Crime Intelligent Security Control Robot Investigation System

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Abstract- This researching Fingerprint based identification is one of the most mature & proven technique compared to the biometric technique. Fingerprints are classified as rolled, plain & latent fingerprints. However, even today, a fully automated latent fingerprint matching system has not been developed. However, even today, a fully automated latent fingerprint matching system has not been developed. Matching latent fingerprints over rolled or plain fingerprints is difficult task. The reason behind this is nothing but presence of noise and non-linear distortion in latent prints. Matching latent fingerprints over rolled or plain fingerprints is difficult task. An CIESs should be designed as a criminal investigation decision support system (CIDSS), a reasoning process based on production rules. we using image processing tool box for identify the criminals finger print ,If one decides to use only one year of crime data for detailed analysis then an analyst must spend 1.5 million minutes. As Per Regional Crime Analysis Program (RECAP), If one decides to use crime data for detailed analysis then an analyst.

Keywords- We also implemented a Pass Matrix prototype on Android and carried out real user we identify the criminals within short period using finger print scanner, If we found new finger print, we will add the finger print register immediately as well as matching finger print to some criminal, This method is used to identify the vehicles easily.

I. INTRODUCTION

We have presented a new approach to extract minutiae from rolled fingerprint automatically by using crossing number technique and minutiae of latent prints are marked manually. Matching is done by using baseline matching algorithm effectively. In this method we use embedded technology used to control the all hardware components As well as mat lab software. More number of software available in mat lab, in this project we using image processing tool box for identify the criminal finger print. Biometrics is useful for identifying an individual based on human's physiological or behavioural method. In this system the police will take less time to analyze who are criminals. Operational analytical support includes: Identifying links between suspects, and their involvement in crimes and criminal activity, Identifying key investigative or information gaps, preparing profiles of known or suspected criminals multiple camera-based attacks.

II. OVERVIEW OF THE RESEARCHED

In this Artificial Intelligence system who all are criminals, if a criminals keeps the finger in the scanner, it will automatically scan the finger analyse with all the database about the person. After the finger scan i over it will detect the eye of the person for the conformation of a particular person who have been already commit a mistake in a crime level. For a Traffic light system, if the RFID Tag is detected while in the RED signal it will detect automatically of the licence plate of the user and it will send a short message to the police department immediately.

III. CRIMINAL INVESTIGATION TRACKER

We here propose a criminal investigation tracker system that tracks the investigation status of criminal cases with logs and also predicts primary suspects. The system is proposed to help agencies like CBI, CID and other such bureau's to speed up investigation process and track status of multiple cases at a time. The system keeps logs of a case which includes case summary, people involved, disputes, past criminal history of those involved, Items recovered on scene and other details. The system realizes the type of case, allows admin to update the status of investigation, upload more images of crime, items found on scene etc. If the person did not follow the rules license will be blocked, We identify the number plate immediately and send the message via GSM maintaining usability such as Voice Recognition, Security.

3.1 Records Based Data
The system also consists of a suspect prediction algorithm. Based on type of case, property, land, love or other entities involved the system studies past cases, it studies past criminal records of those involved and based on this data it provides suggestions of

suspected persons in a logical order. The system is designed to aid investigation teams to work collectively on cases, coordinate and also speed up the process by suggesting logical suspects based on data provided.

Usually, mechanisms that ensure the security and privacy of an election are often time consuming, expensive for administrators, and inconvenient for information. There are completely different levels of Gsm security. Also, security should be applied to hide Stenography from publicity. An appropriate security level is always a compromise between usability and strength of security method. The main purpose of using the microcontroller in our project is because high-performance with 8K bytes of in-system programmable Flash memory. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the PICF877A is powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications. The programs of the microcontroller have been written in Embedded C language and were compiled using MPLAB, a compiler used for microcontroller programming. Android application use Java.

3.2 Embedded C

The C programming language is a general-purpose, programming language that provides code efficiency, elements of structured programming, and a rich set of operators. C is not a big language and is not designed for any one particular area of applications. Many applications can be solved more easily and efficiently with C than with other more specialized languages.

