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## IoT BASED SMART EVM

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**Abstract:** Voting is a fundamental right of every Indian citizen. Individuals can use their right to vote to select a reasonable leader who will lead them. Voting using paper polls has been used in India for a long time since it is more labor intensive and, as a result, more secure. There have been further changes and electronic voting machines have been introduced in the general region, neighborhood, and state. Biometric security, which may be verified using fingerprints and face recognition of the voters, are additional highlights of this system. To verify and check an individual's details in this framework, it will refuse a second choice if someone attempts to make a second choice, and we can also screen those who enter the survey area through video surveillance. To leave a lasting impression on a highly recommended client, GSM module is being used that has voted successfully. If any unauthenticated individual endeavors to vote the signal will be ON.

**Keywords:** Raspberry Pi3, Face Recognition System, Python, Finger Print module, USB Camera, GSM Module.

### I. INTRODUCTION

In developing countries, the number of eligible voters is steadily increasing. A debasement-free voting system has become a hot topic in recent times. Only a biometric voting system can put an end to these kinds of desecrations. Biometrics, which is used to identify a person, is the method of choice for this project. Face acknowledgment and unique mark sensor strategies have been used in biometrics in order to capture thumb impressions of distinct individuals and save every layout in the unique mark module recognizing or checking a man with the assistance of facial highlights. Haar cascade calculation is utilized for perceiving frontal highlights of face. GSM module is utilized to transmit a message to the endorsed client that he has voted effectively. of raspberry pi which is charge card measured camera.

**II. EXISTING METHOD** There are different projects presented for offering whole security for all habitations. Anyway there isn't any whole well being of undup and coming.

**Bolt and Key process:** First step toward assurance was Lock and Key framework. Inside the starting this method was demonstrated phenomenal however thereafter this procedure was once bombed as two or three keys will likewise be made serenely for a solitary bolt. Hoodlum may likewise make proliferation keys for the equivalent bolt. As an

outcome this strategy fizzled for offering whole security.

**Secret key Authentication:** Password as a verification strategy is the resulting phase of security process. The secret word is pre-put away inside the database. This secret key verification technique gives solid

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insurance to the clients. This strategy even have the inconvenience that secret key is successfully speculated.

III.

**PROPOSED METHOD** This paper propose for policemen in recognizing the suspect as an authenticated person or not. Face

acknowledgment innovation is utilized to distinguish a man through an advanced picture.

It's principally security reason. This method straightforwardly catches the picture data about shapes and sizes of face. The acknowledgment procedure done in Raspberry

Pi by contrasting the information picture and

computerized layout put away in a devoted database. The calculation is picked in Viola-Jones run and Face Detection exploitation Haar Cascades. A few calculations set up alternatives, face, and outward appearance confront demeanor by

extricating highlights and historic points from the picture of subject's face. An administrator in investigation the relative position, size

and type of the info looks for coordinating choices. Here, this site page is likewise included for fortune of data. The data of the suspect if perceived as unauthenticated. The subtle elements of offenders effectively filled in the database. Along these lines, the outcome as in points of interest is shown on Web page.



IV. **HARDWARE SYSTEM**

**Figure: Block diagram**

We used an optical scanner with a charged linked contraption at the center to create a one-of-a-kind mark (CCD). There are a number of light-sensitive diodes on the CCD, which are referred to as picture locations. These cautions are saved in the form of dull and light pixels for edges and valleys uniquely in the unique finger impression module, these darkish and light pixels are used to distinguish between specific fingerprints. These verified pixels are by and large the bulk of the content. picture which is rearranged. A simple to-computerized converter is remunerate inside the scanner which changes over the simple electrical pointer to the advanced sort (inside the type of zero and 1 which is a paired outline). Sooner than contrasting the examined picture of unique finger impression with the prestored photograph, the scanner exams normal dimness phase of the pixels, it rejects if the checked photo is excessively darkish or excessively delicate. **Face Recognition System:**

