Third Generation Automatic Teller Machine

Gayathri B[1] AnnMary Antony[2] Keerthana K H[3] Aswathy R[4]
[1,2,3,4]Department of Electronics and Communication
[1,2,3,4]Federal Institute Of Science And Technology, Angamaly Kerala, India

Abstract— In this paper we proposed a new model in the banking system, one knows that ATM cards are widely used nowadays. In the proposed system, one can fetch the money without an ATM card. ATM can be operated by using the SIM (Subscriber Identity Module) in the mobile phone .When we insert our SIM in the reader unit of the ATM, it connects the mobile to the server. In server we can collect the related information of the mobile number, i.e, the users account detail, their photo etc. Camera in the ATM will capture the user's image to the server. If the image in the server and camera matches, it proceeds for PIN number and the processing begins. Else the process is terminated. Using this kind of system need for ATM card is completely eliminated. We can operate the ATM machine by using our SIM itself. By using this malfunctions can be avoided. Our transaction will be more secured.

I. INTRODUCTION

An automated teller machine (ATM) or banking machine (ABM) is a computerized telecommunications device that provides the clients of a financial institution with access to financial transactions in a public space without the need for a cashier, human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip that contains a unique card number and some security information such as name, expiry date and CVV(Card Verification Value). Authentication is provided by the customer entering a Personal Identification Number (PIN).

Using an ATM, customers can access their bank accounts in order to make cash withdrawals (or credit card cash advances) and check their account balances as well as make use for purchase in shops. ATM's often provides the best possible exchange rate for foreign travellers.

In this paper, automated functions are performed via image processing and transaction upon Subscriber Identity Module security maintenance is provided by behaviour recognition. Effective mobile communication is ensured throughout the entire process. Alert module is provided during an illicit transaction. Mobile scanning device scans SIM number through GSM Modem, at the same time web camera captures the images. Using Digital Signal Processing functions they are verified, if images and PIN number are same then further process begins, otherwise it leaves an alarm through Alert module. Information's are processed and intimated to customer by voice annunciator module.

II. GSM MODEM

Global System for Mobile communication (GSM) is a globally accepted standard fo-r digital cellular communication. A GSM modem acts like a dial-up modem, being an external device. Typically, an external GSM modem is connected to a computer

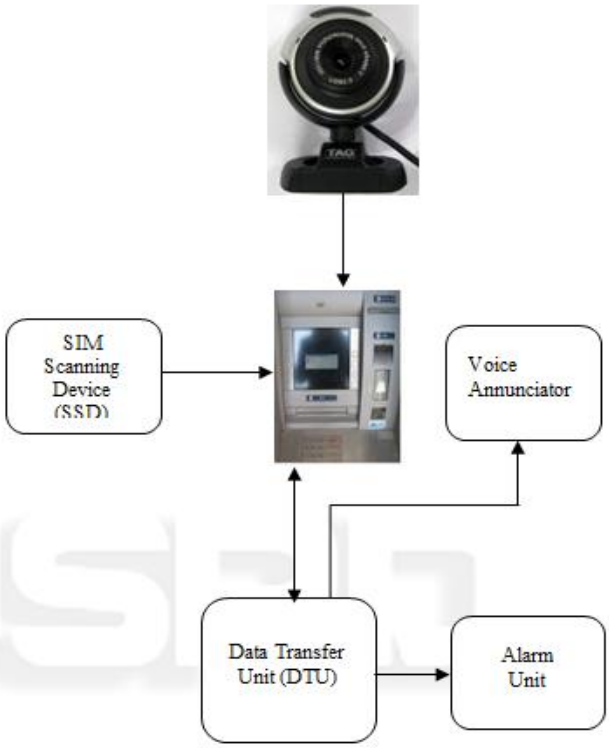

Fig. 1: Block Diagram of the System

through a serial cable or a USB cable. System uses AT commands to control modems. GSM modems also support an extended set of AT commands than normal dialup modem. These extended AT commands are defined in the GSM standards. With the extended AT commands, one can do things like:Reading, writing and deleting SMS messages.

1) Sending SMS messages.
2) Monitoring the signal strength.
3) Monitoring the charging status and charge level of the battery.
4) Reading, writing and searching phone book entries.

