SMART HOME AUTOMATION

Project Submitted in Partial fulfillment for the award of

Diploma

In

ELECTRICAL & ELECTRONICS ENGINEERING

SBTET(A.P), AMARAVATHI.

16

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DIPLOMA ELECTRICAL AND ELECTRONICS ENGINEERING

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ABSTRACT

In the past few years there are so many inventions in the field of consumer electronics such as cellular phone, air conditioners, home security devices and home theaters. All these appliances can be easily controlled by a single controller, using personal area network in a home environment. Busy environment and personal limitation the market is going towards the home automation and networking and Bluetooth is an ideal solution for this purpose. In buildings, temperature and other electronic devices can be easily controlled by home automation but high degree of computer work is involved. This report demonstrates a simple home automation system which consists of remote mobile, host controller, and several home appliances. The client module can communicate with host controller through a wireless device such as Bluetooth.

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INTRODUCTION

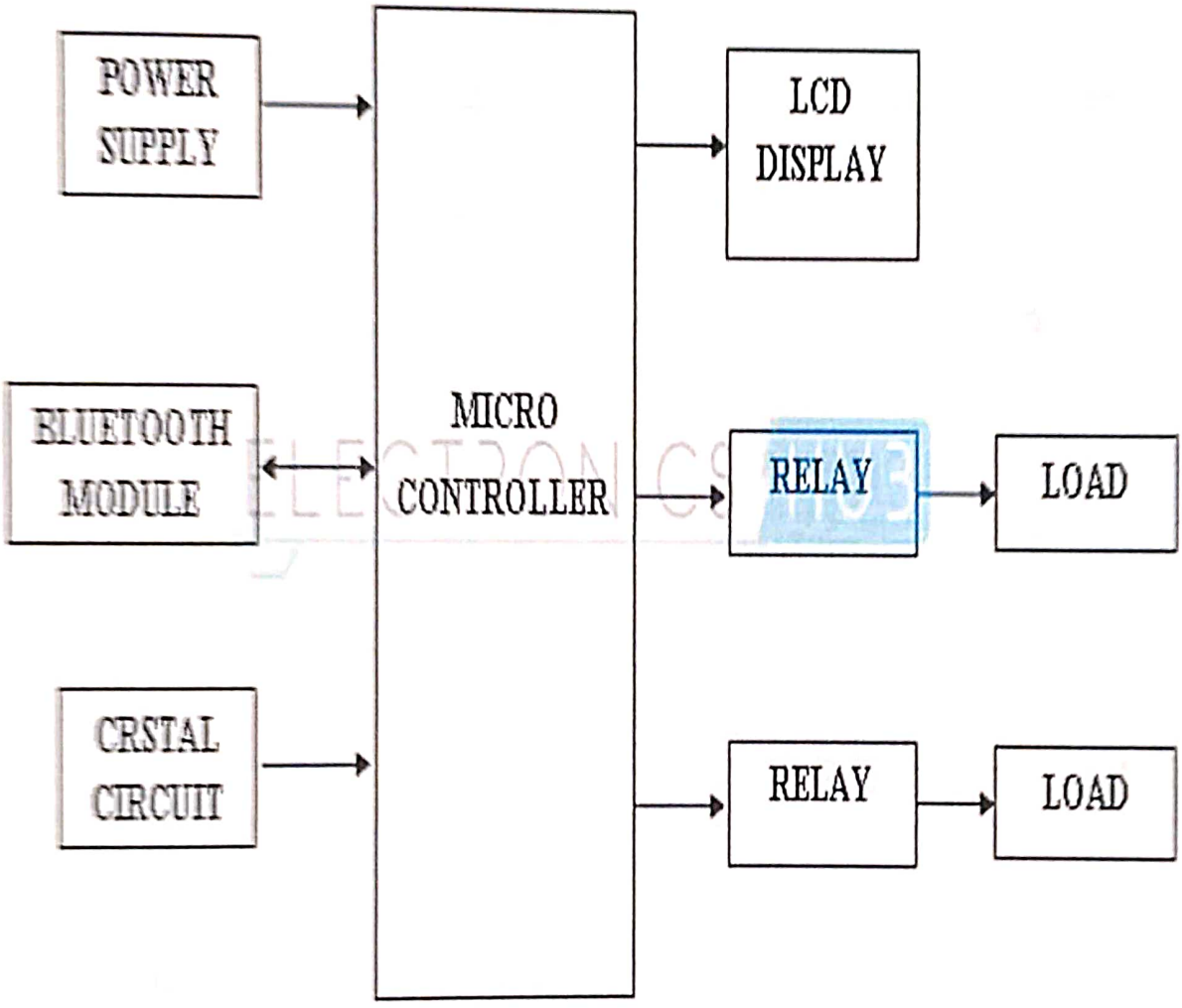
Bluetooth Controlled Electronic Home Appliances

