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NEW GENERATION MULTILEVEL BASED ATM SECURITY SYSTEM

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Abstract: *In today life, the ATM plays a major role in individual life. The ATM made the human to make financial task easier, they no need to go for the bank each time for depositing, transferring, withdrawing the amount. The people can do their transaction, depositing and withdrawing with their card in nearby ATM. But still there is no great security in this system. When the person miss their ATM there is great chance of misusing them. So, to provide more security we are implementing the higher security ATM system. Here, we are using the concept face recognition in which if the ATM is accessed by unauthorised person then the system will be set in such a way that it will detect the face of the unauthorised person and those picture will send to the authorised person and he can easily track the person who accessed his card. The implementation of this system lead high security than before and we can easily avoid the wrong activities. The authentication of the user in the system is improved by using face recognition in the application, which will be able to identify whether the user is authenticated user or not.*

Keyword: ATM, Message, Face recognition, Security, Verification.

1. INTRODUCTION

Today, the ATM is one of the most familiar features of the retail banking landscape. It allows customers to do much more than just withdraw cash. Even though it reduces the human effort and make their work more easy but there is lack of security in this system. Once the person lost his ATM card, there is a great chance of misusing that card by other unauthorized person. Normally, when the person miss his ATM card he just block the id or make a compliant about it and he need to reapply the same process to get the new ATM card. There is no such system is implemented to avoid this problem and no improvement in security also. \

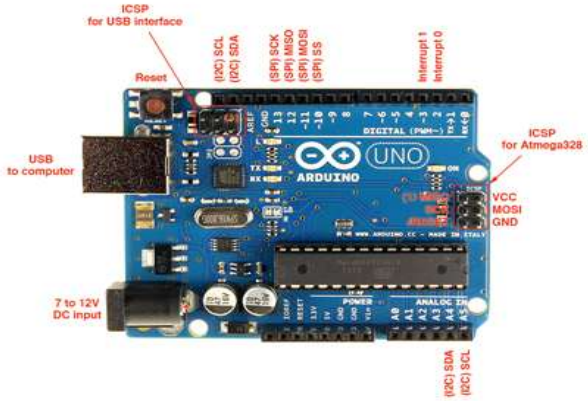
So to improve the security level and considering this problem, we bought up with a new solution. This may help the customer who lost their ATM card can identify them easily using the concept face recognition. In this system, each and every time, whenever ATM card is used the face of the used person will be detected and send to the registered authorized person through which we can easily identify the unauthorized person who accessed the ATM card when it is lost. By keeping this in mind we are proposing new level of security which is much more secure than the existing system.

2. HARDWARE

I. ARDUINO

A micro-controller is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/ output peripherals.

The important part for us is that a micro-controller contains the processor (which all computers have) and memory, and some input/output pins that you can control. (often called GPIO - General Purpose Input Output Pins).



"Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases.

The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards. This is a relatively easy way

to make circuits quickly. Breadboards are made for doing quick experiments. They are not known for keeping circuits together for a long time.

When you are ready to make a project that you want to stay around for a while, you should consider an alternative method such as wire-wrapping or soldering or even making a printed circuit board (PCB). The first thing you should notice about the breadboard is all of the holes.

II. DC MOTORS

The DC motor converts the electrical power into mechanical power. The construction of the dc motor and generator are same.

But the dc motor has the wide range of speed and good speed regulation which in electric traction

III. ALARM UNIT

A buzzer or beeper is a signalling device, usually electronic, typically used in automobiles, household appliances such as a microwave oven, or game shows.

Initially this device was based on an electromechanical system which was identical to an electric bell without the metal gong (which makes the ringing noise).

3. SOFTWARE

I. PYTHON AND OPENCV

OpenCV is the most popular library for computer vision. Originally written in C/C++, it now provides bindings for Python.

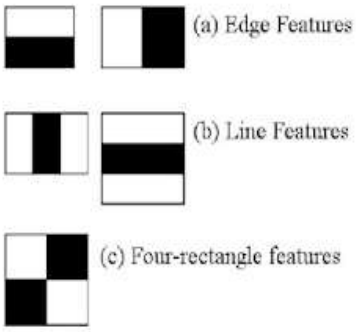
OpenCV uses machine learning algorithms to search for faces within a picture. Because faces are so complicated, there isn't one simple test that will tell you if it found a face or not. Instead, there are thousands of small patterns and features that must be matched. The algorithms break the task of identifying the face into thousands of smaller, bite-sized tasks, each of which is easy to solve. These tasks are also called classifiers.

II. HAAR CASCADE ALGORITHM IN DETECTING FACE

It is an AI based technology where a course work is prepared from a great deal of positive and a negative pictures. It is then used to distinguish protest in different images. Here we all work with face recognition .First of it the calculation needs a great deal of positive and negative images to prepare the classifier. At the point they have to extricate highlights from it. For this, hear highlights appeared underneath image are utilized. They are similar to our convolution region .Every element is solitary esteem gotten by reducing whole of pixels under white square shape from total of pixels under dark square shape.

Presently all possible sizes and shapes of every pieces utilized to calculate a lot of highlights. (simply envision what amount of calculation it needs?)

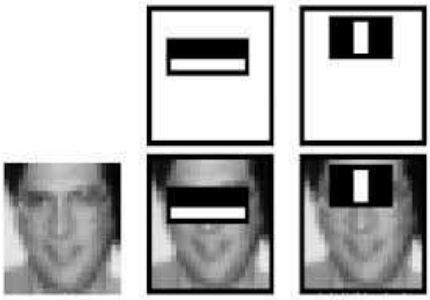
Indeed even a 24x24 window results over than 16000 highlights). Or each component computation. We have to discover total of pixels under white and dark square shapes.



