SMART VOTING MACHINE BASED ON FINGER PRINT AND FACE RECOGNITION

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Keywords:

ATMEGA 328, EPROM, EVM, IDE, LCD, SRAM, USART.

Introduction:

Voting is a very important part of democracy. By voting every citizen is involved in the formation of Government. Electronic voting machine (EVM) in India was developed in 1989 by Election Commission of India in collaboration with Bharat Electronics Limited and Electronics Corporation of India Limited.

In this project we are presenting Smart Voting Machine based on fingerprints and face Recognition using Microcontroller**.** In this project we are using Biometrics for data collection. Biometrics is the science and technology of measuring and analyzing biological data, these technologies refers to measurement and analyses human body characteristics, such as fingerprints, eye retinas and irises, voice patterns, face recognition for authentication purposes.

Objectives:

- We are designing a Smart Voting Machine where there is no need for the user to carry his Identity cards which contains required details for voting at the polling booth.
- The person at the polling booth just needs to place his Finger on finger print module and capture the face identity in web camera at the counter of the polling booth, thus allowing the acquisition of an on-spot Fingerprint and Face from the voter which serves as an identification.

Methodology:

This is implemented with both software and hardware using different tools as

Software:

a) Keil Tools by arm version 4: Keil is a German software subsidiary of Arm Holdings. Keil provides a broad range of development tools like ANSI C compiler, macro assemblers, debuggers and simulators, linkers.

b) Python IDE: Python works on different platforms like Windows, Mac, Linux, Raspberry Pi, etc. Python has a simple syntax similar to the English language and it has syntax that allows developers to write programs with fewer lines than some other programming languages.

Hardware:

a) Finger print module: The module used here is R252. The basics of this identification process comes from "Galton points" – a certain characteristics defined by Sir Francis Galton, through which the fingerprints can be identified.

b) ATMEGA 328p: The ATMEGA 328 is Brain of this project. It has the features like the Atmel 8-bit AVR RISC-based microcontroller combines 32KB ISP flash memory with read-while-write capabilities, 1 KB EEPROM, 2 KB SRAM, 23 general-purpose I/O lines, 3 flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface.

c) Web camera: A webcam is a video camera that feeds or streams its image in real time to or through a computer to a computer network. When "captured" by the computer.

Results and conclusion

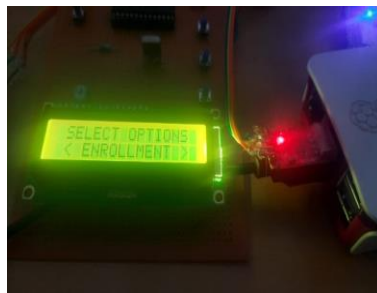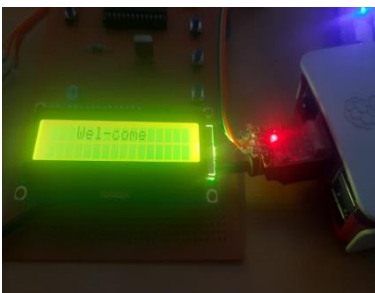> The following steps are voting process.

Fig 1: Switching ON Hardware   Fig 2: Registration of data   Fig 3: Matching process

Fig 4: Place your finger   Fig 5: Shows Name and ID   Fig6: Capturing face
using web camera

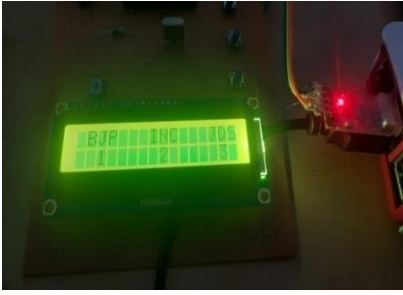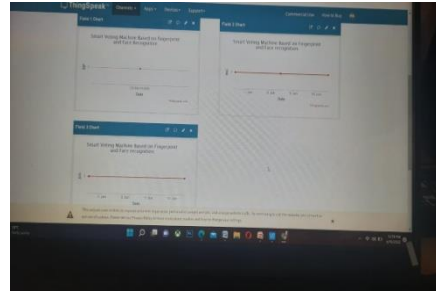Fig 7: Cast your Vote   Fig 8: Viewing Statistics

➢ The project "Smart Voting Machine Based on Finger Prints and Face Recognition" is mainly intended to develop a fingerprint and face recognition based advanced Electronic Voting Machine (EVM) which helps in free and fair way of conducting elections which are basis for democratic country like India.

➢ 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 year.

➢ It proves the fact that the fingerprint and face recognition enhancement step will certainly improve the verification performance of the fingerprint-based recognition system.

Scope for future:

➢ In our project we can eliminate use of SD card by creating cloud for storing and fetching the data of registered Voters.

➢ We can reduce the time taken in voting process and manpower.

➢ The data about the voters and voting results can be much secured in cloud and can be reviewed by entering OTP for security.