1. Grid offset (Gx,Gy) used for grid positioning and can be calculated as, $Gx = (x - r) \bmod 2r$ $Gy = (y - r) \bmod 2r$ where r is tolerance value

2. A Tolerence area identifier (Tx,Ty) is given by,

$Tx = (x - r)/2r$

$Ty = (y-r)/2r$

Process:
First it retrieves the corresponding (Gx,Gy) for corresponding click point and calculate

$Tx = (x - Gx)/2r$
$Ty = (y-Gy)/2r$ and checks the current click-point falls in the grid

3.2.1 ITS Strongest Points

powerful string manipulation; comprehensibility of Proteus
scripts,   availability   of   advanced   data
structures: arrays, queues (single   or   double), stacks, bit
maps, sets, AVL trees. The language can be extended by adding user functions written in Proteus or DLLs created in C/C++.

3.2.2 PROT E US OVE RVIE W

The Proteus guidelines are created with modular entities called Knowledge Components (KCs). Each KC represents a clinical activity and is available to the clinician as a module of executable knowledge with its own intelligence. The KCs may be easily modified. Simple drag and drop operations constitute significant part of editing. The KCs may be reused. For example, a KC created for diagnosis of diabetes can be used in guidelines as disparate as "investigation of coma", "routine preoperative checkups for major elective surgery", "investigation of unexplained weight loss" and "evaluation for risk of infection". One can simply drop a KC in a guideline and begin using it. The KCs are also shareable, therefore anyone who authors guidelines can have a library of pre-built KCs The four features that you might make you use a 16F887 instead of a 16F877(A) are other information. The bottom right hand corner of the window displays the configured board and serial port**.**

The toolbar buttons allow you to verify and upload programs, create, open, and save sketches, and open the serial monitor. NB: Versions of the Arduino Software (IDE) prior to 1.0 saved sketches with the extension. Additional commands are found within the five menus: File, Edit, Sketch, Tools, Help.**FILE** New Creates a new instance of the editor, with the bare minimum structure of a sketch already in place. Open Allows loading a sketch file browsing through the computer drives and folders.
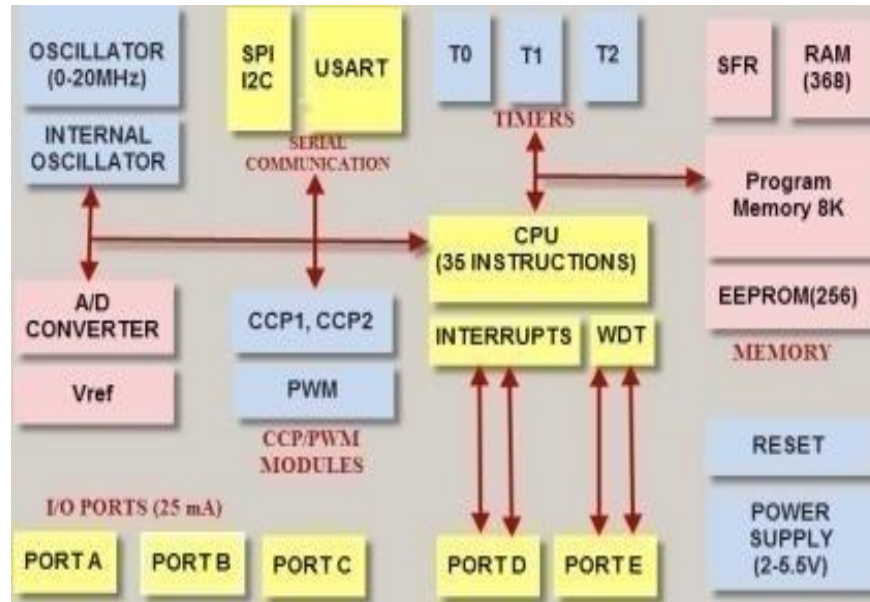
Fig 1 Architecture of PIC

External gate, Volt Reference, Nano Watt, Internal Clock.

