

Third Generation ATM using Face Recognition

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Abstract:- Automated teller machines (ATMs) are well acknowledged devices stereotypically used by folks to cart out a variability of personal and business economic transactions and banking tasks. ATMs have become very popular with the general public for their availability and general user friendliness. ATMs are now originate in many positions having a systematic or high volume of consumer movement. For example, ATMs are typically found in restaurants, supermarkets, Convenience stores, malls, schools, gas stations, hotels, work locations, banking centers, airports, entertainment establishments, transportation facilities and a myriad of other locations. ATMs are typically available to consumers on a continuous basis such that consumers have the ability to carry out their ATM financial transactions and/or banking functions at any time of the day and on any day of the week. This based on the facial recognition and also the multilevel security system based to work this entire concept. Here, we have some PHP support to analyze the person authorized identification.

Keywords:- Automated Teller Machine; Face Recognition; Security; Performance.

I. INTRODUCTION

Nowadays, banking sector is one of the most important parts of a human day to day life. Banking facilities are widely used by people for their economies activities. Automatic Teller Machine (ATM) is an electronic machine which is used for accessing a bank account from anywhere without the help of bank staff. The user can perform several banking activities like cash withdrawal, money transfer with the help of ATM. It is observed that the number of crimes related to ATM is increased hence there is a necessity to provide enhances security to ATM machine. Previous technologies provides security to transactions for identification of authorized user. But this is limited for secure transactions with ATM machine. Previous works focused on biometric technique to provide enhanced security to ATM transaction whereas GSM based technique is also implemented for the same purpose. Whereas, some system uses a combination of the both techniques. Currently, ATM security is given to the transactions only. GSM based security is provided in which One Time Password (WEBPAGE REQUEST) is send to registered number for transaction. The combination of GSM and RFID technology is also used which makes the system secure than only RFID technology. This technology has drawback so, biometric technology is introduced for ATM transaction. In biometric method fingerprint and face recognition system are used for ATM transaction. Fingerprint recognition system for ATM

Transaction is used because each customer has unique fingerprints. So this system provides more secure transaction than GSM. Face recognition method is also used for security in which face is recognized from 3 angles for authentication purpose.

Also, security is enhanced & facial recognition features. In this system, current face image matched with stored image and after matching the images correctly, request will be send to registered number user have to enter the webpage request number for completing transaction. There are many systems available for securing transactions, but there is no particular system to secure ATM machine. So there is a necessity to implement a system which monitors and control the room where ATM machines are placed. The design of proposed system is divided into two parts. The first consists of a fingerprints reader placed at the entrance of ATM machine used to identify the user is authorized. The second part consists of Raspberry Pi module which is placed inside ATM centre for capturing real-time video and controlling purpose.

II. LITERATURE SURVEY

A. Design and Implementation ATM Alarm Data Analysis System

Nowadays, people pursuit of fast and convenient way of life, fast and convenient service of ATM is made for people to avoid waiting in line at the bank for a long time. In order to serve people conveniently, it is need to monitor the ATM equipment to guarantee its normal operation, and deal with the unexpected problems in time. Therefore, this paper builds a cloud platform for alarm service, does some alarm analysis, which appears at different times in different locations of the ATM machine. This can provide better service for ATM users. This system is called ATM Alarm Data Analysis System.

B. Data Driven Analytics for Automated Cell Outage Detection in Self Organizing Networks

In this paper, we address the challenge of autonomous cell outage detection (COD) in Self-Organizing Networks (SON). COD is a pre-requisite to trigger fully automated self-healing recovery actions following cell outages or network failures. A special case of cell outage, referred to as Sleeping Cell (SC) remains particularly challenging to detect in state-of-the-art SON, since it triggers no alarms for Operation and Maintenance (O&M) entity. Consequently, no SON compensation function can be launched unless site visits or drive tests are performed, or complaints are received by affected customers.

C. New Generation ATM Terminal Services

This paper aims at realization of the Automated Teller Machine network all around the globe using IPv6, thereby reducing the complexity and total number of transactions involved in the entire process of cash withdrawal. But the major challenge involved in connecting ATM network to public domain is the security. A Near-Field Communication (NFC) is proposed to be used where in the user, after inserting ATM Card, would communicate via only their NFC enabled mobile phones. Reserving NFC spectrum band to the government is proposed to be made mandatory for ensuring no eavesdropping.

System architecture

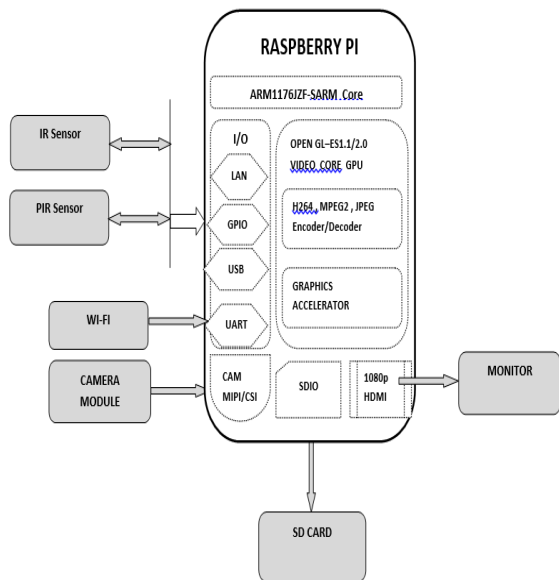


Fig 1:- Overview

Here we have the raspberry microcontroller. Inside that controller we have the some more software use of find face recognition to the person. We are using the OPENCV advance image processing software with the help of this we will find the face of the authorized person. At last we allowing to take money to that person. What block diagram say know means here, IR sensor, help of this we will find the persons entering that room or not, help of PIR sensor find the human in front of machine or not, at last help of camera take photo and find the authorized person.

