MODERN VOTING MACHINE USING ML & AI

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Abstract—**The main abstract of this project is to reduce the number of people working for the elections and to make it possible for people to vote online during some pandemics like this without any problem and be with confidence they can do their fundamental duty for the country and give their vote and making voting online will make people to get into their comfort and will help the government to achieve high voting percentages and will also consume less time.**

Index Terms—**Online Voting, Aadhaar, Fingerprint module, vote, deep learning, endIEEEkeywords**

I. INTRODUCTION

We have seen so many elections in our life most of them are following the same electoral process and we can take the last election of the US 2020 as an example it happened in the year of the pandemic if the online mode to vote was active and we know how efficient it can be in such circumstances where a lot of people preferred not to cast their votes traditionally due to COVID-19 spread, therefore, they go for the online option. Maybe was not unique but was perfect for such a condition to encourage people to cast their votes and safely and without risking their lives at all, and taking care of each vote matters and could make a difference. This project is to develop Electronic Voting Machine which can receive the votes from the electorate to record and send them to a particular server wirelessly using transmitter and receiver in both side, and then the server can store and count them. This could work to protect the result election and secure the votes from being manipulated as well as it will provide a safe election in circumstances like COVID-19. Therefore our Electronic Voting Machine will work in both modes online mode and offline mode taking social realities into account like illiterate people, hard-working people, people with disabilities, reduced mobility, and even voting offenses which can affect the election result. So the electoral process will be simpler, easier, and shorter for all electorate. In online mode using machine learning the Electronic Voting Machine will verify the voter's home address and work address with the help of their IP address, and based on those addresses he/she will be allowed to cast his/her vote.   In the offline mode the voters need to go to the election centre there will be CCTV mentoring the room if there is a single person in the room then he/she will be allowed to cast his/her vote the Electronic Voting Machine (EVM) will be equipped with fingerprint module and iris scanners to match that fingerprint with those in the aadhaar server to verify their identity. With both options the voter can choose which option is the best for them, therefore more votes will be collected as well as more accurate election results can be achieved**.**

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A. History of Voting Machine

The electronic Voting Machine is the replacement for the ballot box it was not something new in India In 1977 first conceived   by the election commission of the Electronics Corporation of India Ltd. (ECIL), In 1979 Hyderabad took the responsibility   of designing and building an Electronic Voting Machine. Aprototype was made in 1979, and it was explained by the Election Commission to the leaders of political parties on 6th August 1980. At the general election in Kerala in May 1982, the first   use of EVMs took place; however, the lack of a specific law prescribing its use led to the Supreme Court striking down the election. At the general election in Kerala in May 1982, the first use of EVMs took place; however, the lack of a specific law prescribing its use led to the Supreme Court striking down the election. The Representation of the People Act, 1951, was amended by Parliament in 1989 to create a provision for the   use of EVMs in elections (chapter 3). Only in 1998 could aconsensus be reached on its implementation, and these were used in 25 constituencies of the Legislative Assembly spread across three states, Madhya Pradesh, Rajasthan, and Delhi. Its use was further extended to 45 parliamentary constituencies in 1999 and, later, to 45 constituencies of the Haryana Assembly in February 2000. EVMs are used in all constituencies of the Assembly in   the State Assembly elections held in May 2001 in the states of Tamil Nadu, Kerala, Puducherry, and West Bengal. Since then, the Commission has used the EVMs for each State Assembly election. The EVMs (more than one million) were used in all   543 parliamentary constituencies in the country in 2004 in the general election for the Lok Sabha.[1]

B. Motivation

The importance of EVM is to reduce the time of cast the vote and the duration of the election so this will reduce the cost of the election process as well as the resources also we can reduce the number of security guards and the employees who are getting paid. In some circumstances like the one we have faced in 2020 lockdown due to pandemic the best option was to vote online which keep the voter socially distanced and safe from crowded places. There are two modes for voting (online and offline) which can the voter easily participate in the election**.**