3.3 WRITING SKETCHES
Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the text editor and are saved with the file extension. The editor has features for cutting/pasting and for searching/replacing text. The message the Arduino Software (IDE), including complete error messages and

3.4 Tools
Auto Format -this formats your code nicely: i.e. indents it so that opening and closing curly braces line up, and that the statements inside curly braces are indented more. Archive Sketch Archives a copy of the current sketch in .zip format. The archive is placed in the same directory as the sketch. Fix Encoding & Reload Fixes possible discrepancies between the editor char map encoding and other operating systems char maps. Serial Monitor-Opens the serial monitor window and initiates the exchange of data with any connected board on the currently selected Port. This usually resets the board, if the board supports Reset over serial port opening.. Port-This menu contains all the serial devices (real or virtual) on your machine. It should automatically refresh every time you open the top-level tools menu. normal use of an Arduino or Genuino board but is useful if you purchase new at mega microcontrollers**.**

3.5 CHARACTERISTICS
Interpreted language: Proteus is an interpreter which pseudo-compiles the scripts to memory, checking their syntax and subsequently executing them against the input;
Multi-language support: Proteus is available in several languages; **No data types:** all variables can be used as integer numbers, floating point numbers or strings; **No pre-allocated structures:** all data used by Proteus are dynamically allocated at execution time; there are no limits on: recursion, maximum data size, number of variables, etc.; **No operators:** Proteus is a completely functional language - there are no operators; thus, there is no ambiguity when evaluating expressions and parenthesis are not needed; **Large library of predefined functions:** Proteus is not a toy-language, it comes with hundreds of library functions ready to be used for working on strings, dates, numbers, for sorting, searching and so on; three models for dates (English, American, Japanese), to do calculations according to gregorian calendar; epoch setting for 2-digit-year dates; support for time in 12 and 24 hour format..

4.1 TRANSFORMER
The main principle of operation of a transformer is mutual inductance between two circuits which is linked by a common magnetic flux.
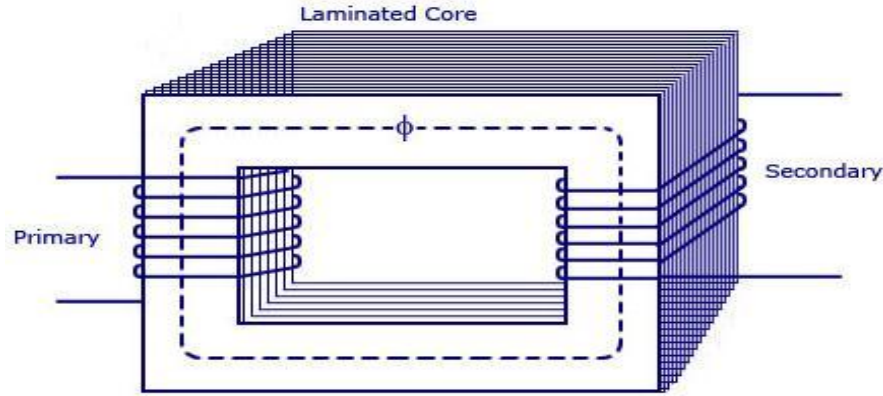
Fig 2 Step down Transformer

The step down transformer will step down the power supply voltage (0-230V) to (0-12V) level.

4.2 BRIDGE RECTIFIER
Let us assume that the transformer is working properly and there is a positive potential, at point M and a negative potential at point N. The path for current flow is from point M through D1, up through RL, through D4, through the secondary of the transformer back to point N.
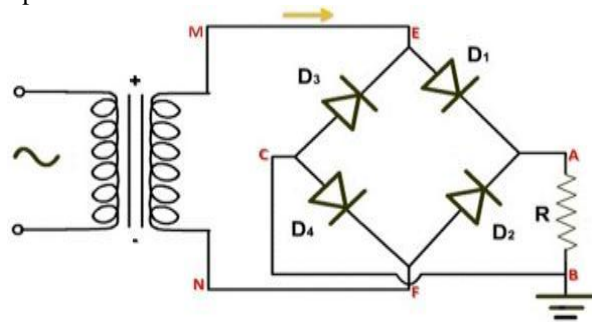

Fig. 3

4.3 IC VOLTAGE REGULATORS: The series 78 regulators provide fixed positive regulated voltages from 5 to 24 volts. Similarly, the series 79 regulators provide fixed negative regulated voltages from 5 to 24 volts.
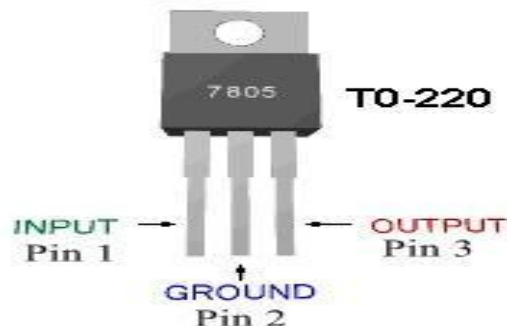
Fig 4 IC 7085

