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FINGER PRINT AND FACE DETECTION BASED LOCATION FREE ONLINE ELECTRONIC VOTING SYSTEM

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ABSTRACT

All the world Voting is one of the fundamental rights of every citizen/people of an all country. By voting the citizen to the eligible candidate to elect them for to solves problems. Now days all country used new technology to voting every citizen to the best candidate. The voting system has a various voting techniques used such as Paper Ballot, E-Voting System (Electronic Voting System), Internet Voting System, SMS and Miss Calls Voting System. In this paper we implement location free voting system to the voters who are not possible to the come at voting location (hometown). The proposed system is the combination of hardware and software based on IoT and Machine learning technology. In IoT based we used the biometric device for thumb recognition and face detection using machine learning. In these both techniques first detect the citizen records if found then vote will be count or if not records found then vote will not be count given dataset.

Keywords- ESP8266 controller, Thumb device, Face Detection, IoT, Online Voting System, MySQL.

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I. INTRODUCTION

The Election is the important for every country to make county security, peace and healthy environment. In election time different party candidate standing in front of the citizen to the particular area to won the election. Today voting is the manual process and slow process to count the each and every vote, like voting commission send the electronic ballot box will send the every city where the both is allocated and collect the vote every citizen.

So our proposed system solves the existing system problem based on online voting system to take the voting online from any location.

II. PROBLEM STATEMENT

In India when the election period ends, all these boxes are opened and votes are counted manually in presence of the certified officials. In this process there can be error in counting of votes or in some cases voters find ways to vote more than once. Sometimes the voter's facing the problem of location. For example, overseas voters at other location and voting are hometown so; due to the office work voter not go to the particular location so voting is not consider.

III. LITERATURE SURVEY

To replace traditional system for voting like ballot paper voting system, Electronic Voting Machine was introduced in 1998 in India. Balloting unit and control unit are the two units consist in voting machine used in India. This makes this voting system difficult to transport. This system is introduced by Bharat Electronic Limited (BHEL). From 1998 till now many invention has been made in Electronic Voting machine. This system has 15 years life. As per the suggestion of Election Commission manufacturer adopted third-generation design having addition changes. Now a days voting machine are electronics which stores votes electronically instead of ballot paper. "Table I" shows different voting processes used in India.

TABLE I. DIFFERENT TYPES OF VOTING SYSTEM

Sr.no	Type of voting	Hardware	Limitations
1	Ballot paper Voting	Paper and ballot box is used for this type of voting	Collection of all paper and declaration of result is delayed
2	VVPAT	Ballot unit	Complex circuitry
3	Electronic Voting Machine	Control unit and ballot unit.	Assembly of all system is complex
4	Remote Internet Voting	Internet connection, Website, Software	Without internet connection system will not work
5	Biometric Voting Machine By using Fingerprint Module And Face Detection	Fingerprint Module And Face Detection	Suitable only for small scale purpose.

1. Ballot paper voting: In this type of voting system piece of paper is used to cast vote. A ballot is simple paper on which each voter writes the name of a candidate to cast a vote. For this type of voting the ballot paper and ballot box is used.

2. VVPAT: The full form of VVPAT is 'Voter Verifiable Paper Audit Trail'. VVPAT is intended as an independent verification system for voting machines designed to allow voters to verify that their vote is cast correctly or not. This system is also used in collaboration with electronic voting machine in 2019 elections in India.

3. Electronic voting machine: Electronic Voting is the standard means of conducting elections using Electronic Voting Machines. The Electronic Voting Machines is introduced in Indian elections between 1998 and 2001. Before introducing Electronic voting machine, the ballot paper system was use for elections in India. The paper ballots method was widely criticized because of fraudulent voting so the Electronic voting machine is introduced.

4. Remote Internet voting: In this system using internet user can vote from anywhere were he can by accessing the internet. It helps to increases percentage of voting by maximizing access and convenience of voter by using internet facility.

[1] Online Election Voting Using One Time Password Prof. Uttam Patil and Asst.Prof. at Dr. MSSCET 2016, in this paper author proposed a method that the Admin will load the databases of all voter so that he can add/delete/edit candidates, parties and voters. He registers each voter with valid E-mail ID and corresponding information.

[2] An Analysis of Secure Online Voting System, Prof. Anisaara Nadaph, Ashmita Katiyar, Tushar Naidu, Rakhi Bondre, Durgesh Goswam, 2014 in this proposed method that system is a two fold system comprising of SMS voting system and website voting. The voter can use either of the two ways as per his convenience. In this paper, a new approach of voting breaks the limitation of traditional voting and focuses on the security and feasibility of the voting.

[3] A survey on antispoofing schemes for fingerprint recognition systems Emanuela Marasco and Arun Ross 2014 Proposed a method that will reduce vulnerabilities in biometrics, including those due to spoof attacks using finger print sensing and antispoofing methods for fingerprints which can be hardware of software based.

[4] Android Based E-Voting Harshad Velapure, Saurabh Rai, Saransh Sharma, Preetam Naiknavre, Pranali Jadhav, Kalyan Bamane 2014 Proposed an Android e-Voting application on smart phone user gives voter facility to vote, an application with an Admininter face for consultation to a dynamic web page offers the main question to be answered (voted), and together to this page are available the buttons to send the votes: Yes, No. The Android platform that will enable people to vote securely from anywhere.