Bluetooth Controlled Electronic Home Appliances is a simple project, where we can control different electrical appliances and electronic devices using an Android device with the help of Bluetooth Technology.

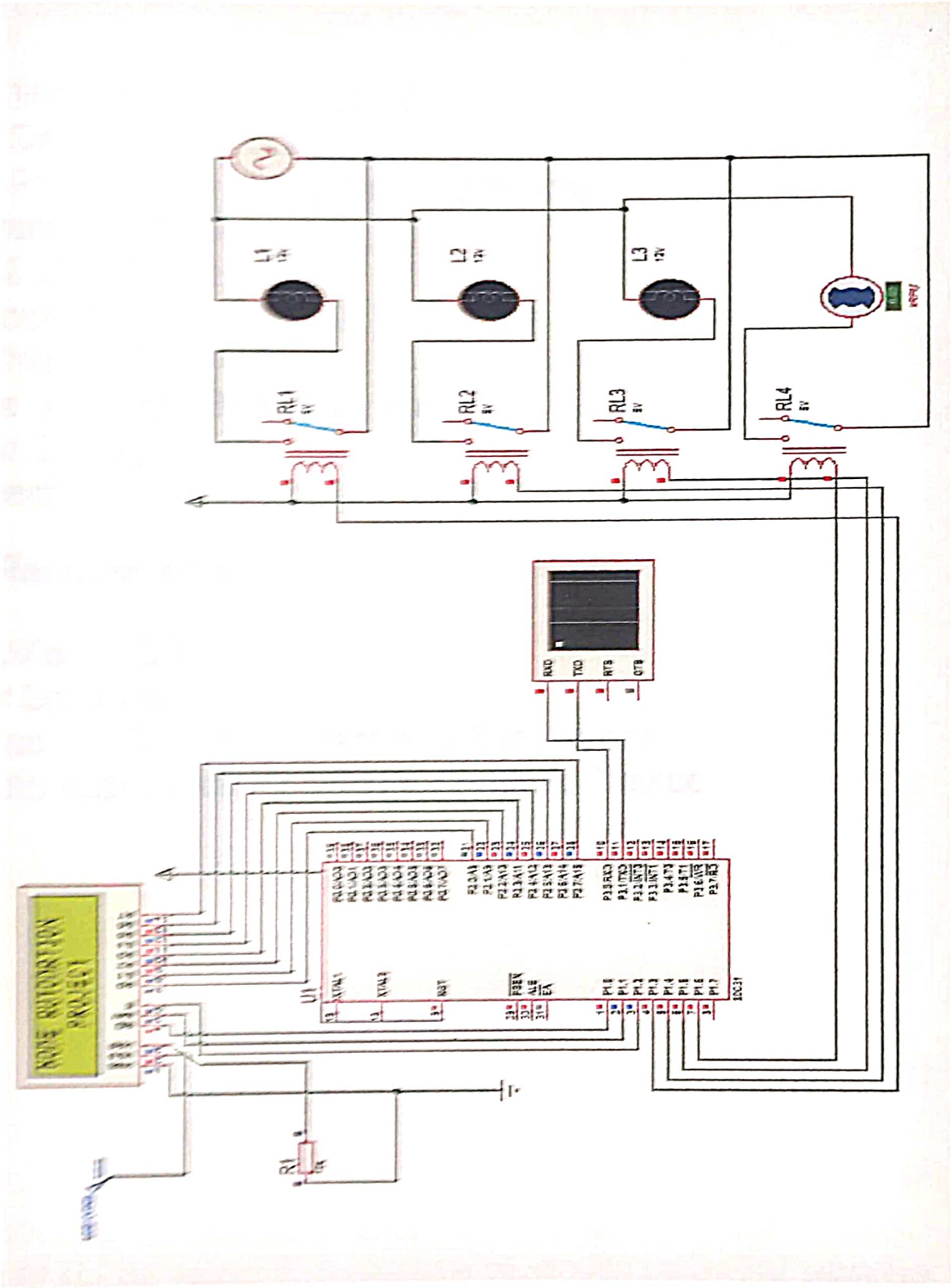
This project provides the solution to this problem by integrating all the electrical appliances to a control unit that can be operated by an Android application on a device (Android smart phone or Tablet).

