

## An Android based Home Door Locking System through Bluetooth and SMS Alert



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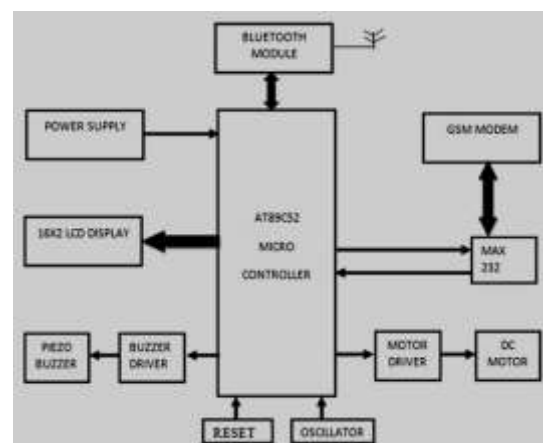
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**Abstract:** It is exceptionally characteristic to utilize a key to open an entryway. It is something that everybody does verging on consistently, and it is a coordinated some portion of our day by day life. It is likewise an extremely surely understood and all around tried innovation. In spite of these contentions, keys as we probably am aware they won't not be the gadget of decision to open entryways later on. We have every accomplished issue like conveying excessively numerous keys while overlooking the one key we require, or possibly having a lock supplanted on the grounds that we lost a solitary key. Strikingly, enters never appear in sci-fi films. The issue with physical keys is a greater complexity for organizations in the matter of mail or products conveyance. These organizations need access to a wide range of private structures. Entryways spread over a wide geological region and administered by various proprietors. Faculty need to convey keys for every single entryway on the conveyance course. Conveying all these keys (truly kilograms) is a bother in the day by day use and powerless against robbery.

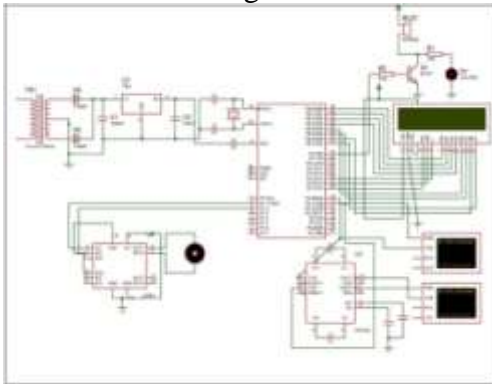
**Key Terms:** *Android, SMS, Alert, MAC, ASM, Controller*

**I. INTRODUCTION:** However, pretty much as vital, courses, work force, and bolts change after some time, making it an asset devouring operation to guarantee that all faculty have the privilege keys at the opportune time. To handle the above issues, we propose to supplant physical keys with computerized keys that they can just be utilized by the right client, can be particular for every client so every key will be interesting, can be limited to a given time or date range, and allows numerous keys to be contained in the same little gadget. The following diagram depicts the design view of this task.

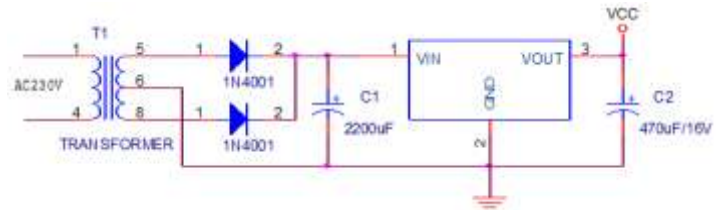
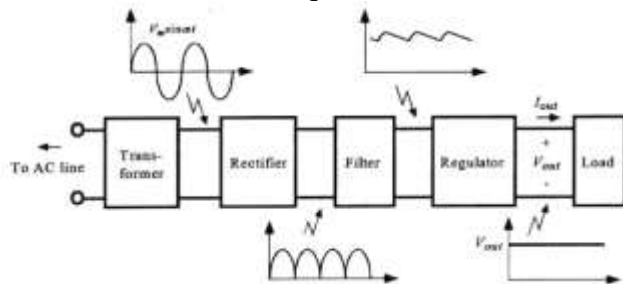


**II. Design & Implementation:** The microcontroller is customized to start the Bluetooth module to hunt down a cell phone with same Bluetooth MAC address that is as of now in the microcontroller's memory. The microcontroller sends guidelines to the Bluetooth

module as indicated by a particular AT-order set that is characterized by the Bluetooth module maker. At the point when the cell phone is in reach the Bluetooth module sets with the versatile and after fruitful consummation of matching the Bluetooth module educates the microcontroller. The microcontroller then sends a contribution to an engine driver which drives the actuator that locks and opens the entryways. The framework stays associated with the portable till it is in extent and detaches when the versatile leaves range.



