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WIRELESS ATM MACHINE SECURITY USING GSM &MEMS

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ABSTRACT:

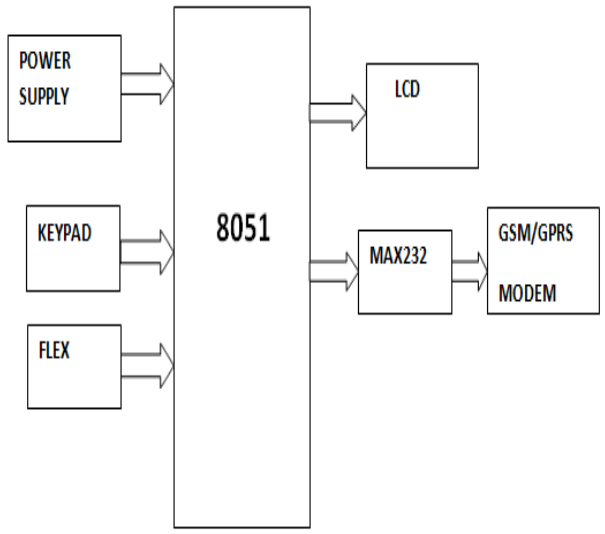
The main aim of this project is to found Using this project user can easily identify the person who without our permission using our ATMs. ATM is implemented in such a way that it has GSM modem along with this project. FLEX SENSOR and keypad is attached to microcontroller to access cards for money transaction. If any person lost his card microcontroller block that particular card Every time need to update phone numbers who lost their ATM card in new .exe or new firmware. By swiping card microcontroller will detect that theft card and sends SMS to particular specified numbers along with ATM number.

INTRODUCTION:

The GSM based smart information system for ATMS when persons is entering in to ATM it asks passwords if the password is correct the personcsn access the ATM, Iin other cases password is wrong card microcontroller will detect that theft card and sends SMS to particular specified numbers along with ATM number. All the devices such as 16X2 LCD, GSM modem, MAX232, FLEX and power supply are connected to microcontroller.

This project "GSM based smart information system for ATM security" is Now a day's technology is running with time, it completely occupied the life style of human beings. It is being used everywhere in our daily life to fulfill our requirements. We can not only increase the speed of life but also increase security with good ideas by making use of advanced technology.

BLOCK DIAGRAM:



ARM PROCESSOR:

The LPC2141/2/4/6/8 microcontrollers are based on a 32/16 bit ARM7TDMI-S CPU with real-time emulation and embedded trace support, that combines the microcontroller with embedded high speed flash memory ranging from 32 kB to 512 kB. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at the maximum clock rate.

FEATURES OF ARM PROCESSOR:

• 16/32-bit ARM7TDMI-S microcontroller in a tiny LQFP64 package.

• 8 to 40 kB of on-chip static RAM and 32 to 512 kB of on-chip flash program memory.

128 bit wide interface/accelerator enables high speed 60 MHz operation.

• In-System/In-Application Programming (ISP/IAP) via on-chip boot-loader software.

Single flash sector or full chip erase in 400 ms and programming of 256 bytes in 1 ms.

• Embedded ICE RT and Embedded Trace interfaces offer real-time debugging with the

on-chip Real Monitor software and high speed tracing of instruction execution.

• Single 10-bit D/A converter provides variable analog output.

• Two 32-bit timers/external event counters (with four capture and four compare

channels each), PWM unit (six outputs) and watchdog.

• Low power real-time clock with independent power and dedicated 32 kHz clock input.

GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS:

GSM (Global System for Mobile communications) is a cellular network, which means that mobile phones connect to it by searching for cells in the immediate vicinity. GSM networks

operate in four different frequency ranges. Most GSM networks operate in the 900 MHz or 1800 MHz bands. Some countries in the Americas use the 850 MHz and 1900 MHz bands because the 900 and 1800 MHz frequency bands were already allocated.

The rarer 400 and 450 MHz frequency bands are assigned in some countries, where these frequencies were previously used for first-generation systems.GSM-900 uses 890–915 MHz to send information from the mobile station to the base station (uplink) and 935–960 MHz for the other direction (downlink), providing 124 RF channels (channel numbers 1 to 124) spaced at 200 kHz. Duplex spacing of 45 MHz is used. In some countries the GSM-900 band has been extended to cover a larger frequency range. This 'extended GSM', E-GSM, uses 880–915 MHz (uplink) and 925–960 MHz (downlink), adding 50 channels (channel numbers 975 to 1023 and 0) to the original GSM-900 band. Time division multiplexing is used to allow eight full-rate or sixteen half-rate speech channels per radio frequency channel.

GSM ADVANTAGES:

also pioneered a low-cost, to the network carrier, alternative to voice calls, the Short t message service (SMS, also called "text messaging"), which is now supported on other mobile standards as well. Another advantage is that the standard includes one worldwide Emergency telephone number, 112. This makes it easier for international travelers to connect to emergency services without knowing the local emergency number.

MAIN AT COMMANDS:

"AT command set for GSM Mobile Equipment" describes the Main AT commands to communicate via a serial interface with the GSM subsystem of the phone.