The proposed system controls the electrical loads based on the data transmitted by the Android device. An Android application should be installed in user's mobile or tablet to control the electrical loads. Using this Android application user can send the commands to the Bluetooth module to control the electrical loads. Wireless technology used in this project is Bluetooth. It can also be called as "Bluetooth Controlled Electronic Home Appliances" or "Android based Home Automation System" or "Remote Password Operated Electronic Home Appliances Control System".

BLOCK DIAGRAM



CIRCUIT DIAGRAM



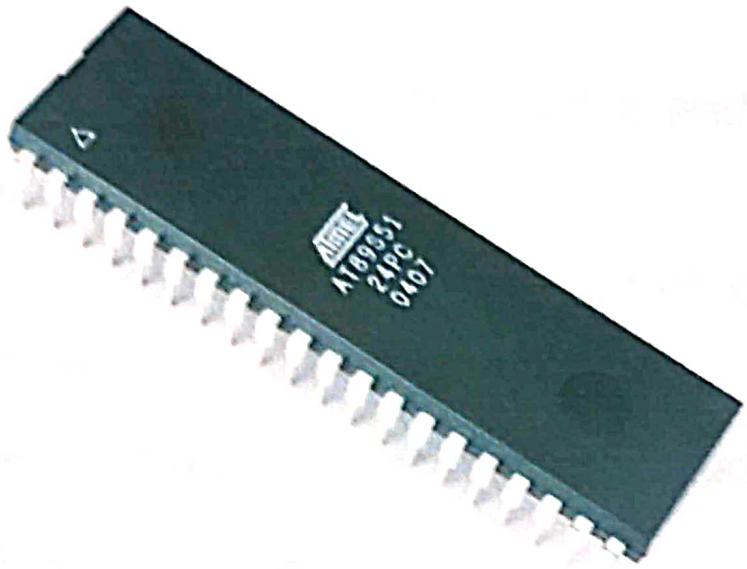
COMPONENTS REQUIRED

1. 8051 Microcontroller (AT89C51)
2. 8051 Development Board
3. 8051 Programmer (Programming Board)
4. Programming Cable
5. 16 × 2 LCD Display
6. Bluetooth Module (HC – 05)
7. 4 – Channel Relay Module
8. Loads (like Light Bulb, Fan, etc.)
9. Power Supply
10. Connecting wires

Software Requirements

1. Keil µVision IDE
2. Willar Software
3. Proteus (for Circuit Diagram and Simulation)
4. Android Application installed on Android Device