Any circuit needs energy to work. The required force can be acquired by utilizing a transformer, rectifier and controllers. Essentially any electronic circuit needs 5V to 12V DC supply. The Power Supply is a Primary necessity for the undertaking work. The required DC power supply for the base unit and also for the reviving unit is gotten from the mains line. For this reason focus tapped auxiliary of 12V-0V-12V transformer is utilized. From this transformer we getting 5V power supply. In this +5V yield is a controlled yield and it is outlined utilizing 7805 positive voltage controller. This is a 3 pin voltage controller; can convey current up to 750 milliamps. Correction is a procedure of rendering an exchanging current or voltage into a unidirectional one. The part utilized for correction is called 'Rectifier'. A rectifier licenses current to stream just amid positive half cycles of the connected AC voltage. In this way, throbbing DC is acquired to get smooth DC control extra channel circuits required.



Liquid Crystal Display (LCD) is a very useful medium of communication in a variety of applications, especially in consumer goods such as washing machines, microwave appliances, and VCRs, to name a few. The number of lines displayed and the number of characters displayed per line characterize LCDs into 16x2, 40x2, and 40x4 dimensions. An LCD requires a controller to control various features of its display. An LCD with a controller is referred to as an LCD module. The following section describes one such LCD module. 16x2 LCD has 2 horizontal line which comprising a space of 16 characters. The features are described as...



- Low cost
- Easily programmable
- Large number of display character etc.
- Display data RAM and character generator RAM may be
- Accessed by the microprocessor.
- Numerous instructions
- Clear Display, Cursor Home, Display ON/OFF, Cursor
- ON/OFF, Blink Character, Cursor Shift, Display Shift.
- Built-in reset circuit is triggered at power ON.

These LCD's modify the image produced by the backlight into the screen output requested by the controller. Through the end output may be in color, the LCD's are monochrome, and the color is added later through a filtering process. The light source is usually located directly behind the LCD, and can use either LED or conventional fluorescent technology. From this source, the light ray will pass through a light polarizer to uniformly polarize the light so it can be acted upon by the liquid crystal (LC) matrix. The light beam will then pass through the LC matrix, which will determine whether this pixel should be "on" or "off". If the pixel is "on", the liquid crystal

cell is electrically activated, and the molecules in the liquid will align in a single direction. This will allow the light to pass through unchanged. If the pixel is “off”, the electric field is removed from the liquid, and the molecules with in scatter. This dramatically reduces the light that will pass through the display at that pixel. The ports are described as shown in the following diagram.

PORT PIN	ALTERNATE FUNCTIONS
P3.0	RXD(serial input port)
P3.1	TXD(serial output port)
P3.2	INT0(external interrupt 0)
P3.3	INT1(external interrupt 1)
P3.4	T0(timer 0 external input)
P3.5	T1(timer 1 external input)
P3.6	WR(external data memory write strobe)

P3.7	RD(external data memory read strobe)
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The requirements used to evolve this project are observed in terms of software and hardware.

- Assembly language for 8052.
- 8052 Cross compiler.
- Universal Programmer software.
- ORCAD for PCB designing and layout.
- Android Application – AMR Gestures.
- The assembly language Instructions typed in dos editor or notepad with an extension of .ASM.
- Compile the above .ASM file with 8052 cross assembler.
- The assembler converts the .ASM file into .HEX file (Contains all op codes).

Copy the converted Hex file into internal flash Rom of Micro Controller with the help of Universal Programmer or Micro Controller Programmer.