Regulating 12V DC into 5V DC using Voltage Regulator:
15V DC voltage can be stepped down to 5V DC voltage using a DC step-down converter called as voltage regulator IC7805. The first two digits '78' of IC7805 voltage regulator represent positive series voltage regulators and the last two digits '05' represents the output voltage of the voltage regulator
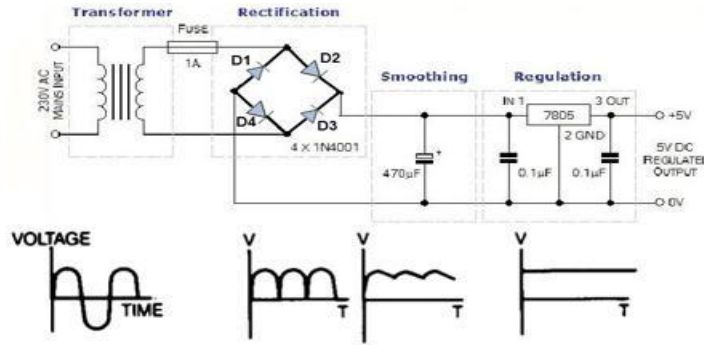
Fig 5 Voltage Regulator

The unique information used for the identification includes the flow of the friction ridges, the sequence and also presence/absence of the individual friction ridge path features.

4.4 FINGERPRINT SENSOR:

This all-in-one optical fingerprint sensor will make adding fingerprint detection and verification super simple. These modules are typically used in safes there's a high powered DSP chip AS601 that does the image rendering, calculation, feature-finding and searching. Connect to any microcontroller or system with TTL serial, and send packets of data to take photos, detect prints, hash and search. You can also enroll new fingers directly up to 12 finger prints can be stored in the onboard FLASH memory. As the usage, the fingerprint is really easy to use with the serial UART.

Fig 6 Stress Sensor

Fig 4.2.1: Bridge Rectifier

The scanning procedure can also be used for identity recognition as well as locking and protecting your computer files.

One-half cycle later the polarity across the secondary of the transformer reverse, current flow will now be from point N through D2, up through RL, through D3, through the secondary of Transformer and back to point M

ABOUT FINGERPRINTS: The uniqueness in each fingerprint is due to the peculiar genetic code of DNA in each person
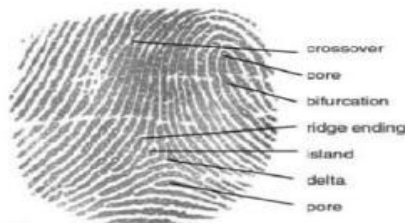

Fig 7 MES Sensor

LCD Display

LCDs are economical, Easily programmable, Have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on.
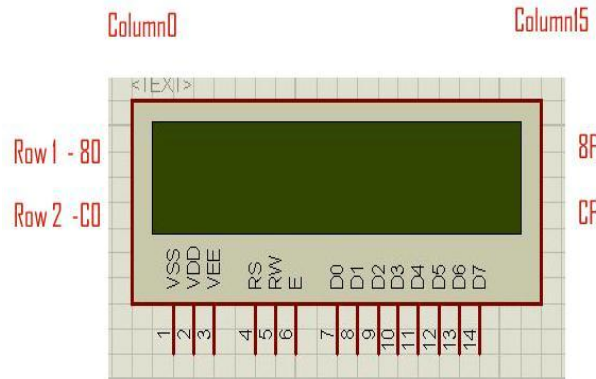

Fig 8 LCD Pins

V. TABLE DESCRIPTION

Data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD. Click internal structure.

Table 1

Display on Cursor on	0x0E
Display on Cursor off	0x0C
Display on Cursor blinking	0x0F
Shift entire display left	0x18
Shift entire display right	0x1C
Move cursor left by one character	0x10
Move cursor right by one character	0x14
Clear Display (also clear DDRAM content)	0x01
Set DDRAM address or cursor position on display	0x80+addr
Set CGRAM address or set pointer to CGRAM location	0x40+addr

of UART. Both logic 1 and 0 are represented by 5V and 0V respectively.

The TTL level UART is commonly used in the communications between microcontrollers and ICs.