II. PROJECT BLOCK DIAGRAM

A. Offline

 fig.1
 (or)
 fig.2

B. Online

 fig.3

III. HARDWARE REQUIREMENTS

1.Raspberry Pi computer with a camera module port (micro-processor) or PC or a lap with webcam can be used [5]
2.Raspberry Pi camera module
3.EVM prototype
4.FP module or IRIS scanner
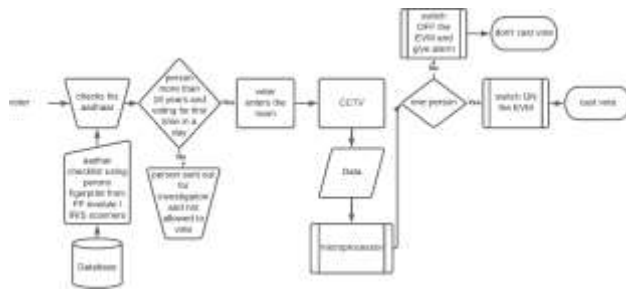5.Alarm or a buzzer

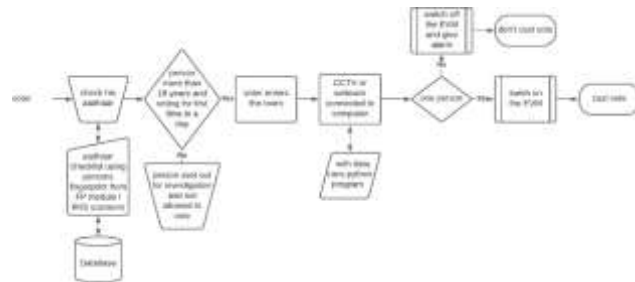Fig. 1. block diagram of offline mode method 1
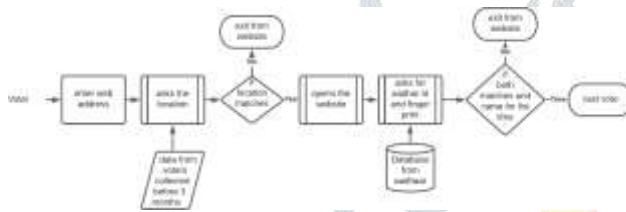

Fig. 2. block diagram of offline mode method 2
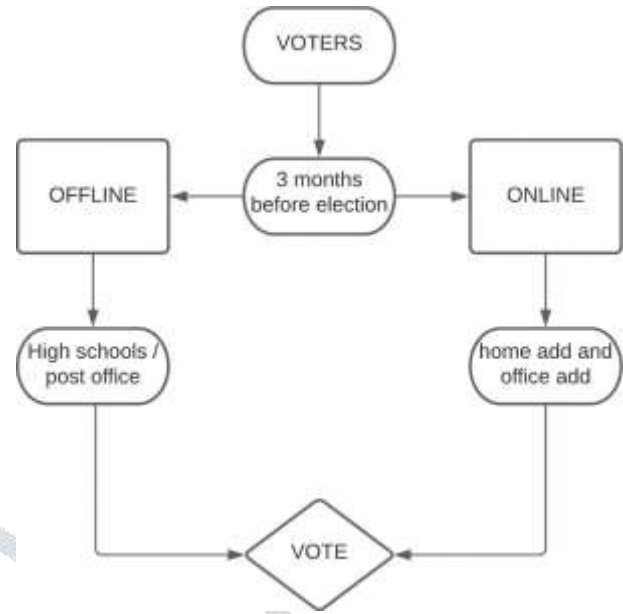

Fig. 3. block diagram of online mode method 1

IV. FLOW CHART

fig.4

A. 3 MONTHS BEFORE ELECTION

3 months before elections the person is requested to choose his way to vote, here we give both options which will include online mode and offline mode.

B. OFFLINE

if a person chooses offline then the election will happen in places like the post office and high school or fair praise shops**.**

C. ONLINE

1. If a person wants to cast his vote via online
2. He/she should give his/her home and work add
3. After the address check the data will be uploaded to the servers
4. then his address will be tracked from the previous reserved data and that data will be used for further use while the person tends to vote
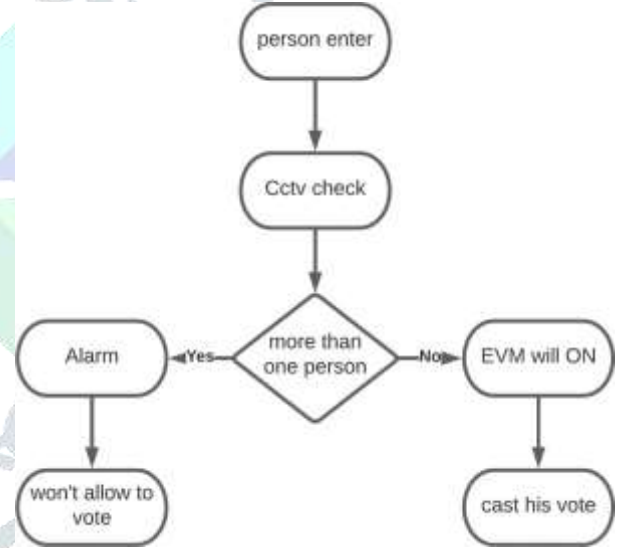