**III. Results:** The following step wise results are observed...

**STEP 1** Open the command window in the windows xp operating system.

```

C:\WINDOWS\system32\CMD.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\BINDU>CD\

C:\>CD MP

C:\Mp>1 DIGRADAR
  
```

**STEP 2** Type the Assembly language Instructions in the dos editor with an extension of .ASM. And compile the file to check the errors and then create an object file.

```
C:\WINDOWS\system32\CMD.exe - 1 DIGRADAR

Ctrl S = Stop Output
Ctrl O = Start Output
Esc C = Stop Assembly
Esc T = Terminal Output
Esc P = Printer Output
Esc D = Disk Output
Esc M = Multiple Output
Esc N = No Output

2500 A.D. 8051 Macro Assembler - Version 4.05b
-----

Input Filename : DIGRADAR.asm
Output Filename : DIGRADAR.obj

Lines Assembled : 1474           Assembly Errors : 0
```

**STEP 3** After verifying the errors create a hex file to program the microcontroller.

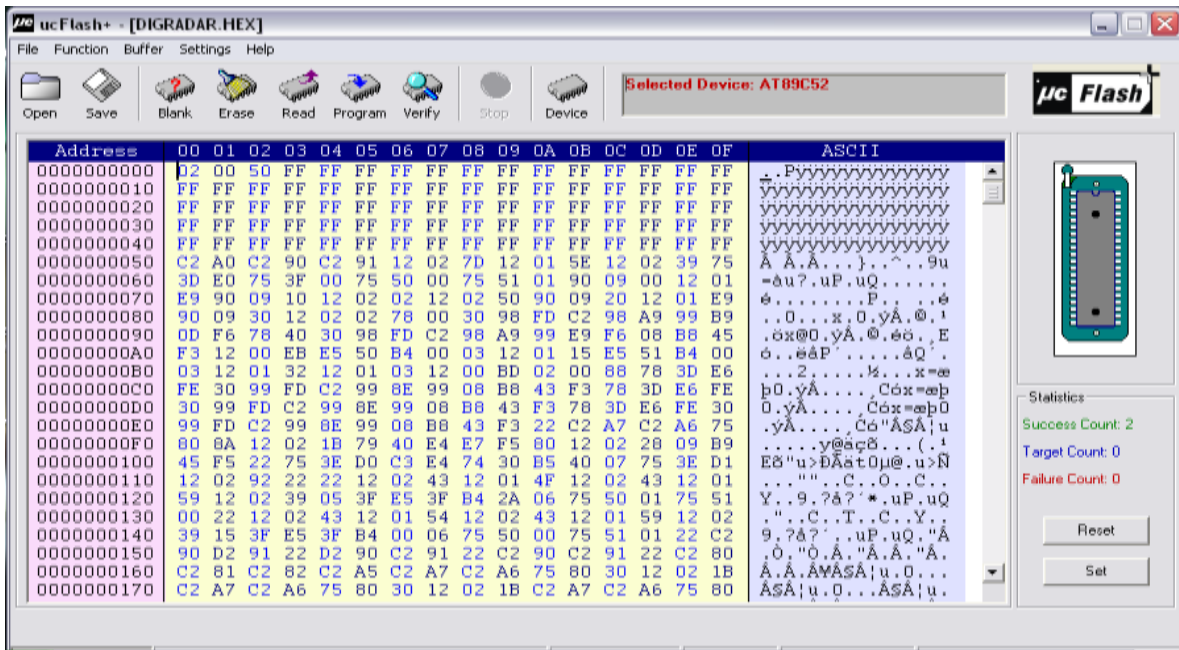
```
C:\Mp>link -c DIGRADAR -dh

2500 A.D. Linker Copyright (C) 1985 - Version 4.05a

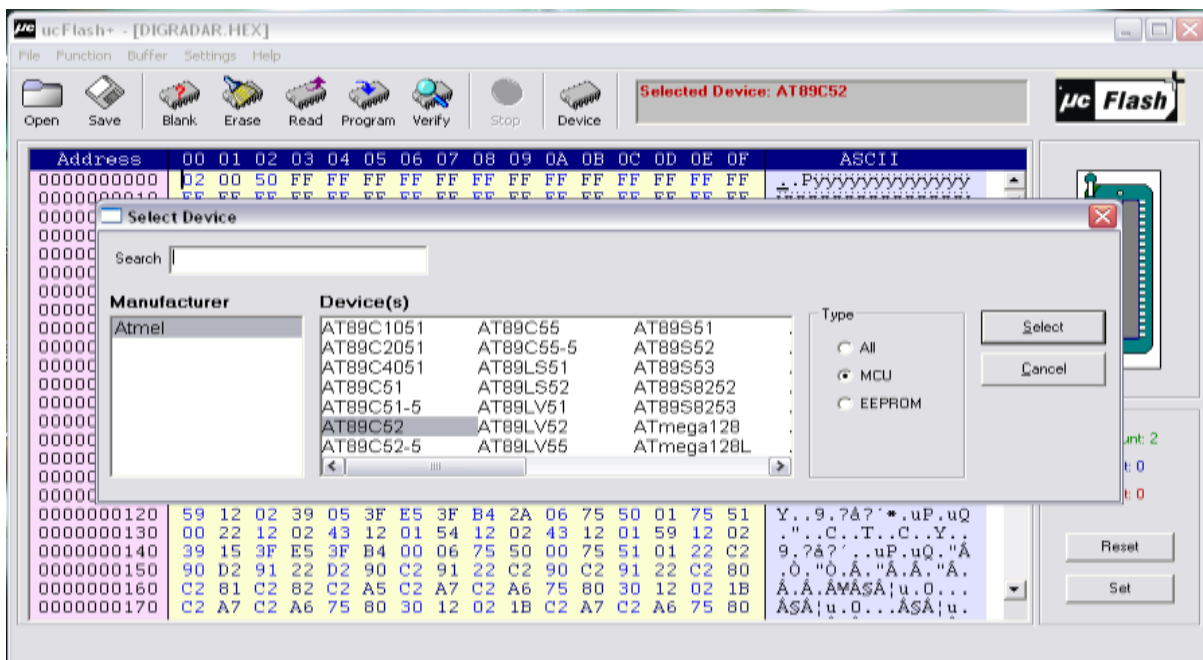
Linker Output Filename : DIGRADAR.hex
Disk Listing Filename : DIGRADAR.map
Symbol Table Filename : <None Specified>

Link Errors : 0           Output Format : Intel Hex
```

