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SDM College of Engineering and Technology
Dharwad
Department of Computer Science & Engineering

Project Synopsis

Fingerprint Based Voting Machine

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Keywords

IoT, Fingerprint based, EVM, voting, verification, Hardware ,Software, Raspberrypi

Introduction

An Electronic Voting Machine (EVM) is an electronic device that is used for casting votes in an electoral process. Presently, India is shifting towards digital trends with the initiative of “Digital India”, by adopting various technologies which make our lives easier. One of them is having a unique identity card which holds various people’s details including biometric details. This makes verification easier.

The existing system of EVM does not make use of biometrics for verification. Hence, we are going for a Fingerprint Based Voting Machine which is capable of working with some features like IoT, cloud storage etc.

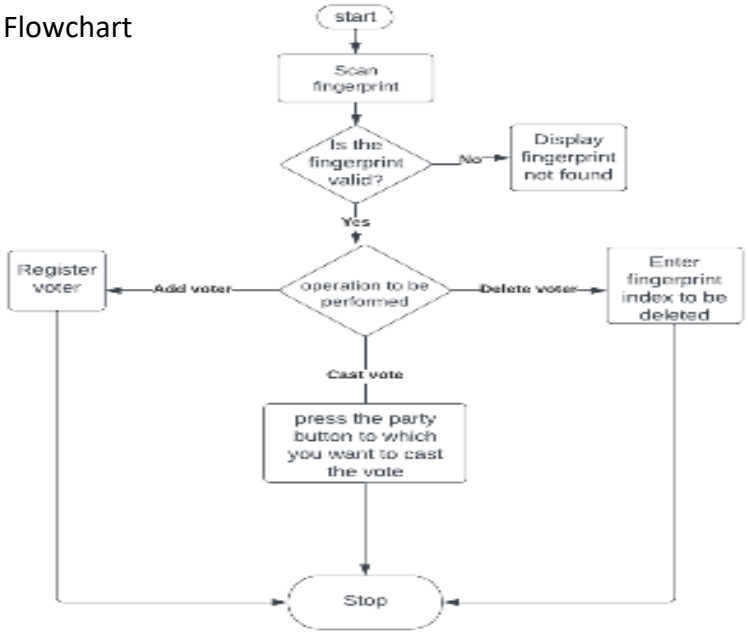
Fingerprint is the biometric which is used in this project. Finger-print will be different for each individual. In this project, fingerprint is used for the authentication of the user and allows him to cast vote based on his fingerprint image. Almost all the sectors are storing data digitally. To create digital India, most of the tasks are made through on-line. When the voting is made on-line, it helps the voters to vote from anywhere in the country. Obtaining online result makes the system faster.

Project Objectives

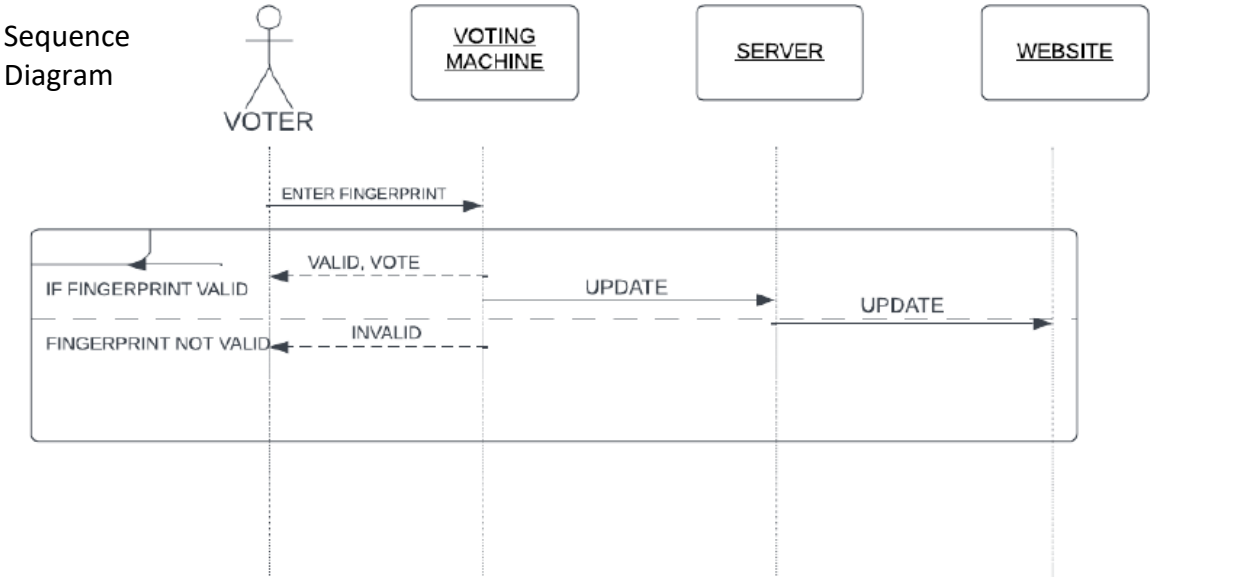
- The system aims at developing a fingerprint based voting system which helps in conducting elections which are useful for democratic countries like India.
- This system allows only authenticated voting than the existing equipment as the person is identified based on his fingerprint which is unique to each individual.
- Cost efficient, easily adoptable and fast calculation of voting results.