AT89S51 MICROCONTROLLER

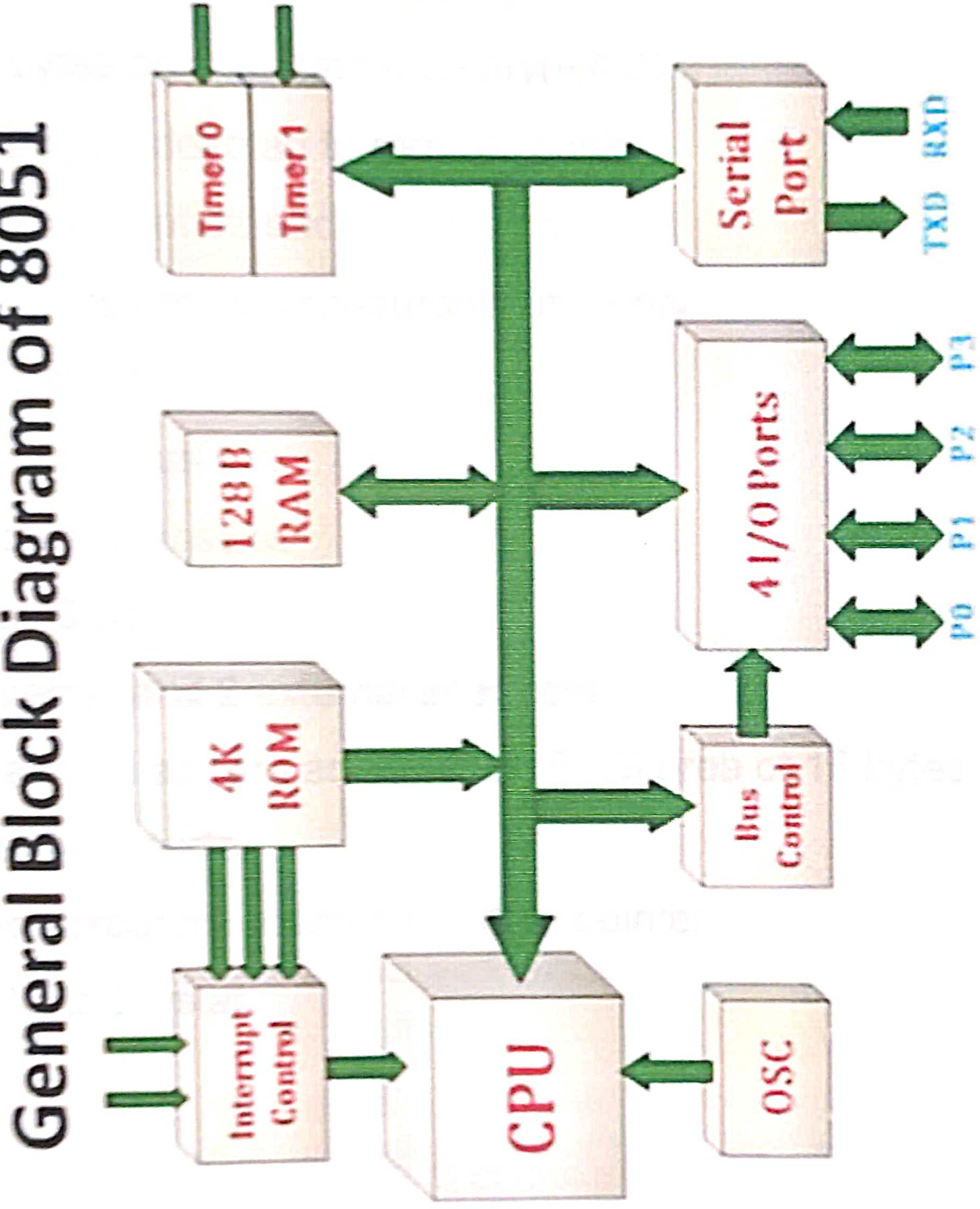


AT8051 is an 8-bit family of microcontroller developed by Intel in the year 1981. This is one of the most popular family of microcontroller being used all across the world. This microcontroller was also referred as “system on a chip” because it has 128 bytes of RAM, 4Kbytes of ROM, 2 Timers, 1 Serial port, and four ports on a single chip. The CPU can work for only 8bits of data at a time because 8051 is an 8-bit processor. In case the data is larger than 8 bits then it has to be broken into parts that the CPU can process conveniently. Most manufacturers have put 4Kbytes of ROM even though the quantity of ROM can be exceeded up to 64 K bytes.