**STEP 4** Open Micro Flash software to program the microcontroller.

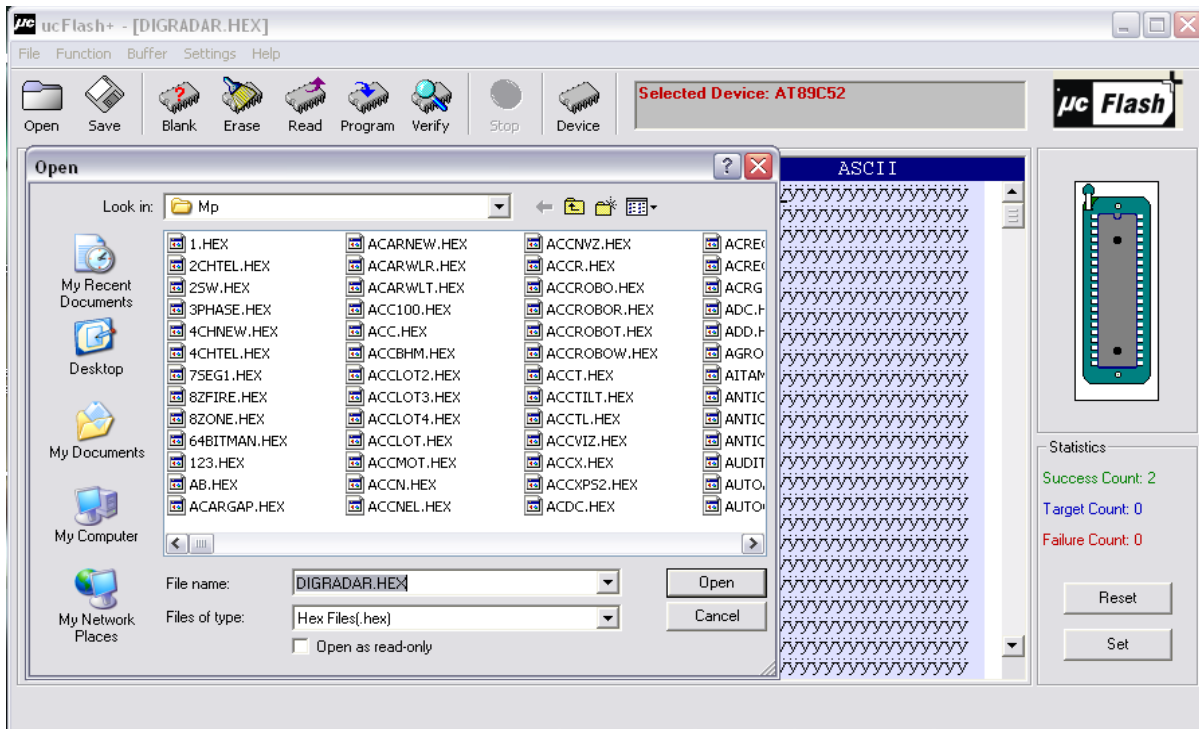


**STEP 5** After opening the Micro Flash software select the device as AT89C52 MCU.

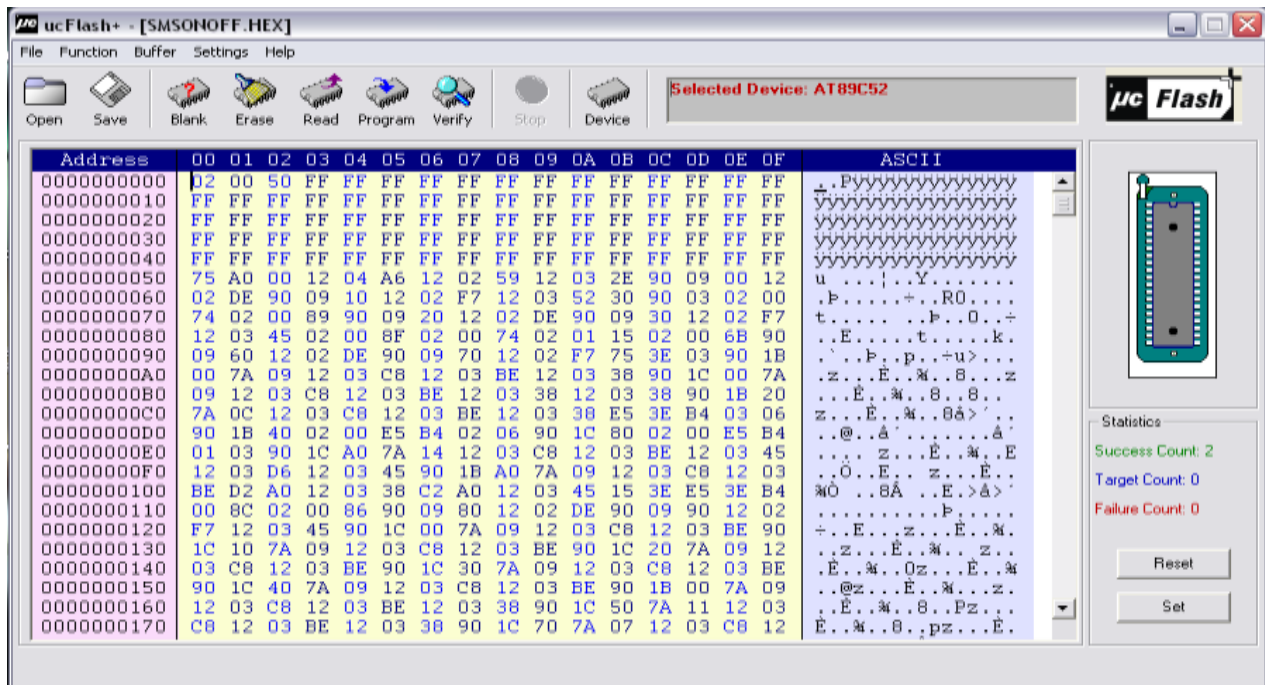


**STEP 6** Click on open icon to open the hex file of the program.

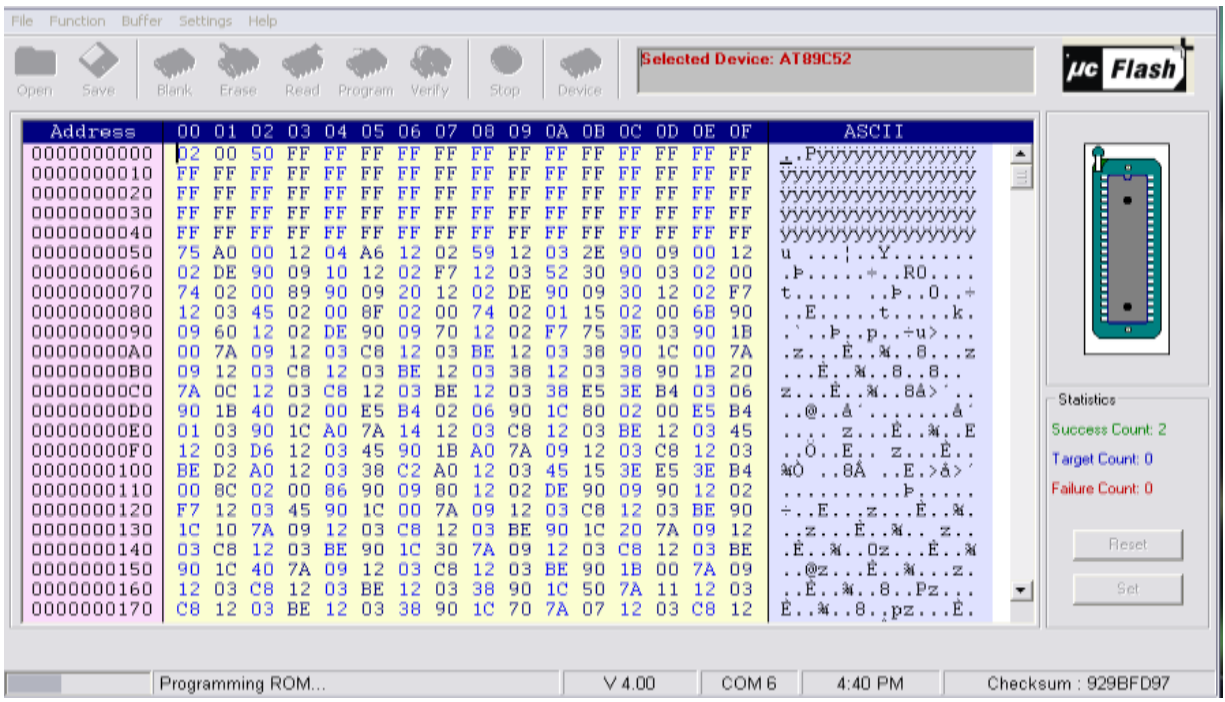




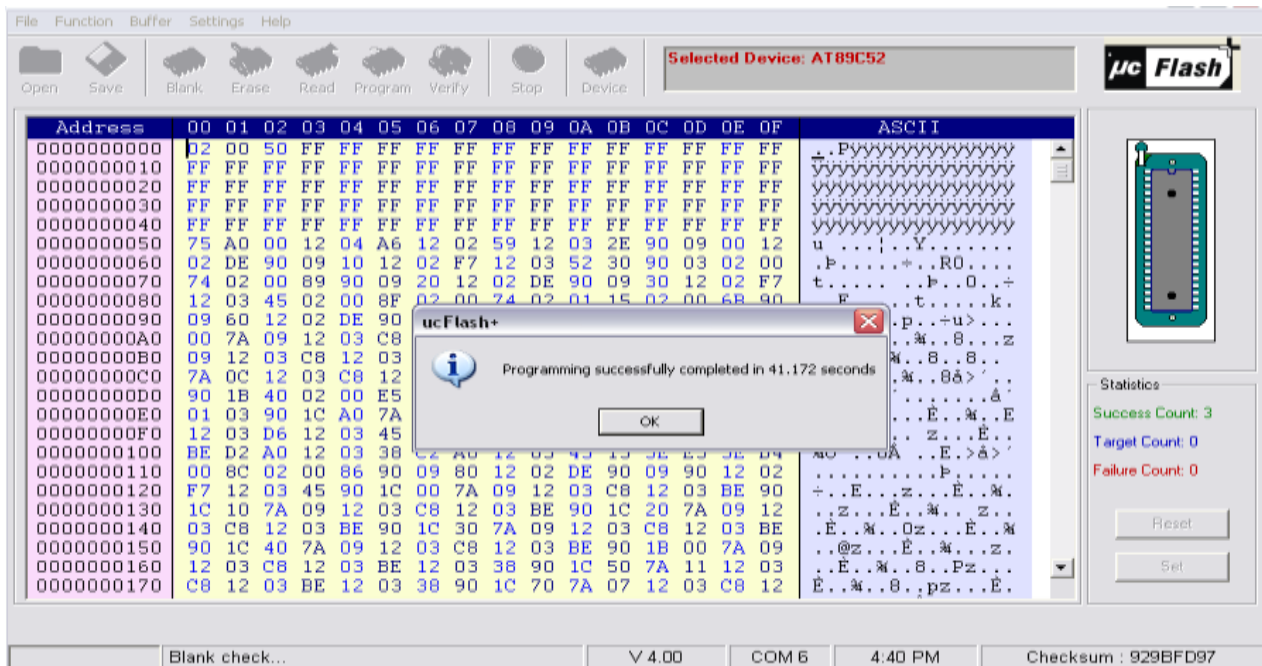
**STEP 7:** The hex code will be opened in the Micro Flash software.



**STEP 8:** Now dump the program into the Micro Controller ROM.



**STEP 9:** After 41.172 seconds the the program will be dumped into the Micro Controller by performing the tasks like erasing, reading, verifying and then finally the chip is programmed.



**IV. The Results on board:** The circuit of “ANDROID-BASED HOME DOOR LOCKING SYSTEM THROUGH BLUETOOTH AND AN SMS ALERT” is implemented on a PCB and the hard ware is explained in detail. Power supply section takes the input from main supply of 220V and convert it to the required level gives the required