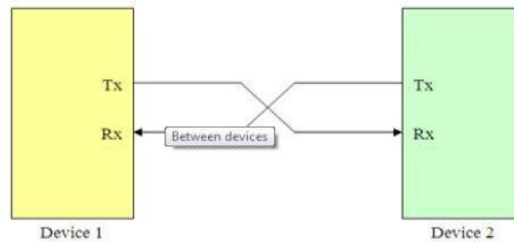Only 2 wires are required for the full duplex communications as illustrated in the picture below.

Fig.9

RS-232

RS-232 (Recommended Standard 232) is a standard for serial binary data signals connecting between a Data Terminal Equipment (DTE) and a Data Communication Equipment (DCE). It is commonly used in computer serial ports. One of the significant differences between TTL level UART and RS-232 is the voltage level. Valid signals in RS-232 are ±3 to − ±15V, and signals near 0V is not a valid RS-232 level.

Table 2 Frequently Used Commands and Instructions

	Logic	Voltage
Voltage level for TTL level	Low	0V
UART	High	5V

UART: The Universal Asynchronous Receiver/Transmitter (UART) controller is the key component of the serial communications subsystem of a computer. UART is also a common integrated feature in most microcontrollers, it provides the computer with the RS-232C Data Terminal Equipment (DTE) interface so that it can "talk" to and exchange data with modems and other serial devices.

VI. THE ASYNCHRONOUS RECEIVING AND TRANSMITTING PROTOCOL

Asynchronous transmission allows data to be transmitted without the sender having to send a clock signal to the receiver. In this case, the sender and receiver must agree on timing parameters (Baud Rate) prior transmission and special bits are added to each word to synchronize the sending and receiving units. In asynchronous transmission, the sender sends a Start bit, 5 to 8 data bits (LSB first), an optional Parity bit, and then 1, 1.5 or 2 Stop bits.

6.2 THE PHYSICAL LAYER STANDARDS: There are actually quite a number of different standards that utilizes similar protocol. For instances, TTL level UART, RS-232, RS-422, RS-485 and etc. We will only discuss about TTL level UART and RS-232 in this article.

6.3 TTL level UART: Most microcontrollers with UART use TTL (Transistor-transistor Logic) level UART. It is the simplest form

Logic	Voltage
Low	+3 to +15V
High	-3 to -15V

Voltage level for RS-232

6.4 GSM System: There are various cell sizes in a GSM system such as macro, micro, pico and umbrella cells. Each cell varies as per the implementation domain.

Fig 10 GSM Board

The coverage area of each cell varies according to the implementation environment.

Network Subsystem: It provides the basic network connection to the mobile stations. the Mobile Service Switching Centre which provides access to different networks like ISDN, PSTN etc. It also consists of the Home Location Register and the Visitor Location Register which provides the call routing and roaming capabilities of GSM. Register which maintains an account of all the mobile equipments wherein each mobile is identified by its own IMEI number. IMEI stands for International Mobile Equipment Identity.
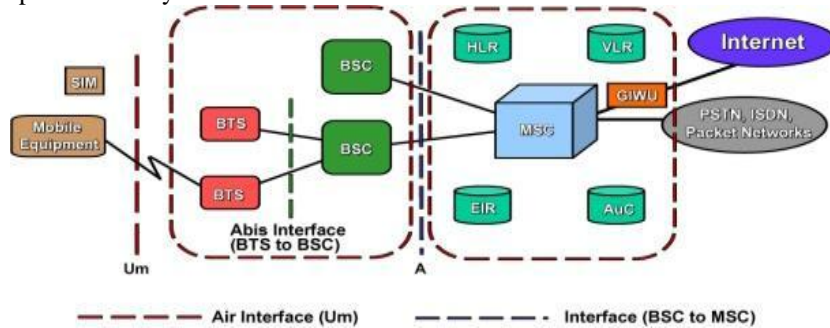

Fig. 11

GSM ARCHITECTURE

INDUSTRIES SERVED: Safety and Security, Automotive Electronics, Office Automation, Medical Equipment, Industrial, Consumer Electronics

