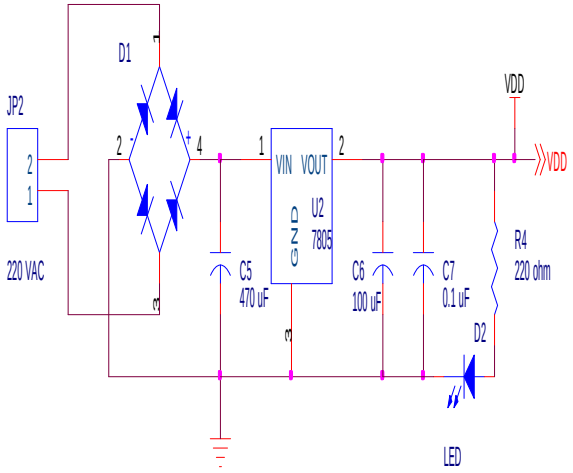
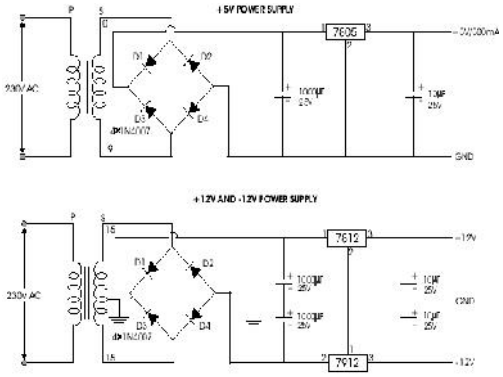


2.1 CIRCUIT DIAGRAM OF POWER SUPPLY



2.1.1 WORKING PRINCIPLE:

The AC voltage, typically 220V rms, is connected to a transformer, which steps that ac voltage down to the level of the desired DC output. A diode rectifier then provides a full-wave rectified voltage that is initially filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation.

A regulator circuit removes the ripples and also remains the same dc value even if the input dc voltage varies, or the load connected to the output dc voltage changes.

2.1.2 TRANSFORMER:

The potential transformer will step down the power supply voltage (0-230V) to (0-6V) level. Then the secondary of the potential transformer will be connected to the precision rectifier, which is constructed with the help of op–amp. The advantages of using precision rectifier are it will give peak voltage output as DC, rest of the circuits will give only RMS output.

2.1.3 BRIDGE RECTIFIER:

When four diodes are connected as shown in figure, the circuit is called as bridge rectifier. The input to the circuit is applied to the diagonally opposite corners of the network, and the output is taken from the remaining two corners.

Let us assume that the transformer is working properly and there is a positive potential, at point A and a negative potential at point B. the positive potential at point A will forward bias D3 and reverse bias D4.

The negative potential at point B will forward bias D1 and reverse D2. At this time D3 and D1 are forward biased and will allow current flow to pass through them; D4 and D2 are reverse biased and will block current flow.

The path for current flow is from point B through D1, up through RL, through D3, through the secondary of the transformer back to point B. this path is indicated by the solid arrows. Waveforms (1) and (2) can be observed across D1 and D3.

One-half cycle later the polarity across the secondary of the transformer reverse, forward biasing D2 and D4 and reverse biasing D1 and D3. Current flow will now be from point A through D4, up through RL, through D2, through the secondary of T1, and back to point A. This path is indicated by the broken arrows. Waveforms (3) and (4) can be observed across D2 and D4. The current flow through RL is always in the same direction.

In flowing through RL this current develops a voltage corresponding to that shown waveform (5). Since current flows through the load (RL) during both half cycles of the applied voltage, this bridge rectifier is a full-wave rectifier.

One advantage of a bridge rectifier over a conventional full-wave rectifier is that with a given transformer the bridge rectifier produces a voltage output that is nearly twice that of the conventional full-wave circuit.

This may be shown by assigning values to some of the components shown in views A and B. assume that the same transformer is used in both circuits. The peak voltage developed between points X and y is 1000 volts in both circuits. In the conventional full-wave circuit shown—in view A, the peak voltage from the center tap to either X or Y is 500 volts.

Since only one diode can conduct at any instant, the maximum voltage that can be rectified at any instant is 500 volts.

The maximum voltage that appears across the load resistor is nearly-but never exceeds-500 v0lts, as result of the small voltage drop across the diode. In the bridge rectifier shown in view B, the maximum voltage that can be rectified is the full secondary voltage, which is 1000 volts. Therefore, the peak output voltage across the load resistor is nearly 1000 volts. With both circuits using the same transformer, the bridge rectifier circuit produces a higher output voltage than the conventional full-wave rectifier circuit.

2.1.4 IC VOLTAGE REGULATORS:

Voltage regulators comprise a class of widely used ICs. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. IC units provide regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage. The regulators can be selected for operation with load currents from hundreds of milli amperes to tens of amperes, corresponding to power ratings from milli watts to tens of watts.

A fixed three-terminal voltage regulator has an unregulated dc input voltage, Vi, applied to one input terminal, a regulated dc output voltage, Vo,

from a second terminal, with the third terminal connected to ground.

The series 78 regulators provide fixed positive regulated voltages from 5 to 24 volts. Similarly, the series 79 regulators provide fixed negative regulated voltages from 5 to 24 volts.

CONCLUSION

The main objective of this study is to design an appropriate application for real online electronic voting systems for Electoral commission. After the analysis of the current situation, the researcher was able to design a good system that will replace traditional method of voting in Nigeria Electoral commission. the proposed system will provide the voter/user to cast his vote where ever is he has much as he has access to the internet or intranet. The systems will allow administrator to properly monitor the activities and process throughout the registration exercise. The voter can as well login and cast his vote and can also monitor the real time situation of the registration process.

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