power to all the components in the circuit board. Components that are

connected to micro controller are LCD, power supply, buzzer and buzzer driver, motor and motor driver, MAX232 etc. GSM modem and circuit are connected by using RS232 cable. GSM modem when connected to the board we can observe the glowing of two LED’s fast and then decreases the rate of glow gradually. This indicates that modem is capturing signal. Then only it should be connected to the kit.

After this, LCD will initialize and displays first line “ANDROID GSM” and second line “BASED SECURITY.” and then waits for pattern, it displays “PATTERN.....”.When the Android mobile is connected to Bluetooth module the module asks for a “PASS KEY”. We have to enter the “1234” as pass key. Then we have to draw the pattern which we have stored in our Android mobile. Then the Android mobile sends a code “OK” if the pattern is correct, else it sends a code “wr”. If the pattern is correct then the Bluetooth device sends the received code to Microcontroller and the controller verifies the information which is coded in the memory of Microcontroller. When the pattern is correct it opens the door and closes the door automatically after 15 seconds. If the first time wrong pattern is entered then in the LCD it is displayed as ”PAATTERN..... \*wr# 3” and if again for the second time wrong pattern is entered it is displayed as ”PAATTERN..... \*wr# 2” and if again for the third time wrong pattern is entered it is displayed as “SMS SENDING. Then it sends the information which is coded in the memory of micro controller through MAX 232 to the GSM module and it sends message to three numbers which are stored in the Microcontroller as “THEFT AT HOUSE D.NO 11/99 VIJ-1” and an automatic redial for the three numbers which is displayed in the LCD as “VOICE CALL 1”, “VOICE CALL 2”, “VOICE CALL 3”. And finally in the LCD it is displayed as “PRESS RESET SWITCH TO OPEN”. When the reset switch is pressed then the door is automatically unlocked and immediately closed after 5 seconds.

