CREDIT CARD DECEIT DETECTION USING GSM

Sujatha.S, A.Abitha, A.Stephy

Abstract-**Fraud is one of the major ethical issues in the credit card industry. This paper presents a prototype of the proposed system and demonstrates the implementation of a controller for the efficient prevention of these kinds of frauds. These fraud prevention techniques such as CHIP&PIN are developed, these technique do not prevent the most common fraud types such as fraudulent credit card usages over virtual POS terminals or mail orders. As a result, deceit detection is the essential tool and probably the best way to stop such fraud types. . This paper presents a prototype of the proposed system and demonstrates the implementation of a controller for the efficient prevention of these kinds of frauds. This is achieved by using combination of Embedded system and GSM. The main purpose is to stop the illegal money transaction and also to find the location of the card swiped.**

Index Terms—Credit card swipping machine,Gesture sensor,GSM modem.

I. INTRODUCTION

The main objective of the project is to detect the credit card deceits and to prevent them. This is achieved by using combination of embedded system and GSM. The purpose of our project is to prevent the illegal access of credit card and save to immediately block the money transaction when a card is being illegally used. This project would serve as an optimum solution to the efficient use of credit card. Implementation of this system considerably reduces the loss faced by the merchants and banks.

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II. BASIC OVERVIEW

In this project, a system that avoids the illegal usage of credit cards are designed and implemented. The swiping machine is attached with a gesture sensor. The device periodically monitors, if any card is swiped .The gesture sensor captures the image or the symbol shown by the user and compares the value, with that of already stored value in the microcontroller. If both the values are matched, the transaction is enabled, if not the microcontroller invokes the GSM modem, which initiates the call. In case of an illegal access, only if the call is accepted by the owner, the transaction takes place, the process fails.

III. LITERATURE REVIEW

Authorizing a credit card sale: In this an authorization request is sent from the merchant's point of sale unit to the acquiring bank which in turn exchanges an authorization request and an approval code with the card issuing bank. Later on the sale, draft is captured: In this a sales draft with an authorization code is sent from the merchant's point of sale unit to the acquiring bank and the bank interchanges request with authorization code with the card issuing bank. The sales amount minus discount percentage in sent to the merchant's bank account. But this method has various drawbacks such as erasing the magnetic strip, creating a fake card, altering card details and skimming.

In online transaction, the user enters the pin number and the IPIN details in order to procure a more secure transaction. The details are forwarded to the payment gateway server's and again to the merchant website for filling the other particulars. Once the details are recorded, the payment gateway server access a connection with the card issuing bank in order to access the acquirer/merchant's account to enable the transaction. The system has various drawbacks like data corruption, systems failure, network availability issues etc.

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Nowadays, after the card is swiped and the transaction takes place, a message is send to the card owner's mobile stating the current transaction status. Thereby in case of stolen cards, by the time the user discovers that he/she has lost the card,and various transactions are feasible.

IV. THE CHARACTERISTICS OF THE SYSTEM DESIGN

The parts of the system are embedded to the microcontroller(AT89S52). The AT89S52 is a chip used as the core of these embedded system which is associated with the technologies of GSM and EMBEDDED SYSTEM . The primary functions are shown as follows:

CREDIT CARD SWIPING MACHINE:When the card is swiped in the machine, a magnetic strip gets the card details which include name, card number, location and expiry date of the card. This information is read by the swiping machine.

GESTURE SENSOR:Gesture recognition enables humans to interface with the machine and interact naturally without any mechanical devices. This builds a richer bridge between machines and humans than primitive text user interfaces or even GUI, which still limit the majority of input to keyboard and mouse.

*MICROCONTROLLER:*The microcontroller is the heart of the proposed embedded system. It constantly monitors the parameters of the various sensors and verifies them with the predefined values and checks if any corrective actions is to be taken for the condition at the instant of time.

*DRIVERS/RECEIVERS:*The Drivers/Receiver is an integrated circuit that converts signals from an RS-232 serial port to signals suitable for use in TTL compatible digital logic circuits. The MAX232 is a driver/receiver and it typically converts the Receiver, Transmitter, CTS and RTS signals. The drivers provide RS-232 to get voltage level outputs from a single + 5 V supply via on-chip and external capacitors. The receiver reduce RS-232 inputs to standard 5 V TTL levels

GSM MODEM:GSM modem is a device through which it sends and receives data to and from the card owner, over wireless network, respectively. It has M2M applications include automatic connect/reconnect, device monitor and has GPS Tracking capability.

DISPLAY UNIT: A LCD is used to indicate the various processes that is taking place in the system as soon as the card is swiped, like “swipe the card”, “sign not match”, “intimating”, “Transaction Success”, “Transaction Fails”, etc.