AT commands are instructions used to control a modem. AT is the abbreviation of Attention. Every command line starts with "AT" or "at". That's why modem commands are called AT commands. Many of the commands that are used to control wired dial-up modems, such as ATD (Dial), ATA (Answer), ATH (Hook control) and ATO (Return to online data state), are also supported by GSM/GPRS modems and mobile phones. Besides this common AT command set, GSM/GPRS modems and mobile phones support an AT command set that is specific to the GSM technology, which includes SMS-related commands like AT+CMGS (Send SMS message which includes SMS-related commands like AT+CMGS (Send SMS message), AT+CMSS (Send SMS message from storage), AT+CMGL (List SMS messages) and AT+CMGR (Read SMS messages).

Note that the starting "AT" is the prefix that informs the modem about the start of a command line. It is not part of the AT command name. For example, D is the actual AT command name in ATD and +CMGS is the actual AT command name in AT+CMGS. However, some books and web sites use them interchangeably as the name of an AT command.

Here are some of the tasks that can be done using AT commands with a GSM/GPRS modem or mobile phone:

- Get basic information about the mobile phone or GSM/GPRS modem. For example, name of manufacturer (AT+CGMI), model number (AT+CGMM), IMEI number (International Mobile Equipment Identity) (AT+CGSN) and software version (AT+CGMR).
- Get basic information about the subscriber. For example, MSISDN (AT+CNUM) and IMSI number (International Mobile Subscriber Identity) (AT+CIMI).

Get the current status of the mobile phone or GSM/GPRS modem. For example, mobile phone activity status (AT+CPAS), mobile network registration status (AT+CREG), radio signal strength (AT+CSQ), battery charge level and battery charging status (AT+CBC).

4 **KEYPAD**

A keypad is a set of buttons arranged in a block which usually bear digits and other symbols but not a complete set of alphabetical letters. If it mostly contains numbers then it can also be called a numeric keypad. Keypads are found on many alphanumeric keyboards and on other devices such as calculators, combination locks and telephones which require largely numeric input. An input device, sometimes part of a standard computer keyboard, consisting of a separate grid of numerical and function keys arranged for efficient data entry.

A computer keyboard usually contains a small numeric keypad with a calculator-style arrangement of buttons duplicating the numeric and arithmetic keys on the main keyboard to allow efficient entry of numerical data. This number pad (commonly abbreviated to "numpad") is usually positioned on the right side of the keyboard because most people are right-handed.

Many laptop computers have special function keys which turn part of the alphabetical keyboard into a numerical keypad as there is insufficient space to

allow a separate keypad to be built into the laptop's chassis. Separate plug-in keypads can be purchased.

The keypad of a calculator contains the digits 0 through 9, together with the four arithmetic operations, the decimal point and other more advanced functions.

Keypads are a part of mobile phones that are replaceable and sit on a sensor board. Some multimedia mobile phones have a small joystick which has a cap to match the keypad.

Keypads are also a feature of some combination locks. This type of lock is often used on doors, such as that found at the main entrance to some offices.

Types of keypad:

1. Numeric keypad
2. Telephony keypad
3. Gaming keypad
4. Matrix keypad

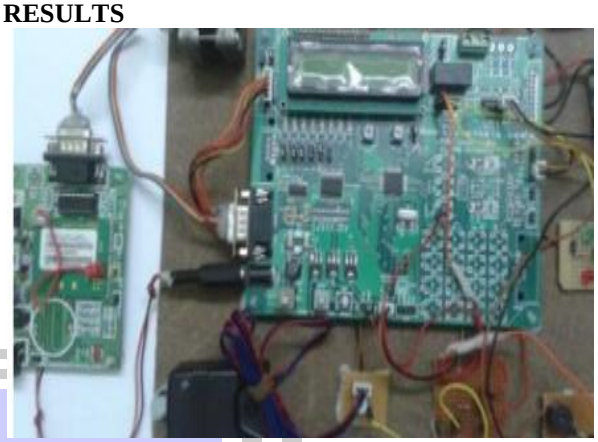
FLEX :

"The impedance buffer in the [Basic Flex Sensor Circuit] (above) is a single sided operational amplifier, used with these sensors because the low bias current of the op amp reduces errer due to source impedance of the flex sensor as voltage divider. Suggested op amps are the LM358 or LM324." "You can also test your flex sensor using the simplest circuit, and skip the op amp.""Adjustable Buffer- a potentiometer can be added to the circuit to adjust the sensitivity range."

"Variable Deflection Threshold Switch- an op amp is used and outputs either high or low depending on the voltage of the inverting input. In this way you can use the flex sensor as a switch without going through a microcontroller."

"Resistance to Voltage Converter- use the sensor as the input of a resistance to voltage converter using a dual sided supply op-amp. A negative reference voltage will give a positive output. Should be used in situations when you want output at a low degree of bending."

RESULTS



CONCLUSION:

Based on the results, the objective of developing ATM Security System using flex and GSM has been achieved. This project is used to provide security to ATM. Whenever a person trying to theft the ATM he has to broke the ATM container at that time the FLEX sensor had sensed the motion and send to the microcontroller. Then microcontroller produced the sound using Buzzer and sends a SMS via GSM.

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