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NEW GENERATION ATM WITH FACE AUTHENTICATION

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Abstract— The automated teller machine, or ATM, is such a complicated piece of technology that it does not have a single inventor. Instead, the ATMs we use today are an amalgam of several different inventions. Traditionally we use ATM Cards with pin to enable any transaction of money from one account to another. In this proposed paper we implement a new generation ATM machine which can be operated without the ATM card. In this system we have some more web pages for the identification of the user and 3 rd. user. In first website we have two buttons one for user and another one for third user, if I am user means I want to click user button or otherwise click third user button. Maybe I am third user first I want to enter the authorized user name and password then camera take image mail to authorized person at the same time send alert SMS via IOT. And finally another new webpage is there, if the user should want to go there and should give okay then only third user moves to amount withdraw other its hold.

Keywords: Face Authentication, ATM,PIR Sensor ,Web Camera.

1.Introduction

Due to rapid development in science and technology, upcoming innovations are being built up with strong security.The existing ATM model uses a card and a PIN which gives rise to increase in attacks in the form of stolen cards, or due to statically assigned PINs, duplicity of cards and various other threats .A new biometric ATM seeks to use biometric identity so that not cards and PINs is needed, as the keys to allow consumers to access their cash. The ATM offers a prompt to complete authentication via facial recognition on consumers. The Diebold Nixdorf and Samsung technology relies on facial recognition, and it stands as the latest advance in biometric payment efforts. Face recognition finds its application in a variety of fields such as homeland security, criminal identification, human computer interaction, privacy, security, etc. The face recognition feature inhibits access of account through stolen or fake cards. The card itself is not enough to access account as it requires the person as well for the transaction to proceed. First live image is captured automatically through a webcam installed on the ATM, which is compared with the images stored in the database. If it matches ,the transaction can proceed. Therefore, the combination of face recognition algorithms, frees a user from an extra burden of remembering complex passwords.

2.Literature Survey

This chapter provides a detailed survey of face recognition research. There are two underlying motivations to present this survey: the first is to provide an up-to-date review of the existing literature, and the second is to offer some insights into the studies of machine recognition of faces. To provide a comprehensive survey, existing recognition techniques of face recognition are categorized and detailed descriptions of representative methods within each category are presented. In addition, relevant topics such as psychophysical studies, system evaluation, issues of illumination and pose variation are covered. This face recognition problem is made difficult by the great variability in head rotation and tilt, lighting intensity, angle, facial expression, aging etc. Some other attempts at facial recognition by machine have allowed 28 for little or no variability in these quantities. Yet, the method of correlation or pattern matching of unprocessed data, which is often used by some researchers, is

certain to fail in cases where the variability is great. In particular, the correlation is very low between two pictures of the same person with two different head rotations. Modern face recognition has reached an identification rate greater than 90% with well-controlled pose and illumination conditions. The task of recognizing faces has attracted much attention both from Neuro-scientists and from computer vision scientists. While network security and access control are it most widely discussed applications, face recognition has also proven useful in other multimedia information processing areas.

2.1. Existing System

Existing ATMs are convenient and easy to use for most consumers. Therefore, ATMs typically provide instructions on an ATM display screen that are read by a user to provide for interactive operation of the ATM. Having read the display screen instructions, a user is able to use and operate the ATM via data and information entered on a keypad. ATMs give, but they can also take. They can malfunction and simply not be available when you need them. Some will also retain damaged cards or any card if its owner fails to enter a correct PIN after three attempts. Criminals can fit skimming devices and small cameras to ATMs. These machines record account details and personal identification numbers, which the crook uses to withdraw money from those accounts. There is no such security blankets with an ATM.

3. Proposed system

In this proposed system we have created the new generation ATM machine which can be operator without the ATM card. In server we can collect the related information of the Image eg. the users account details, their photo etc. is terminated. So by using this system need of ATM card is completely eliminated we can operate the ATM machine. In the existing system all the transactions are done through keyboard only PIR sensor will detect the human presence. Speed and security stand as the main benefits of biometric authentication at the ATM. Not only will criminals have a harder time breaking into a consumer's account if it is protected by facial recognition. Face recognition will enhancement of security of accounts and privacy of users. Therefore no need to remembering the complex pin for authorization.

3.1.Architecture Diagram

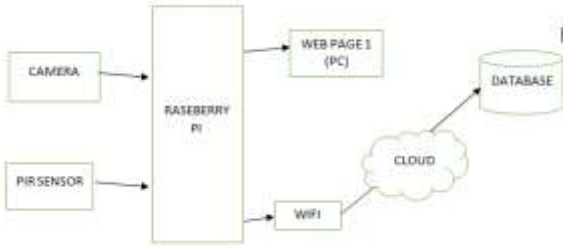

Fig.1.Architecture Diagram for ATM with face Authentication

3.2. Module Description

3.2.1 User Personal Information

First module is about user have to register with the account details such as name, user identity, account number, IFSC number etc. in the Banks. Authenticate user has to upload their faces sample images as a trained dataset via Web camera Users can access accounts and sign transactions in ATM by simply facial authentication without any ATM cards or pass codes via Web camera installed on the ATM .