PIEZO BUZZER CHARACTERISTICS: Wide operating voltage: 3~250V, Lower current consumption: less than 30mA, Higher rated frequency, larger footprint, Higher sound pressure level.
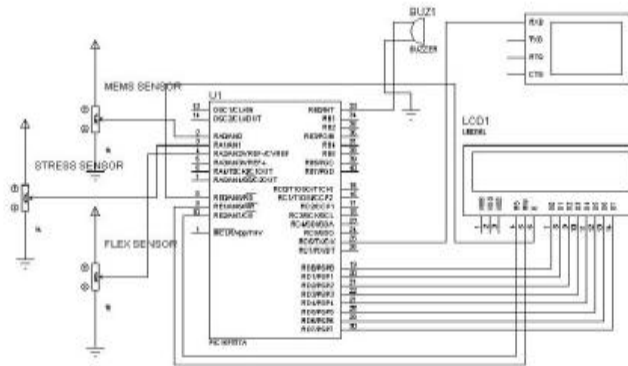
Fig. 12 Power supply module

Each technology has specific advantages and tradeoffs that must be taken into consideration depending on Some GSM Modems also has GPRS feature that allows transmission of data over TCP/IP (internet).To transmit data using GSM Modem, there are various methods that can be used, such as: SMS, CSD or HSCSD, GPRS / UMTS. AT commands with a GSM/GPRS MODEM or mobile phone can be used to access information and services: Information and configuration pertaining to mobile device or MODEM and SIM card, SMS services, MMS services, Fax services. Data and Voice link over mobile network.

ARDUINO: Arduino processor basically uses the Harvard architecture where the program code and program data have separate memory, 2 KB of SRAM and 1 KB of EEPROM and
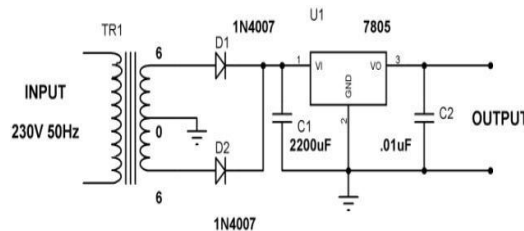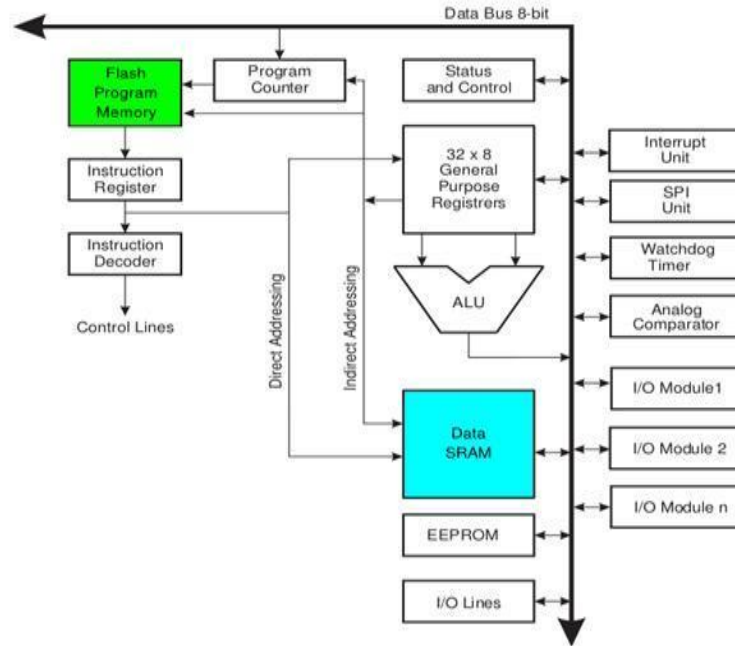