Fig. 4. flow chart of the project

Fig. 5. offline mode working model overview

D. Offline

fig.5

1. Unlike the normal offline method, there are no more security checks like address proof and vote I'd checks

2. Now the process is directly sent into a room that's with Cctv and EVM equipped with fingerprint module and iris scanner

3. If the CCTv finds there is single person, now this will allow the person to cast the vote

4. If not and it finds more than one the EVM will lock and give an alarm and don't let the person vote until there's a single person in the room**.**

E. Online

fig.6

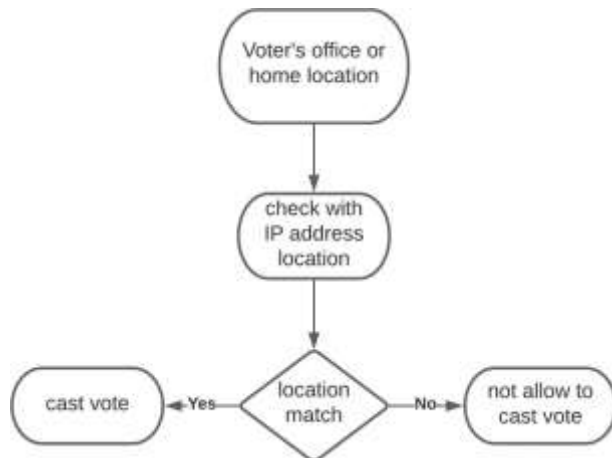Fig. 7. step 1 - offline mode implimentation

Fig. 6. online mode working model overview

1. With the help of ip address the location will be determined
2. Then he / she will be allowed to enter the web
3. And at the very beginning he/she is asked to give their fingerprint
4. With the help of a fingerprint, the web will search his identity with the help from existing aadhaar details
5. Then after verification he will be allowed to cast his vote 6. Then the vote will be sent via encrypted web signal and it will be stored as impulses at last which can be recovered when we want.

V. IMPLEMENTATION

First we will discuss how we can able to implement the offline mode with the help of hardware that we have and then will discuss how it will lead us to the next stages of our projects so that we could proceed so easily in our projects

And these are the first step to implement

A. Offline

1) Step 1: Here in offline, we going to implement in places like high school and post offices where mostly elections will happen generally for about some past decades but now we going to implement this with a slight change.

Where before method it required some loads and loads of documents to check the person is the right one to vote or not and there are 4 people minimum to a checklist of personal identification such as the address his name proof and the dob and so on and where they are extremely time-consuming and mostly irritates people for consuming so much of time and also resulted in fake votes which have a capacity to even change the truth

So here in this new method, we just required: a person with the list and the other one for security and that's all required so here we going to merge the aadhaar and voter list so that it can easily eliminate the person from voting for the second time,

So here we might go to a fair price shop which will have the card scanner which we can use to scan the aadhaar and fingerprint, so this ability to find the person identity perfectly and if he came for the second time it gives a warning by this we can preliminarily eliminate the fake votes by max.
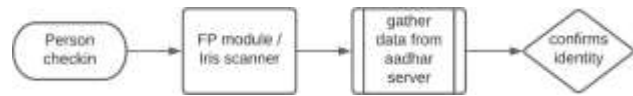
And here is the diagram how it works fig.7

2) Step 2: Now the person is allowed to go inside the room that's equipped with the CCTV and the EVM connection is connected to the CCTV that's programmed with facial and object detection

which will every time send an impulse to start the machine or not to and the CCTV is also connected to the Alarm which will give a warning .

And now let me explain how does this work here the CCTV is programmed with image detection/object detection using Java and this is directly connected with a lot device which connected to EVM and alarm as an input pulse.