Advantages of microcontroller are :-

- Low time required for performing operation.
- The processor chips are very small and flexibility occurs.
- Due to their higher integration, cost and size of the system is reduced.
- The microcontroller is easily to interface additional RAM, ROM and I/O ports.
- Once microcontrollers are programmed then they cannot be reprogrammed.
- At the same time many task can be performed so human effect can saved.
- Without any digitals parts it can be act as microcomputer.
- It is easy to use, troubleshooting and systems maintain is simple.

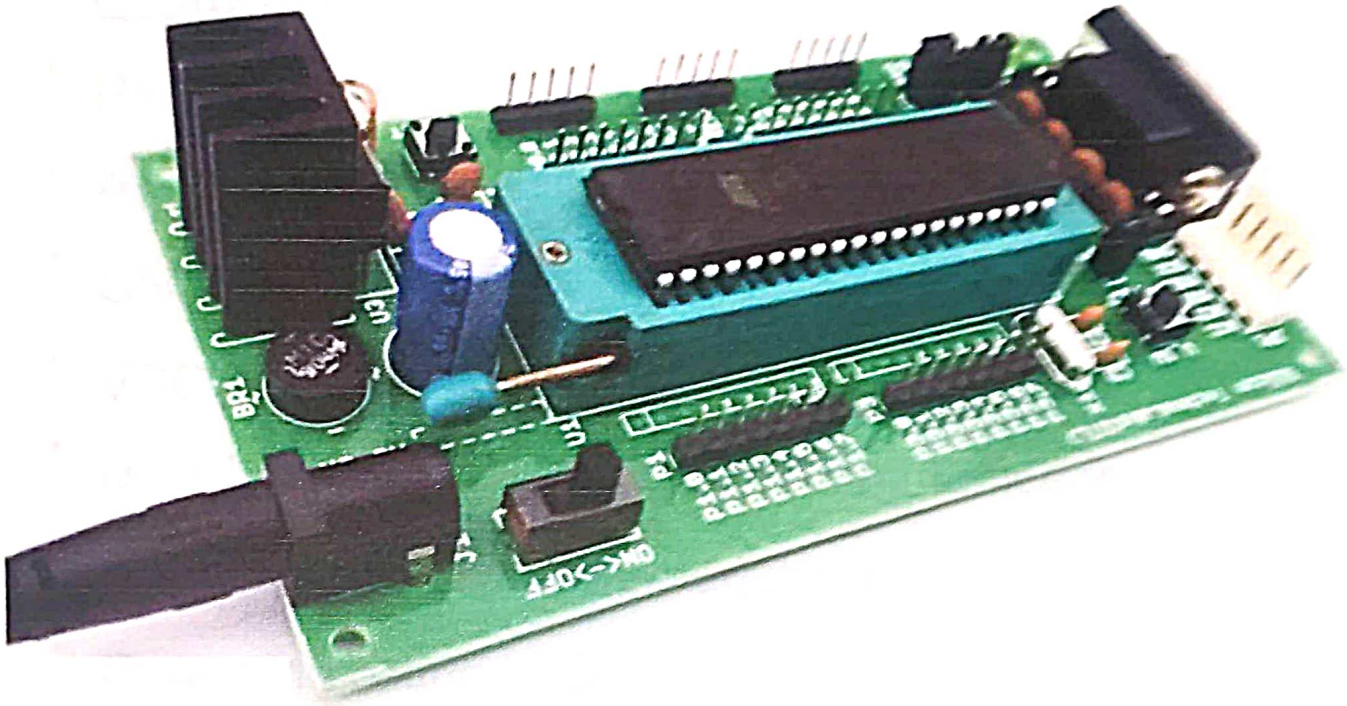
BLOCK DIAGARAM OF AT89S51 MICRO CONTROLLER