Methodology

Flowchart



Sequence Diagram



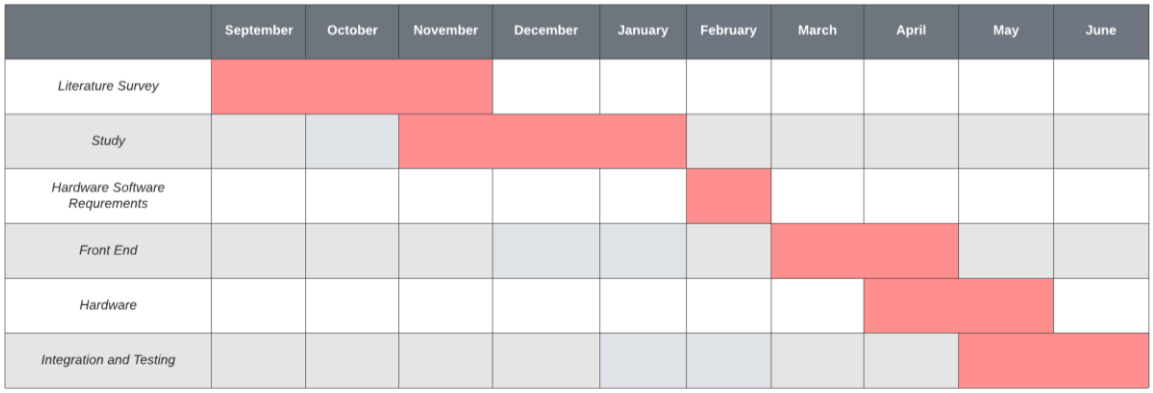
Hardware Requirements:

- Raspberry Pi 4B
- Fingerprint Module R307
- LCD Display (16x2)
- 32 GB Memory Card
- Buttons
- Resistors
- USB Cable
- Wires

Software Requirements:

- VNC Viewer to connect to the Raspberry Pi

Work Plan



Results and Conclusions

- This project aimed to develop a fingerprint voting system that ensures the voting process be safe and swift. For this a prototype device was made using fingerprint module, LED (16×2) and Raspberry Pi 4B. The final system is the result of the hardware and software integration.
- To summarize, the device was able to enroll the fingerprint of the voters in fingerprint module memory, verify the status of voters (registration and multiple voting), matching the new fingerprint input with saved fingerprint template, authorize the voter to cast the vote and was able to generate result. To conclude, the device is great alternative to other lengthy election processes especially ballot paper voting system.
- The voting system is managed in an easier way, hence reducing manual labor.
- It features better security as fingerprint is unique to each individual.

- Votes incremented automatically hence results are announced faster.
- It permits only eligible voters to vote and, it ensures that eligible voters vote only once.
- Ensures the privacy of the voters and of the votes.

Scope for future work

- Use the features of cloud to further enhance and improve the system.
- Provide the interface with different regional languages.