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Arduino Based Biometric Voting Machine

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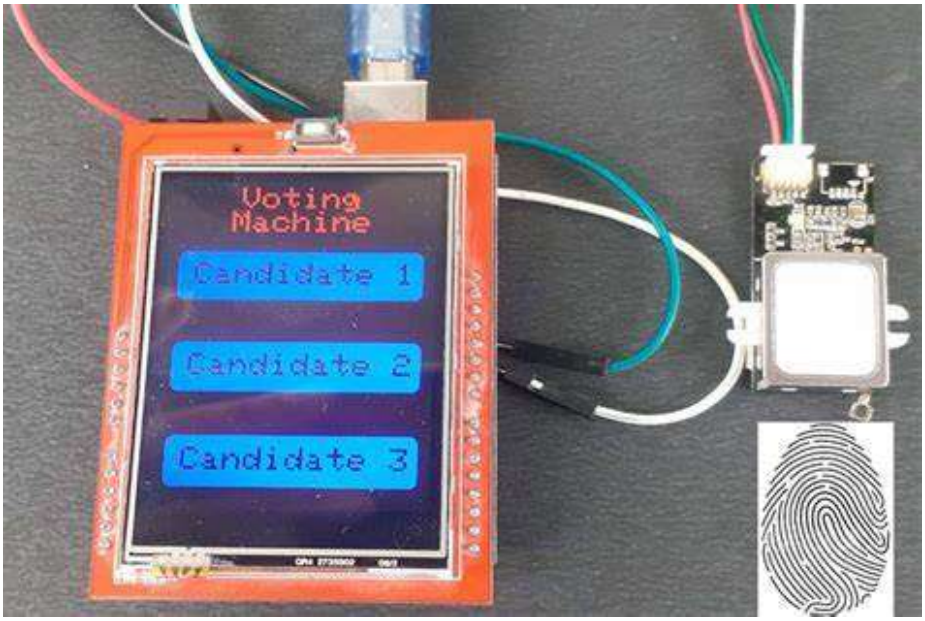
A B S T R A C T

Biometric Finger print devices are used in the Voting machine for voter verification. We have proposed a biometric based voting machine where there is no necessity for the voters who are going to vote to carry his identification proofs which contains his required details. The person at the polling booth needs only to place his Finger on the device which will act as a his/her unique identity.Fingerprint details stored in the system This data is passed onto the controlling unit for the verification. The controller fetches the data from the reader and compares this data with the already existing data stored during the registration of the voters. If the data matches with the pre-stored information, then person is allowed to cast his vote. If not, a warning message would display on LCD and the person is declined from polling his vote. In this proposed system we have used Arduino and Finger Print Scanner that can identify voter and which can also count the number of votes in relatively less time and also prevent fake votes.

Introduction To Community Detection Algorithm

In a voting system the every citizens elect a candidate by law who represents them and works for them for their development. If a wrong candidate is selected,it will be threat to the democracy and society. In developing countries like india, the random way of election is ballot paper based system which is very much time consuming and sometimes it is not safe at all. By this system there is always some risk to elect the wrong candidate. Although india is going to introduce EVM in next parliamentary election but this system also lacks from security. Considering these problems, in this project, a new system of voting is proposed based on biometrics. Biometrics means procedure that use human body characteristics, such as DNA, fingerprints,, facial patterns for authentication purposes. The field of biometrics was formed and has since expanded on to many types of physical identification. The basic point of these devices is also to examine the fingerprint data of an individual and compare it to a database of other fingerprints**.**



Motivation

1.voting is one of the fundamental rights of every citizen of democratic country.By utilizing the right of voting people can select most suitable leader who will lead them,help them and work for them.

2.As the thumb impression of every individual is unique,it will help in minimizing error . It identifies on the basis of physiological characterstics.

Aim and Objective of the work

The project "Fingerprint Based Voting Machine using fingerprint scanner and arduino" was mainly intended to develop a fingerprint based advanced Electronic Voting Machine which helps in free and fair way of conducting elections which are basis for democratic country like India and prevent fake voters to vote.

We prepare a new collection of fingerprints with skin diseases from patients live fingerprint images from different fingerprint scanners.

To make the voting system faster and more secure, an attempt has been taken so that the voting system can be acceptable to all kind of citizen of the nation.

A brief Intro to Li-Fi

Fingerprint based biometric voting machine is divided in to two parts, in first part user needs to register and in second part user will vote for desired candidate. Enrollment in system is needed for every voter or user with the help of push button or key. UP/DOWN keys are needed to enter ID. For selection of ID OK key is provided. Fingerprint module will ask for the finger to be place over module. For proper identification LCD will ask to remove fingerprint from fingerprint module and again ask for placing the finger. Simultaneously with this process fingerprint module takes an image and convert it into proper format and store it by selected ID into the fingerprint module's memory. Now voter is register with the system and he/she can cast the vote to his candidate. Similarly all users will have to register. We can remove any of stored ID by pressing DEL key to the selected ID. The selected ID will be deleted and LCD will display ID number which has been deleted successfully . All this details are for single system, data of one system will be stored in that system itself there is not any mutual connection between two systems. All the systems are isolated from each other to avoid being hacked Voting process is divided into some simple steps. When user wants to vote then he or she needs to press match key and then buzzer will beep and at the same time LED will glow and LCD will ask for place finger over fingerprint module. That time user id will be store in Arduino. Now user can cast the vote, for that user again have to place finger over fingerprint and then system checks this finger id exists or not. If finger id detected then it will display registered voter. It means the user is authorized voter and process will move to next step for voting. Now voter can vote their candidate by pressing selected key. If same voter try to vote again system will display 'Already Voted' on LED, simultaneously buzzer will beep for a 5 seconds, means same voter can't vote again. If any non-registered users try to attempt voting then 'No Fingerprint Found' message will be displayed on LCD. For the results a separate push button is given

Benefits and Advantages

1. System is easy to operate.
2. Arduino is the main controlling system, which operates on +5V DC supply, so less amount of power is required.
3. Economical feasible.
4. Requirement of man power is less .
5. Ease of transportation due to its size.
6. Only authenticated user can vote.

Disadvantages:

1. Fingerprint module's sensitivity may cause error.
2. User has to enroll before voting.
3. Only 99 candidate can enroll and vote because limitations of arduino.
4. Suitable only for small scale purpose.

Applications

Fast track voting which could be used in small scale elections, like resident welfare association college level and "Gram-Sabha " election and other society level elections, where results can be instantaneous.

- It could also be used to conduct general assembly elections where number of candidates are less than or equal to eight in the current situation, on a small scale basis.

Conclusion:

Development of EVM with the help of Fingerprint scanner and Arduino. Result of voting count will be displayed on LCD. Operation shows innovative and secure process of voting. We have designed Biometric voting machine for small scale purpose like institutes and organization. This concludes that fingerprint is useful for voting.