Some of the features that have made the 8051 popular are:

- 4 KB on chip program memory.
- 128 bytes on chip data memory(RAM)
  - 32 bytes devoted to register banks
  - 16 bytes of bit-addressable memory
  - 80 bytes of general-purpose memory
- 4 register banks.
- 8-bit data bus
- 16-bit address bus
- Two 16 bit timers
- 3 internal and 2 external interrupts.
- Bit as well as byte addressable RAM area of 16 bytes.
- Four 8-bit ports,
- 16-bit program counter and data pointer.
- 12 MHz Crystal.

8051 Development Board



1. Descriptions

With this board you can develop and prototype with any of 8051 40 pin microcontrollers. The RS232 driver on board allows easy connection with PC or other embedded hardware. The board have User buttons and status LEDs. The bridge rectifier allows this board to be powered with both AC and DC power supply adapters.

2. Features

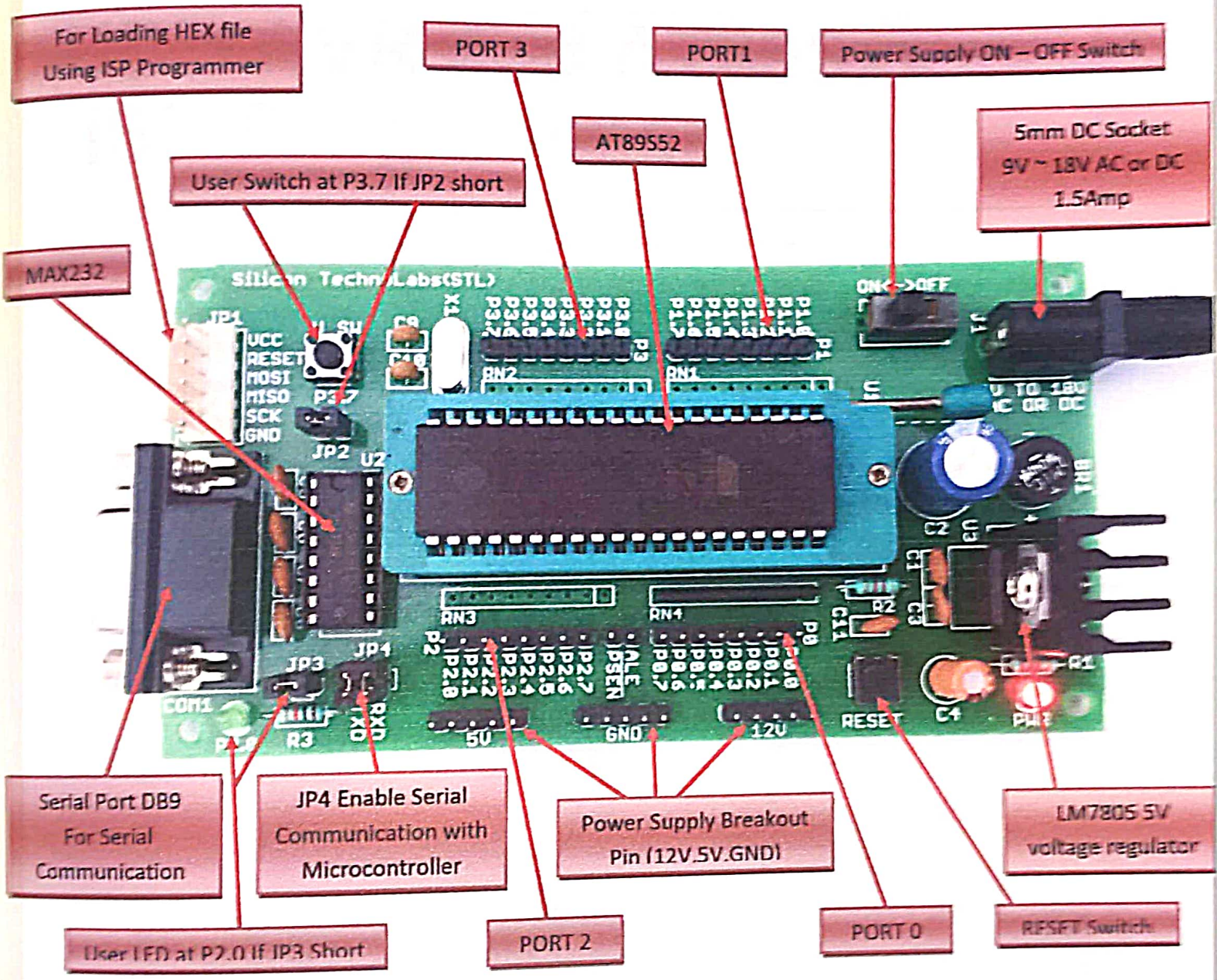
- RS232 TX, RX interface.
- Quartz crystal 11.0592 MHz.
- Reset button.
- Power plug-in jack.
- GND bus.
- VCC bus.
- MAX232 for RS232 serial port communication.
- Onboard LM7805 power regulator.
- Power Indicating LED.
- On board Regulated Power Supply 5V,12V,GND .
- High quality PCB FR4.
- User LED.
- User Switch.
- ZIF Socket for easy inserting and removing Microcontroller.