3.2.2 Admin Side

Admin side has an responsibilities to managing, adding, removing the existing user. Admin in ATM security may be plays vital roles in financial oriented ATM transactions whether to withdraw or deposit the money from the authorized user or person. If any unauthorized or illegal transaction has been carried out by the illegal user it should be monitored by the admin. Then Admin has the rights to take action to prevent or block that illegal money transaction across the ATM Machine.

3.2.3 Face Authentication

Biometric facial recognition authentication uses biological traits to identify people. In this module there are three sub operations are carried out. User Recognition in this technology plays a major role, recognition used in the description of biometric systems like facial recognition, finger print or iris recognition relating to their fundamental function, the generic term how ever does not necessarily imply verification closed-set identification or open-set identification. User Verification is the task where the biometric system attempts to confirm an individual's claimed identity by comparing a submitted sample to one or more previously enrolled templates. The concept of recognition and verification which is feather illustrated by the picture below where the first image resembles the second image. If any user wears mask or helmet, that time the alarm will be raised to the near police station.

3.2.4 Alarm Module

Measuring the face and body recognition using the frontal face images captured by an embedded ATM camera. It detect the wrong person suddenly gives the notification to admin and rising the alarm. This will help to avoid actions of Breaking or damaging the machines threat the ATM user denial of transactions and any other ATM user by invalid users or mask.

3.2.5Methodology

I. CROWD ANALAYSIS

1.Pre-Processing:

Pre-processing is the process reading input image into a data format that can be used for the selective background modeling.

2.Selective Background Modelling:

Background modelling is the heart of any background subtraction algorithm. In background modelling, we used selective background subtraction method to select the unnecessary background in the image and apply the binary mask for this selection. This binary mask is output for the next phase of foreground detection.

3.Background and Foreground Detection:

The foreground and necessary background are separated from the selective background model after the step of selective background modelling. The method will classify the selective background and necessary background and foreground object by identifying it pixels from the input image.

4.Data Validation:

Data validation stages examine the binary mask of background and foreground object with the input image and then remove the selective background and detect foreground object with a corrected background in the image. The method proposed in this paper involves following processing levels.

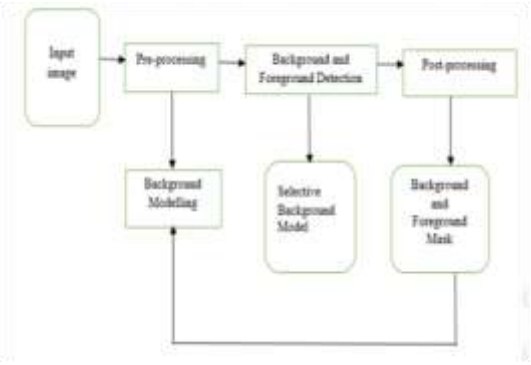

Fig.2.Module Diagram for ATM with face recognition.

II. TEMPERTURE AND HUMIDITY SENSOR

Humidity and temperature are common parameters to measure the environmental conditions. In this NODE MCU based project we are going to measure ambient temperature and humidity and display it on screen. A combined temperature and humidity sensor DHT11 is used with NODE MCU to develop this Celsius scale thermometer and percentage scale humidity measurement project. Working of this project is based on single wire serial communication. First NODE MCU send a start signal to DHT module and then DHT gives a response signal containing temperature and humidity data. NODE MCU collect and extract in two parts one is humidity and second is temperature and then send them to screen. Here in this project we have used a sensor module namely DHT11. This module features a humidity and temperature complex with a calibrated digital signal output means DHT11 sensor module is a combined module for sensing humidity and temperature which gives a calibrated digital output signal. DHT11 gives us very precise value of humidity and temperature and ensures high reliability an long term stability. This sensor has a resistive type humidity measurement component and NTC type temperature measurement component with an 8-bit microcontroller inbuilt which has a fast response and cost effective and available in 4-pin single row package.

III. COMPLETE PROCESS

NODE MCU of time delay about 80µs. And then DHT controller pull up the data line and keeps it for 80µs for DHT's arranging of sending data. When data bus is at low voltage level it means that DHT11 is sending response signal. Once it is done, DHT again makes data line pull-up for 80µs for preparing data transmission .data format that is sending by DHT to NODE MCU for every bit begins with 50µs low voltage level

4.Results and Discussion

Face recognition technologies have been associated generally with very costly top secure applications. In the Face recognition technology of ATM, pose variance, false positives are still a problem. Certain applications of face recognition technology are now cost effective, reliable and highly accurate. Face recognition technology can be used worldwide to access buildings, however it can be used in ATMs, which would help address potential security threats in near future.

5.Conclusions and Future Enhancements

Facial recognition seems more challenging as compared to other biometrics ,thus more efficient algorithm can be used. In addition to that ,We can improve the performance in face authentication.

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