V. Hardware Design

The AT89S52 chip is used as the core of the complete hardware.Furthermore, the modules of credit card swipping mchine, gesture sensor, microcontroller,drivers/receivers,gsm modem ,display unit are connected with the main chip (AT89S52). There are some modules consisted of the system as follows:

GSM module : It communicates through Serial interface that supports DTE, that speeds up to 115.2K bps. It has frequency of 850MHz, 900MHz, 1.8GHz, and 1.9GHz. It has operating frequency of -30°C ~ 70°C. It operates at a data rate of 85.6 kbps. It has UFL antenna connector and SIM socket.

*MICROCONTROLLER(AT89S52):*The AT89S52 is a high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable flash memory. The device is manufactured by Atmel’s high-density nonvolatile memory technology and is compatible with the industry- standard 80C51 instruction set . The Atmel AT89S52 is a microcontroller which provides a highly-flexible and cost- effective solution to many embedded control applications. The AT89S52 is also designed with static logic for operation down to zero frequency and supports two software selectable power saving modes.

SWIPPING MACHINE module: The MSR32x Stand-alone Magnetic Swipe Card Reader gives reliable reads at fast and slow swipe speeds and is very easy to use. For long life and reliability, the document transport slot is steel with smooth support buffers to guide the document through the reader. The reader is available with a USB or RS232 interface with a variety of host protocol interfaces.

GESTURE SENSORE module: The gesture sensor used in this project works based on the position based method, which works under the following steps,

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Step 1—Converting Counts to Distance: The infrared (IR) proximity sensor outputs a value for the amount of infrared light fed back to the device from the IR LEDs. Getting multiple data points at varying distances from the system helps to interpolate between these points and create a piece-wise equation for the conversion from raw PS counts to distance estimation.

Step 2—Estimate Position: The next step in the process of detecting gestures is to take the distance data from Step 1 and estimate the target's position.

Step 3—Timing Gesture: With a positioning algorithm in place, keeping track of timing allows the system to search for and acknowledge gestures.

DRIVER/RECEIVER module: The MAX232 is a dual driver/receiver that includes a capacitive voltage generator to supply 232 voltage levels from a single 5-V supply. Each receiver converts 232V inputs to 5-V TTL/CMOS levels.

LCD module: the lcd used in this project is 2x16 line lcd.It is used for displaying the status of the transaction.

Power supply module: The power supply section consists of step down transformers of 230V primary to 9V and 12V secondary voltages for the +5V and +12V power supplies respectively. The stepdown voltage is then rectified by 4 1N4007 diodes. IC 7805 is used for regulated supply of +5 volts and IC 7812 is used to provide a regulated supply of +12 volts in order to prevent the circuit ahead from any fluctuations. These capacitors are connected in parallel with supply and common so that spikes filter to the common. These give stability to the power supply circuit.The Circuit diagram of the entire system is shown in figure 1.

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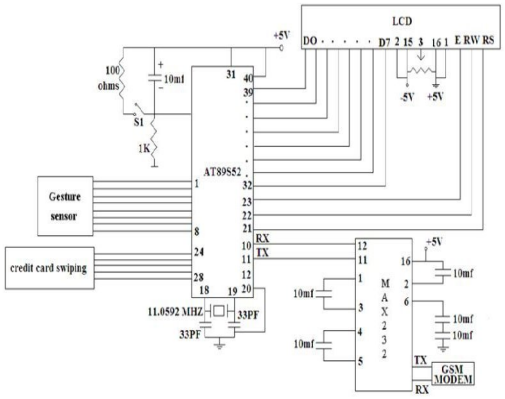

Fig.1. Circuit Diagram of the entire system.

The blockdiagram of the system is shown in figure2.