3. Specifications

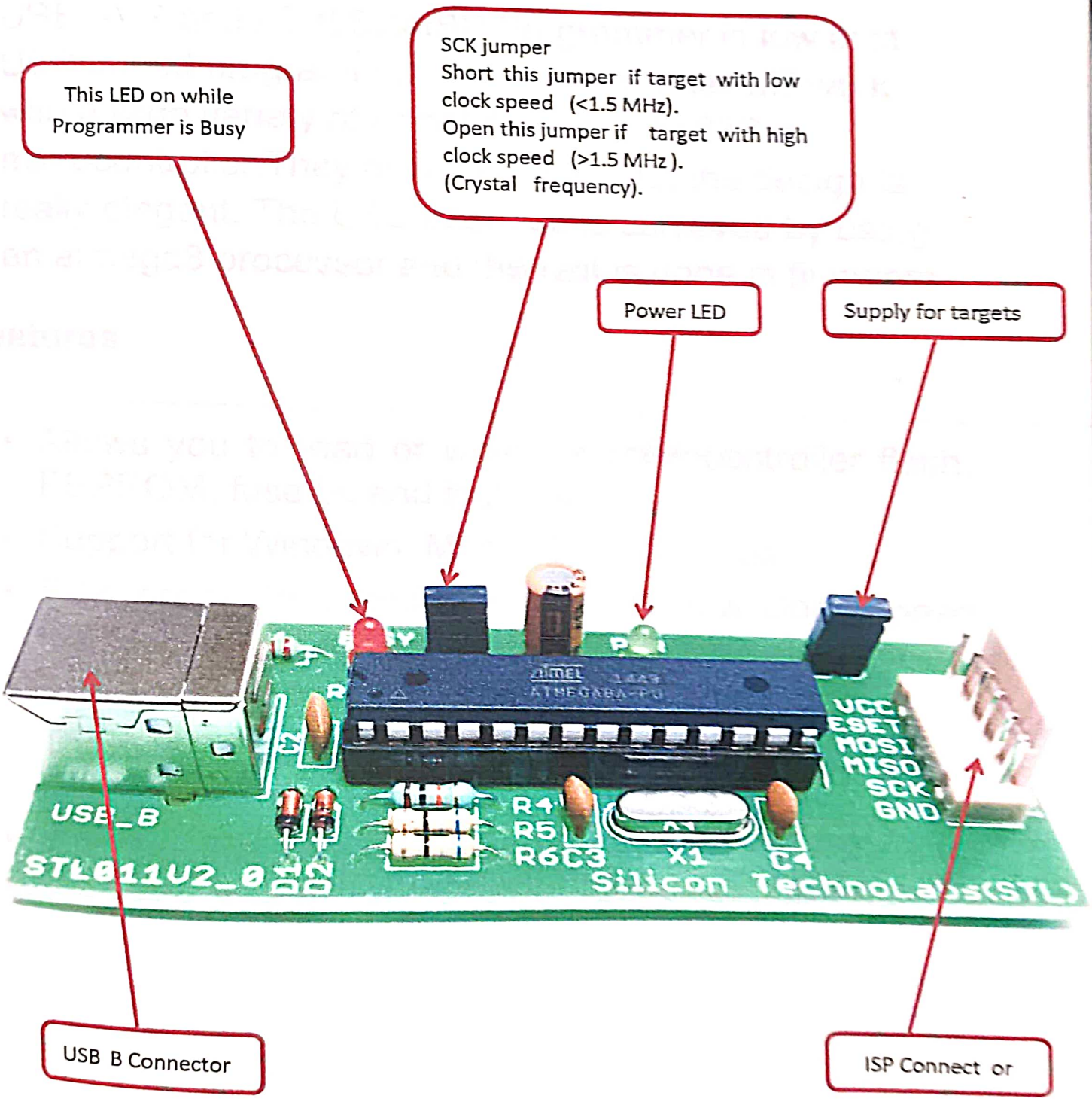
- Size: 65 x 125 mm
- Supported Microcontroller: AT89SXXXX, AT89CXXXX, P89V51RD2