D. Hardware Requirments

- Define IR, PIR sensor.
- CAMERA
- Web camera
- Raspberry pi

E. Software Requirements

- Raspbian Jessie OS
- Language : Python
- Open CV
- HTML, PHP

F. Design Theory

In this system help of the camera will get input image for face recognition. Before help of PIR will find the person is in front of machine or not after that will enable the camera and after first page will open automatically that everything will show in monitor. There have select user or third user, if user directly it will move face recognition after recognition done next our with drawl or if third user is there, third user have to update user valid name and password after user will get alert notification via SMS and Mail, based on that user want to give permission for taking money then third will get money otherwise system terminate.

III. HARDWARE DESCRIPTION

G. Raspberry Pi

The Raspberry Pi is a acclaim card sized single-board computer with an open-source platform that has a blooming community of its own, parallel to that of the acoustic. It can be used in numerous types of projects from novices perception how to code to design home automation systems. There are a few versions of the Raspberry Pi, but the latest version, has improved upon its predecessor in terms of both form and functionality. The Raspberry Pi Model B features:

- More GPIO
- More USB
- Micro SD
- Lower power consumption
- Better audio
- Neater form factor

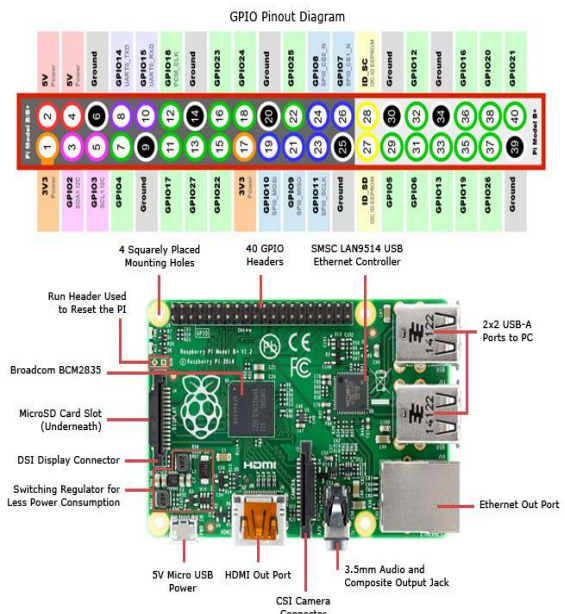


Fig 2:- Raspberry Pi

The Raspberry Pi is a chains of credit card sized single-board processors developed in the United Kingdom by the Raspberry Pi Underpinning to indorse the education of elementary computer skill in schools and mounting countries.

- Raspberry Pi 2 includes a quad-core Cortex-A7 CPU running at 900 MHz and 1 GB RAM. It is described as 4–

6 times more powerful than its predecessor. The GPU is identical to the original.

- The Raspberry Pi does not have a built-in real time clock, and does not "know" the time of day.
- It have many models All models feature a Broadcom system on a chip (SoC), which includes an ARM compatible central processing unit (CPU) and an on chip graphics processing unit (GPU, a Video Core IV).
- CPU speed runs from 700 MHz to 1.2 GHz for the Pi 3 and on panel recall sort from 256 MB to 1 GB RAM.

H. PIR Sensor

PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are minor, reasonable, low-clout, relaxed to use and don't garb out. For that reason they are normally found in applications and tools used in homes or productions. They are often referred to as PIR, "Passive Infrared", "Pyro electric", or "IR motion" sensors.

PIRs are fundamentally made of a pyro electronic sensor which can sense ranks of infrared radiation. Everything emits some low level radiation, and the hotter something is, the more radiation is emitted. The sensor in a motion detector is actually split in two halves. The purpose for that is that we are regarding to spot motion not typical IR levels. The two halves are wired up so that they cancel each other out. If one half sees more or less IR radiation than the other, the output will swing high or low.

IV. SOFTWARE DESCRIPTION

The Python encoding linguistic essentially initiated as a scripting language for Linux. Python programs are similar to shell scripts in that the files contain a series of commands that the computer executes from top to bottom. Python is a very beneficial and adaptable high level programming language, with tranquil to recite composition that allows computer operator to use scarcer lines of code than would be probable in languages such as assembly, C, or Java.

Python programs don't need to be compiled before running them, as you do with C programs. However, you will need to mount the Python transcriber on computer to route them. The interpreter is the program that reads the Python file and executes the code. There are programs like `or` or `r` that can package Python code into stand-alone executable programs so you can run Python programs on computers without the Python interpreter installed.

Like shell scripts, Python can computerize errands like group rechristening and stirring huge volumes of files. Using IDLE, Python's REPL (read, eval, print, loop) function can be used just like a command line. However, there are more useful things you can create with Python. Programmers use Python to create things like:

- Web applications
- Desktop applications and utilities
- Special GUIs
- Small databases
- 2D games

V. CONCLUSION

Nowadays, most of the ATM has been attacked by the robberies. In this paper, a real-time monitoring system for ATM security based on accelerometer sensor, camera module, and fingerprint module is proposed. The proposed work concludes with the following points:

- A secure way of accessing an ATM by authorized persons using face recognition module.
- Eliminates the drawback of previous system like manual controlling camera modules and doors.
- The system is cost effective as compare to existing manual technique.
- The real time video of the ATM centre can be monitored through web server which make ATM better safe from thefts.

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