Face Recognition for Criminal Identification is a face affirmation structure in which these security ace will enter a photo of the individual being alluded to inside the system and the system will first preprocess the photo which will cause unwanted parts, for instance, upheaval to be removed from the photo. Starting there forward, the system will then request the photo in light of its breakthroughs for example, the partition between the eyes, the length of the jawline, et cetera. By then, the structure will run an interest through the database to find its optimal match and demonstrate they yield. This work is focused on completing the structure for criminal conspicuous verification. This structure included face database and photo dealing with computation to facilitate the face feed with

Identities saved in a computer database. Disclosure and affirmation are essential to this structure's success. It is possible to organize face recognizable proof into four rule classes:

data-based, incorporate invariant, arrange planning, and appearance-based systems. Both the preparation approach and the appraisal process must be completed in order to confirm. When using an arrangement technique, the estimation is backed up by examples of the images to be taught and an unquestionable model for each image is established, but when using an evaluation methodology, the model of a recently picked up test image is compared to every other model in the database currently in existence. If the affirmation is to be initiated, the nearby relating model can be used to make that decision at that point. As a result of Principal Component Analysis (PCA), a game plan of Eigen faces is created by analyzing a large number of face images in order to identify common characteristics. A person's face can be viewed as a combination of these two types of features..

FacelocationutilizingHAARCascadeClassifiers  
The limit of thismodule is tochoose whereinphotoafaceisfound.Theface

acknowledgmentmoduleworksbyinvestigating a photo at different scales andlookingforacoupleofclearillustrationthat demonstrate the proximity ofanappearin the center and presented at a uniform size.Facedistinguishingproofmakesenseofwhere in a photo a face is found. The facedistinguishing proofworksby investigatinga photo at particular scales and scanning forsome straight forward outlines that perceivetheproximity ofaface.The customer needto login in the site page with his differentaffirmations which are secured in the server,toshowhischaracter.Afterviableloginthe napagewithallthestackstatusisappeared, by then we need to enter the 10-digit convenient number which is kept in theGSMsimopeningandpressanyloadonkey.He rethesitepageestablishesaconnection on the flexible number then theGSM scrutinizes that message and send it tothecontroller.Thecontrollerbythenexamines the code and on the specific load.Toknowthestatusweneedtoraisearequest bycrushingtherequestgetonenteringtheflexibl

enumber,bythenamessageissenttothatcompa ctnumberwhichisscrutinizedbythecontrollertheroughGSMmodule,afterthatthecontrollersend sthepilestatusandspecific

data regards to the cloud through the GSMmodule.

## V. METHODOLOGY

Raspberry Pi: The Raspberry Pi 3 model BhaspecificallybuiltwiththeBroadcomBCM2837System-On-

Chip(SoC)includesfourhighperformanceARM Cortex-

A53processoresrunningat1.2GHzwith32KbLevel one and 512Kb Level a pair of cachememory,aVideoCoreIVgraphicsprocessor,andisconnectedtoa1GBLPDDR2memorymoduleontherearoftheboard.Itadditionallyoptions 40-pinsgeneralpurposeinput-output(GPIO)andimprovedpropertywithBluetoothLowEnergy(BLE)andBCM43143WiFi-

Fionboard.Italsohasanupgradedpowermanagementsourceof5VUSBpowersupply up to 2.5 Amps.Currently, RaspberryPi3ModelBisbestofRaspberryPicomputers.Thesystemprocessingishugewith1.2GHzclockspeedand1GBRAMRaspberryPicanperform alladvancedprocesses.Accordingtotheconnecti onwise,theboardshouldbecapableofsendingdata toandfromtheboardrapidly.Anewdualband Wi-Fisupports for 2.4GHz

and5GHz802.11b/g/n/ac which is also promisesdouble throughout the 802.11b/g/n/ac Wi-FiontheRaspberryPi3ModelB.Withthe

addition of Gigabit Ethernet over USB 2.0,thewiredEthernetperformanceisalsoboost ed,withanextremethroughputofabout 300Mb.