Fig. 13

Fig. 14 Commands operates with a clock speed of 16MHz

Basic commands are AT commands that do not start with "+". For example, D (Dial), A (Answer), H (Hook control), and O (Return to online data state) are basic commands. **Extended commands** are AT commands that start with "+". All GSM AT commands are extended commands. For example, +CMGS (Send SMS message), +CMGL (List SMS messages), and +CMGR (Read SMS messages) are extended commands.
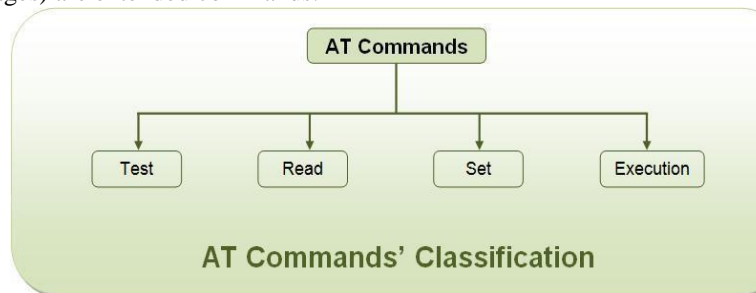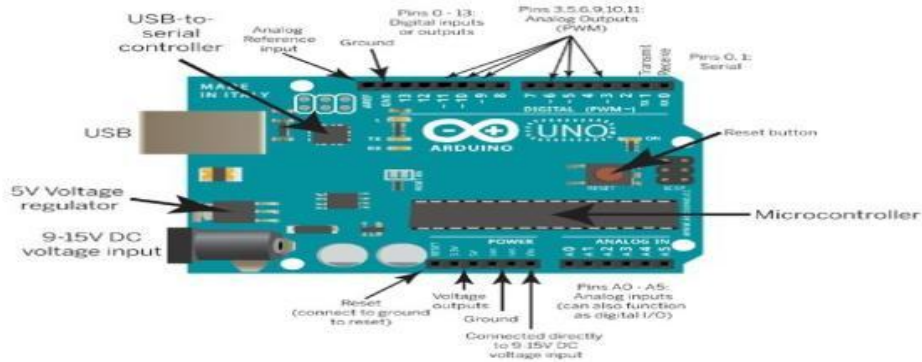

Fig 15 Arduino Architecture

Fig. 16 Reading, writing and deleting SMS messages, Sending SMS messages, monitoring the signal strength.
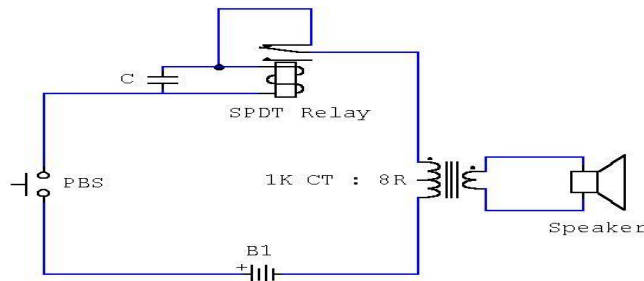
BUZZER CIRCUIT

Fig 17 Arduino pin diagram

This buzzer circuit uses a relay in series with a small audio transformer and speaker. When the switch is pressed, the relay will operate via the transformer primary and closed relay contact.

Arduino Uno consists of 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.

Fig 18 key board Matrix

As a Human Machine Interface (HMI) keypad plays a major role in vital microprocessor and microcontroller based projects and equipments. The status of each keys can be determined by a process called Scanning. For the sake of explanation lets assume that all the column pins (Col1 – Col4) are connected to the inputs pins and all the row pins are connected to the output pins of the microcontroller
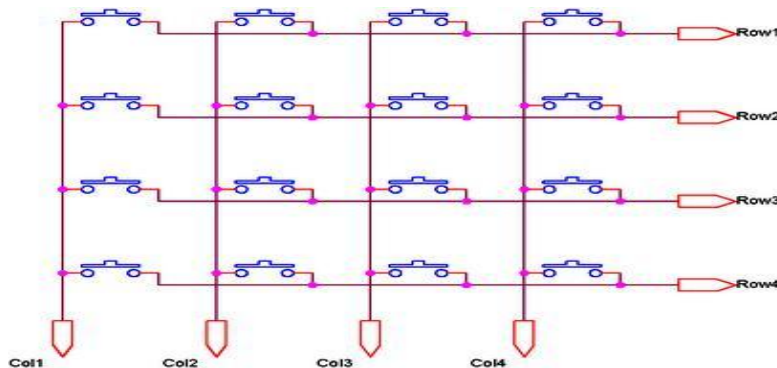

Fig 19 key board Invention

VII. ACKNOWLEDGMENTS

VIII. CONCLUSION

In the gift Situation of quickly growing Intelligence, Research its variation, Issues of Information, Taxonomy, and Biometric based CSCR. Our efforts to Crime reduce the society us optimistic, but concerned. This paper suggest that the Artificial Intelligence has to be further studied and innovated to reach all level of community, so that the confidence will increase and officials will make more involvement in purchasing the innovated Robots for conduct smooth, secure, tamper- resistant, to avoid Rigging, time consumption, to keep the All information more secured the new development in machine.

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