Here if the CCTV find it is two-person or more than one person this will give an impulse signal to both the alarm and the EVM so that the person won't able to vote until and unless there is a single person

The alarm will ring and the security will take him out and if the alarm rings the EVM will go off so the person cannot cast a vote of his And if it finds only one person this will send an impulse to the EVM and now the EVM will on and now the person will be allowed to cast his vote

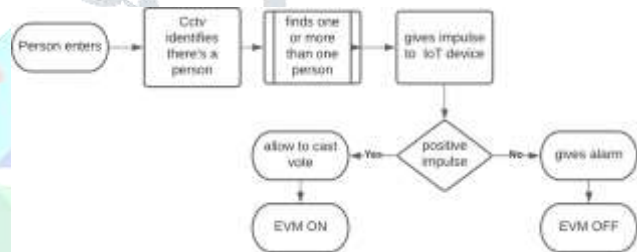And now we can see the diagram of implementation fig.8

Fig. 8. step 2 - offline mode implimentation

B. Online

In online as we discussed before the address of the person's home and the work is collected and then it is implemented in the Google map or in the DRDO's map

And now the persons' detail is saved so now on the election date the person will be asked to log in to the web with the help of his mobile or tablet or the computer that's compatible with the fingerprint sensors.[4]

After finding the device is compatible then the person is asked to show his location and now using his IP address the ai engine will check whether it is the same or not as comparing it with the address he /she has given 3 months prior to the election date.

Now if the address is perfect then the website will open now he or she is allowed to type their aadhaar no and is now asked to give their fingerprint and from the server if both matches then the person is allowed to cast his vote.

And this signal will send via encrypted signal and now it will be stored as pulses in the EVM, serves and can be used at the date of taking the count fig.9
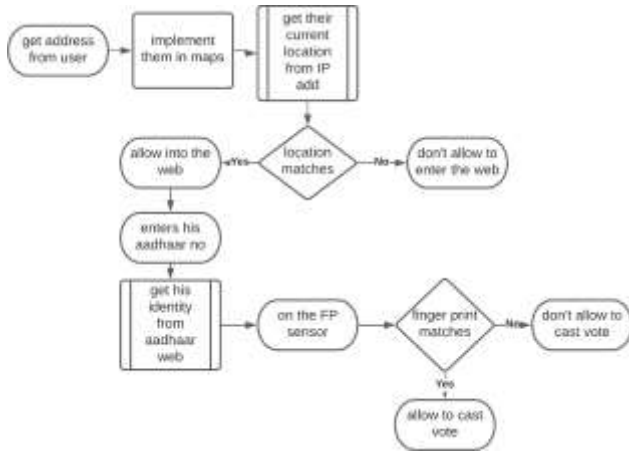
Fig. 9. online mode implimentation

VI. CONCLUSION

From this, we like to conclude that our project is effective   in saving time, money, and the no of persons working for the election.

And also we sure our project will help the election commission to eradicate the fake voters by at least above 80 Percent and help to find the people who work to make fake voters.

And we also able to find who have votes and not so that we can work on the awareness and make them vote next time

VII. FUTURE SCOPE

This will drastically reduce the time that we tend to spend nowadays to vote and so that in future there we need not wanted to have a holiday for a vote and can also make to focus on their life by just only spending less than 10 min to vote.

As that we use aadhaar we can able to find the person who hasn't voted and we can take measures to make them vote in   the future and can improve the voters' percent to more than 90 in 10 years.

As in this process, the voting process is added with some good techniques to increase the vote percentage and also to cut the budget into more than 30 percent and by this, we can have this amount to focus on our other areas to develop our country in a very bright way.

VIII. REFERENCES

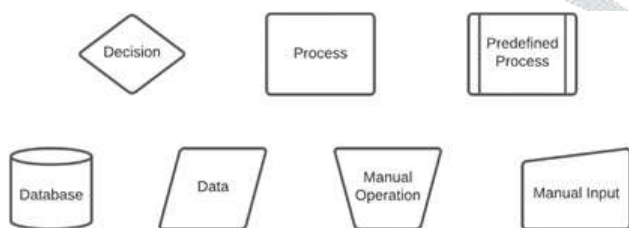The blocks in the block diagram represents fig.10

Fig. 10. Representation of all the blocks and what it indicates

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