**Figure:RaspberryPi3ModelB**

FingerprintSensorR-305:It is simply a form of innovation that can recognize and authenticate the fingerprints of a person, with the sole purpose of allowing or denying them access to a computer or a physical office. A biometric security development known as "unique finger impression" uses a combination of hardware and programming techniques to distinguish a man's remarkable check. However, we're employing biometrics to identify a confirmed consumer. In order to recognize men and confirm the importance of



the significant customer, a modified version of this approach is used. To provide an identifiable fingerprint biometric verification, the finger's skin's margins are linked together.

We may utilize the same biometric noticeable evidence technique to create our own specific relaxation movement wandering like a biometric authenticator/control system with the help of immediately available unique finger imprint open modules that can be



**employed in criminal investigations.**

Figure:FingerprintSensorR-305Buzzer:Ringerisacomputerizedgadgetused to supply sound. In the task the ringer is utilized to alarm the overseer for the time of an unauthenticated person.

Keyboard:The keyboard is used for polling vote to a particular party. It acts as an input for our project where we can select a particular party to poll our vote.

USB Camera: "USB Camera" alludes to the innovation by and large; the initial segment of the term is frequently supplanted with a word depicting what can be seen with the camera. USB Camera are video catching gadgets associated with PCs or PC systems,

In criminal investigations, we can use the same biometric visible evidence technique to develop our own specific relaxation movement wandering like a biometric authenticator/control system using immediately available unique finger imprint open modules.

**Figure:USBCamera**

The video catch process includes a few handling steps. First the simple video flag is digitized by a simple to advanced converter to deliver a crude, computerized information stream. Bolster hardware are available to operate the picture from the sensor and transmit it to the host PC.

**FEATURES:**



- ☐ Smallest wireless video & audio camera
- ☐ Wireless transmission and reception
- ☐ High sensitivity
- ☐ Easy installation & operation
- ☐ Low power consumption
- ☐ Small size

Monitor: Data prepared by the PC's video card is shown on a computer screen. To show these pictures on the screen, a video card or drawings card converts over parallel data from Os into pictures.

GSM Module SIM800: Microcontroller-based GSM protection is used to send or receive messages and make or receive calls that are identical to those sent or received on a cell phone. GSM guards can be connected to a Microcontroller board and then connected to a SIM card from any administrator that shows GPRS protection. An ordinary cell phone with a unique 10 digit phone number would be able to use this GSM Modem with any GSM people group administrator SIM card.



**Figure: GSM Module SIM800**

**FLOWCHART**

**VI RESULTS**

**Figure: Connection of the circuit**

**TEST CASES OF RESULT**

**Figure: Live surveillance output**

**Figure: Output displayed on PC and message received by the user using GSM module**

**VII CONCLUSION**

IoT BASED SMART EVM has been successfully planned and carried out. This was achieved by combining the best features of all equipment packs. Every module has been meticulously inspected and put in place. With this in mind, we're enhancing the unit's performance. as an example,

With the use of numerous movements, we've been able to accurately estimate the task's difficulty level..

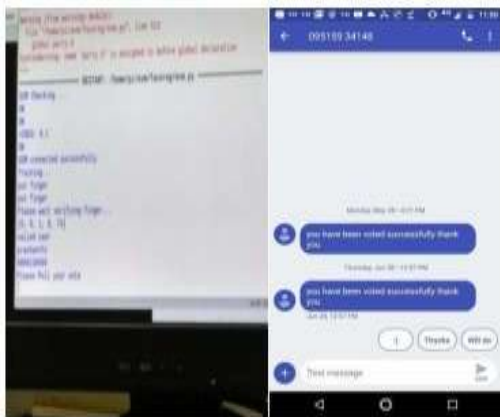
**FUTURE WORK**

The magnificent EVM can be used in races because it provides finish line security and, in addition to providing accurate results, it can also save time and resources. The additional benefit of this voting mechanism is that it can be validated by anyone with the appropriate access benefits

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