IV. PROPOSED SYSTEM

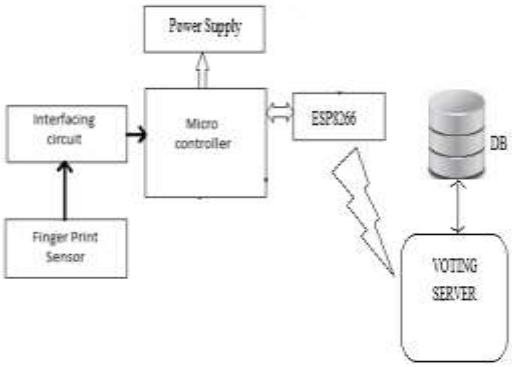

Fig 1. Hardware Block Diagram

System flow:

1. All records of voter can maintain.
2. Then verify his thumb using biometric device and detect with help of IoT processing.
3. Also, identity is according voter data.
4. After, he is allowed to cast his vote by pressing the corresponding button on the machine.
5. Finally, corresponding vote will be send to the respective area where the voter will be registered by online.

V. HARDWARE SPECIFICATION

1. ESP8266:

Fig 2. Wi-Fi model

Feature:

- Voltage:3.3V.
- Wi-Fi Direct (P2P), soft-AP.
- Current consumption: 10uA~170mA.
- Flash memory attachable: 16MB max (512K normal).
- Integrated TCP/IP protocol stack.
- Processor: Tensilica L106 32-bit.
- Processor speed: 80~160MHz.
- RAM: 32K + 80K. • GPIOs: 17 (multiplexed with other functions).
- Analog to Digital: 1 input with 1024 step resolution.

2. Fingerprint Module:

We are going to use GT511c3 fingerprint module contains the optical scanner for fingerprint reading and can store the images by using identification number.

Fig 3. Fingerprint sensor

VI. RELATED WORK

A. Working Principal

Fingerprint and face detection 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. The proposed system is based on electronic voting machine. The system is able to identify each voter by getting their fingerprint and face. Whenever the system will receive a fingerprint and face, it will match the fingerprint and face from the database. According to the information given by the database, the system will decide if the person is registered or not. System is also able to distinguish second vote. If a particular voter is not registered voter or tries to cast more than one vote, system will identify him and will restrict from voting. However, if neither case is applicable for a voter, it will allow the voter to cast the vote.

The system is designed in such a way, if vote is given to a candidate mistakenly, the voter has the ability to change their decision but only once. Furthermore, just like any other electronic voting machines, the device will count votes for each candidate. It is also able to show the result, after a certain period of time when the voting is over. This is an advantage that it will not require too much time to publish who has won the election. It has very high accuracy rate in case of both identifying voter and counting votes. Another advantage of the system is, it is completely offline system.

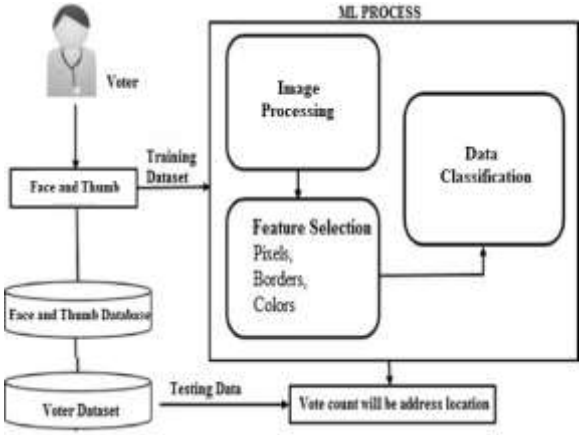

Fig 4. System Architecture

B. Algorithm Steps :

The voting process is shown in 11 steps. First Two steps are for enrollment process. Step 3 to step 6 shows the voting process and step 7, 8, 9, 10, 11 indicates the vote has been casted

Step 1: Start.
Step 2: Press match key to enroll your Finger ID And Face ID.
Step 3: Place Finger on Fingerprint module.
Step 4: Finger match, authorized voter.
Step 5: Face capture
Step 6: Face match, authorized voter.
Step 7: Cast your vote.
Step 8: Press key to cast a vote.
Step 9: Candidate Selected.
Step 10: Vote success.
Step 11: Stop**.**

VII.CONCLUSION

Our proposed solution is ESP8266 controller based with biometric device which allows the voter to register the vote anywhere through the IOT, also machine learning based face detection process also analysis. This system is secured, authentic and able to avoid multicasting of the vote. This system is more reliable in which multiple voters can vote from multiple locations. It also reduces workload, human and time resources.

For over a century, fingerprints and face detection have been one of the most highly used methods for human recognition; automated biometric systems have only been available in recent years. This work is successfully implemented and evaluated. They arrived results were significant and more comparable. This project enable's a voter to give his/her vote and avoid proxy vote or double voting and provide highly secure, quick to access and easy to maintain all information of voting ,highly efficient and reliable due to use of fingerprint scanner and face scanner it reduce or remove unwanted human error. In addition this voting system is capable to handle multiple modules in various centers and provide better scalability for large election.

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