The number of SMS messages that can be processed by a GSM modem per minute is very low -- only about six to ten SMS messages per minute.

Fig. 2: GSM Modem

III. FACE RECOGNITION

Principal component analysis (PCA) involves a mathematical procedure which extracts facial features for recognition, this approach transforms face images into a smallest of characteristic feature images called Eigen faces. The first principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. These methods capture the local facial features and their geometric relationships. They often locate anchor points at key facial features (eyes, nose, mouth, etc.), connect these points to form a net and then measure the distances and angles of the net to create a unique face 'print'.

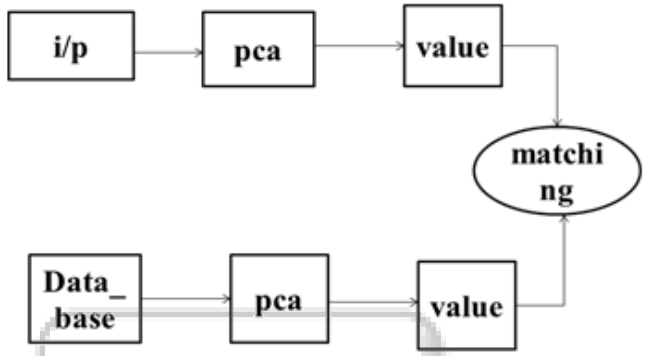

Fig. 3: PCA: Principal Component Analysis

It converts the input and database face images to corresponding Eigen values. Eigen value corresponds to the energy of the face images. These Eigen values are compared. Here is how Eigen value is calculated?

1) Read image.
2) Find its mean value = average of the colour
3) Find difference image = input image-mean
4) Co-variance matrix = gives effective colour
5) 5. Eigen value = gives energy of image

IV. SOFTWARE SIMULATION

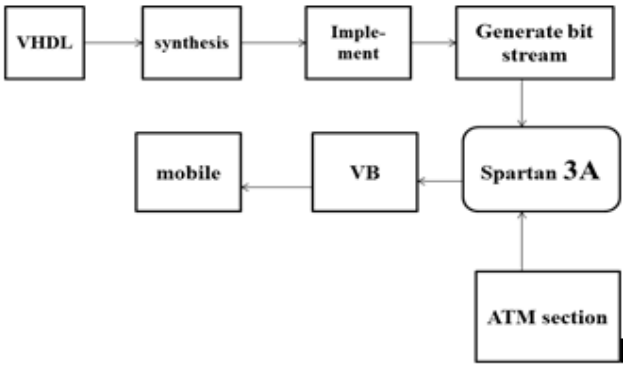

Fig. 4: Software Simulation Block Diagram

Logic synthesizer, Synthesizer transforms the VHDL into a net list. The net list is just a description of the various logic gates in our design and how they are interconnected Implementation phase. It employs three different tools. A translator merges together one or more net lists along with any design constraints. This is fed to a mapper that combines gates in the net list into groups that will fit efficiently into the LUTs of the FPGA. The gate groupings are sent to the place & route tool that assigns them to LUTs at various locations in the FPGA and then determines how to connect them together using the routing resources (wires) in the switching matrix. This part takes the most time as finding a placement that can be routed efficiently requires a lot of computation bit stream generator it takes the output of the implementation phase, combines it with a few other configuration settings, and outputs a binary bit stream. This bit stream (which, depending upon the size of the FPGA can be many megabits in length) contains the truth-tables that will be loaded into the RAM of every LUT and the connection settings for the wiring matrix that will connect them. At this point, a bit stream is just a bunch of 1s and 0s in a file on the computer. The downloader will transfer this file into a physical FPGA chip. In most cases, this chip is already mounted on a circuit board where it waits for the bit stream that will make it perform its intended function.

ATM status report block

It send status of different ATM, whether working or not .to particular customer mobile via Spartan 3a hardware and UART.

V. CONCLUSION

From this we implement image-recognition techniques that can provide the important functions required by advanced intelligent ATM Security, to avoid theft and protect the usage of unauthenticated users. Secured and safety environment system for automobile users will be provided by implementing this project. We can predict the theft by using this system in our day to day life. We Predict and indent system for the society.

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