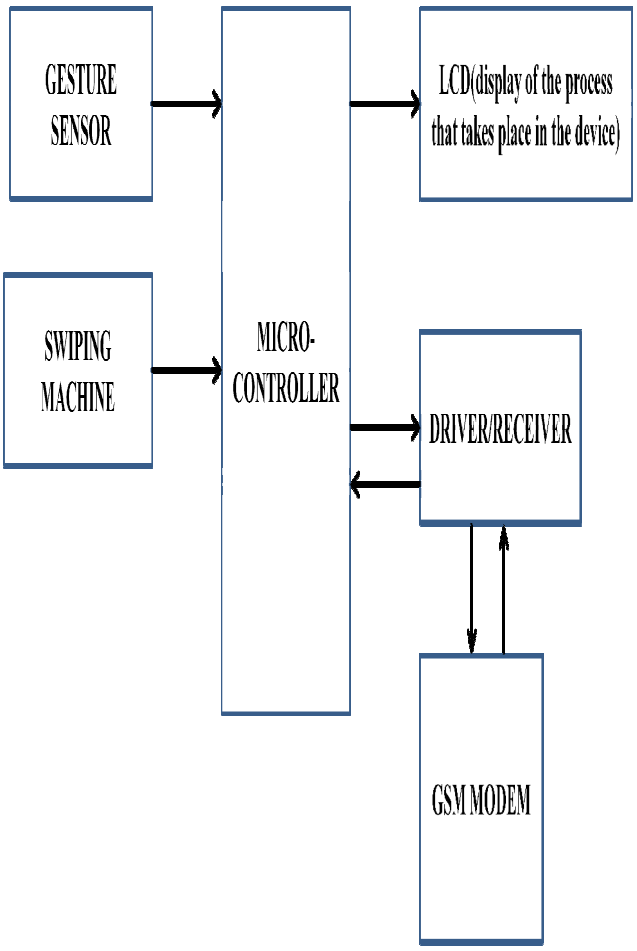

Fig. 2. Block diagram of the system

VI. Software design

The design of software is very important for this embedded system. The system of software is implemented by the steps as follows: first of all, the keil microvision 3 and the File system are loaded into the main chip. And then, the system is initialized to implement specific task, such as checking the credit card machine ,GSM and so on, and then each module is reset and ready to run the commands. The overall flow chart of software is shown in figure 3.

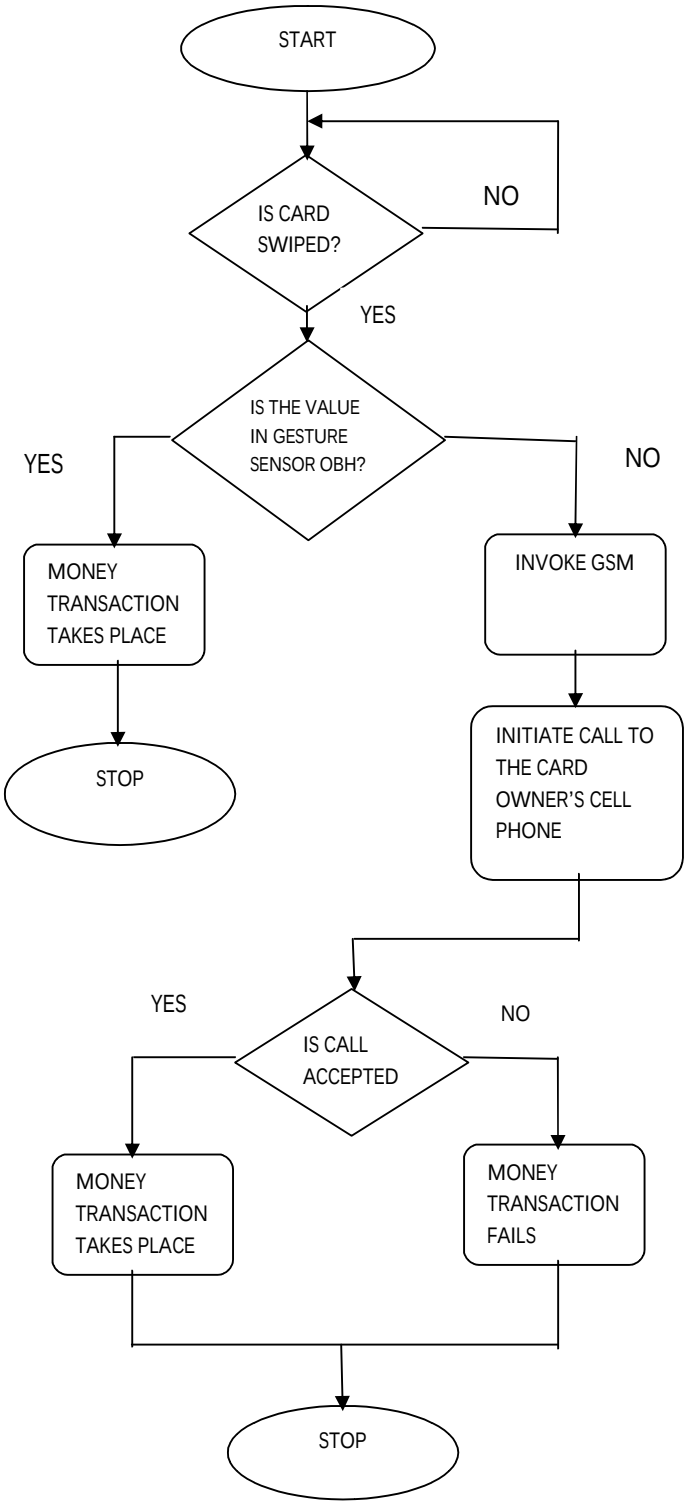

Fig. 3. The overall flowchart of software

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