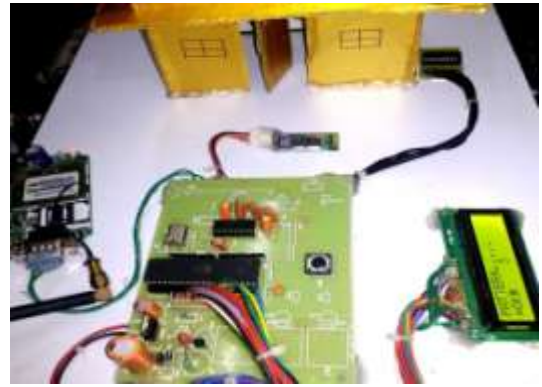


Fig Type your correct pattern which you have previously saved then the door will be opened.



Fig If an intruder enters a wrong pattern for the first time it will display \*wr# 3 in the LCD.



Fig Connect to the kit by using bluetooth then the kit will ask for a pattern.



Fig If an intruder enters a wrong pattern for the second time it will display \*wr# 2 in the LCD.





Fig If an intruder enters a wrong pattern for the third time then the buzzer will ring to alert the neighbours and a sms alert will be sent to the 3 numbers along with a voice call which are in the microcontroller.

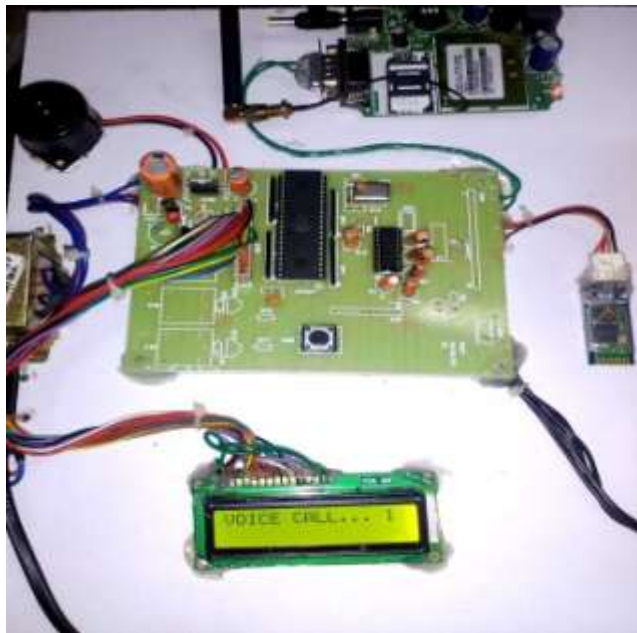


Fig The gsm module makes a voice call to the 1<sup>st</sup> number.



Fig The gsm module makes a voice call to the 2<sup>st</sup> number.



Fig The gsm module makes a voice call to the 3<sup>rd</sup> number.

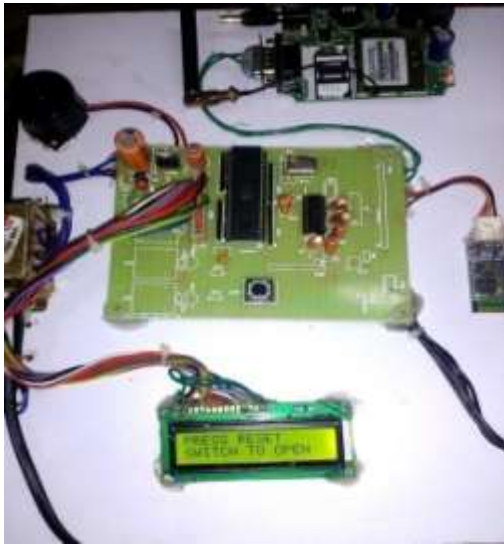


Fig The kit will request to press the reset switch. Until and unless the reset switch is pressed, pattern will not be accepted.

**Conclusion:** Android is one of the best technologies used for many security systems to transfer information. We developed hardware equipment which is scanned by the Android mobile and connects to the hardware to enter the pattern and checks for the authorized code in the microcontroller. GSM informs to the owner and provides necessary steps like locking the door, alarming sending address of place to the mobile by an SMS.

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