• To solve this, they presented the necessary images. It streamlines figuring o whole pixels.
• How large might be the quantity of pixels, to a task including only four pixels. Decent, would it sat isn't? It make things super fast.

• However, every one of these highlights we determined, a large of them are useless.
• The principle include chose appears to concentrate on the property that the local of the eyes is regularly darker than nose in the cheeks.
• The Second element chose depends on the property that eyes are darker than the scaffold of the nose.
• For instance, considered the picture underneath top line demonstrates two grade highlights.
• Be that as it may, similar windows applying on cheeks are some others part in material. So how would we select the best highlights out of 16000+ highlights? It is accomplished by adaboost.

Models:



For this, we apply every single component on all the preparation pictures. For each element, it finds the best limit which will order the appearance to positive and negative. Be that as it may clearly there will be mistakes. We select the highlights with least mistake rate, which implies they are the highlights that best groups the face and non face pictures The procedure isn't as straightforward as this each picture is given an equivalent load first and foremost. After every order, lots of misclassified pictures are expanded. Of course same procedure is completed. New mistake rates are determined likewise new loads .The procedure is proceeded until required precision or mistake rate is accomplished or required number of highlights are found. Last classifier is a weighted whole of this frail classifiers. It is called frail since only it can order the picture, however the paper says even 200 highlights furnish location with 95% accuracy. Their last setup add around 6000 highlights (envision a decrease from 16000 highlights to 6000 highlights. That is a major addition)

For this they presented the idea of Cascade Classifiers. Rather than applying all the 6000 highlights on the window, aggregate the highlights into various phases of classifier and apply one by one. (Regularly initial couple of stages will contain less number of highlights).

• One of the chance that a window fizzles the main stage, dispose of it.

We don't think about residual highlights on it. On the off chance that it passes, apply all the second phase of the highlights and proceed with the procedure.

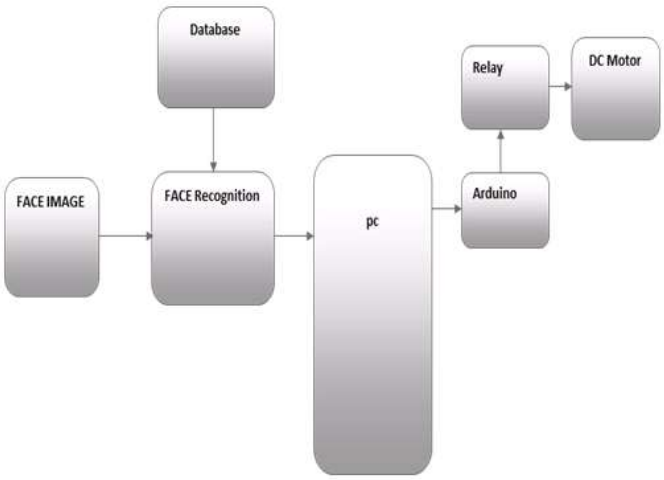
• The second phase of the elements happens and recognizes the phase.
• On the off chance the result is positive, the process continues.
• Third stage happens depends upon the geometrical elements of the face to be perceived.
• In the event that all the above stages are sure, at the point the outcome would be sure the client is permitted to take cash and the procedure ends.

III. ARDUINO IDE:

1. Arduino IDE: The Arduino IDE keeps running on all the most reason renditions of the Microsoft windows. To download the most up to date form of the IDE from the download page get to the arduino site www.arduino.cc. In the Arduino IDE new forms of the windows IDE are accessable as an installer that we can download and run, rather than downloading a ZIP record. Introduce drivers or the Arduino USB port and this procedure relies upon the Aduino board. After the drivers have been introduced, begin the executable rom the documents undamentak index by double tapping on it.

2. Arduino UNO Programming: The Arduino board can be modified utilizing the Arduino IDE programming. The publications window will open when the Arduino IDE programming is opened. This window accepts o two critical parts, one is setup part and second is the principle circle. The Arduino ports, or example, INO yield, and consistent capacities are characterized in setup part and circling conditions are coded in the principle circle. At the point the program is assembled or blunders and alerts. On fruitful investigating, the code is inserted to the controller through the transfer choice.

4. BLOCK DIAGRAM



1. RFID Reader is used instead of ATM card.
2. Face dataset of each person is saved in a different folder with their names.
3. We are going to assign card and face dataset accordingly.
4. If a new card is read in the RFID reader then it checks the face is matched with the assigning name of the card or not.
5. If matched we'll get the access by turning on the dc motor or a mail OTP will send.
6. If the OTP entered is correct then they get access or a buzzer will sound and the face of the intruder will send by mail using SMTP.

5. CONCLUSIONS

We thus develop an ATM model that is more reliable in providing security by using facial recognition software. By keeping the time elapsed in the verification process to a negligible amount we even try to maintain the efficiency of this ATM system to a greater degree.

Biometrics as means of identifying and authenticating account owners at the Automated Teller Machines gives the needed and much anticipated solution to the problem of illegal transactions. In this paper, we have tried to proffer a solution to the much dreaded issue of fraudulent transactions through Automated Teller Machine by biometrics that can be made possible only when the account holder is physically present. Thus, it eliminates cases of illegal transactions at the ATM points without the knowledge of the authentic owner. Using a biometric feature for identification is strong and it is further fortified when another is used at authentication level.

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