4. Hardware Details

- JP2 - If this jumper is Short Than U_SW is connected with P3.7 and when you press Switch P3.7 become Low.
- JP3 - If this jumper is Short Than Green LED is connected with P2.0.
- JP4 - If this jumper is Short Than Serial communication is enable.
- P0 - is connected with PORT0 of AT89S52.
- P1 - is connected with PORT1 of AT89S52.
- P2 - is connected with PORT2 of AT89S52.
- P3 - is connected with PORT3 of AT89S52.
- JP1 - Which is use to program AT89S52 through USB ISP Programmer.
- COM1- DB9 for serial communication.
- Red LED for Power supply indication.


For Loading HEX file
Using ISP Programmer
PORT 3
PORT1
Power Supply ON – OFF Switch
AT89S52
5mm DC Socket
9V ~ 18V AC or DC
1.5Amp
User Switch at P3.7 If JP2 short
MAX232
Serial Port DB9
For Serial
Communication
JP4 Enable Serial
Communication with
Microcontroller
Power Supply Breakout
Pin (12V,5V,GND)
LM7805 5V
voltage regulator
User LED at P2.0 If JP3 Short
PORT 2
PORT 0
RESET Switch

USB AVR and AT89Sxx ISP Programmer



About USB AVR and AT89Sxx ISP Programmer

USB AVR and AT89Sxx ISP Programmer is low cost USB based programmer. This programmer will work with a wide variety of Atmel AVR and AT89Sxx microcontroller.They quite compact, but the design is really elegant. The USB interface is achieved by using an atmega8 processor and the rest is done in firmware.

Features

- Allows you to read or write the microcontroller flash, EEPROM, fuse bit and lock bits.
- Support for Windows, Mac OS X and Linux.
- SCK option to support targets with low clock speed (<1.5MHz).
- 5KB/sec Maximum write speed.
- There is 5V supply option for target so no need of any external supply.
- 6 pin polarized ISP interface.

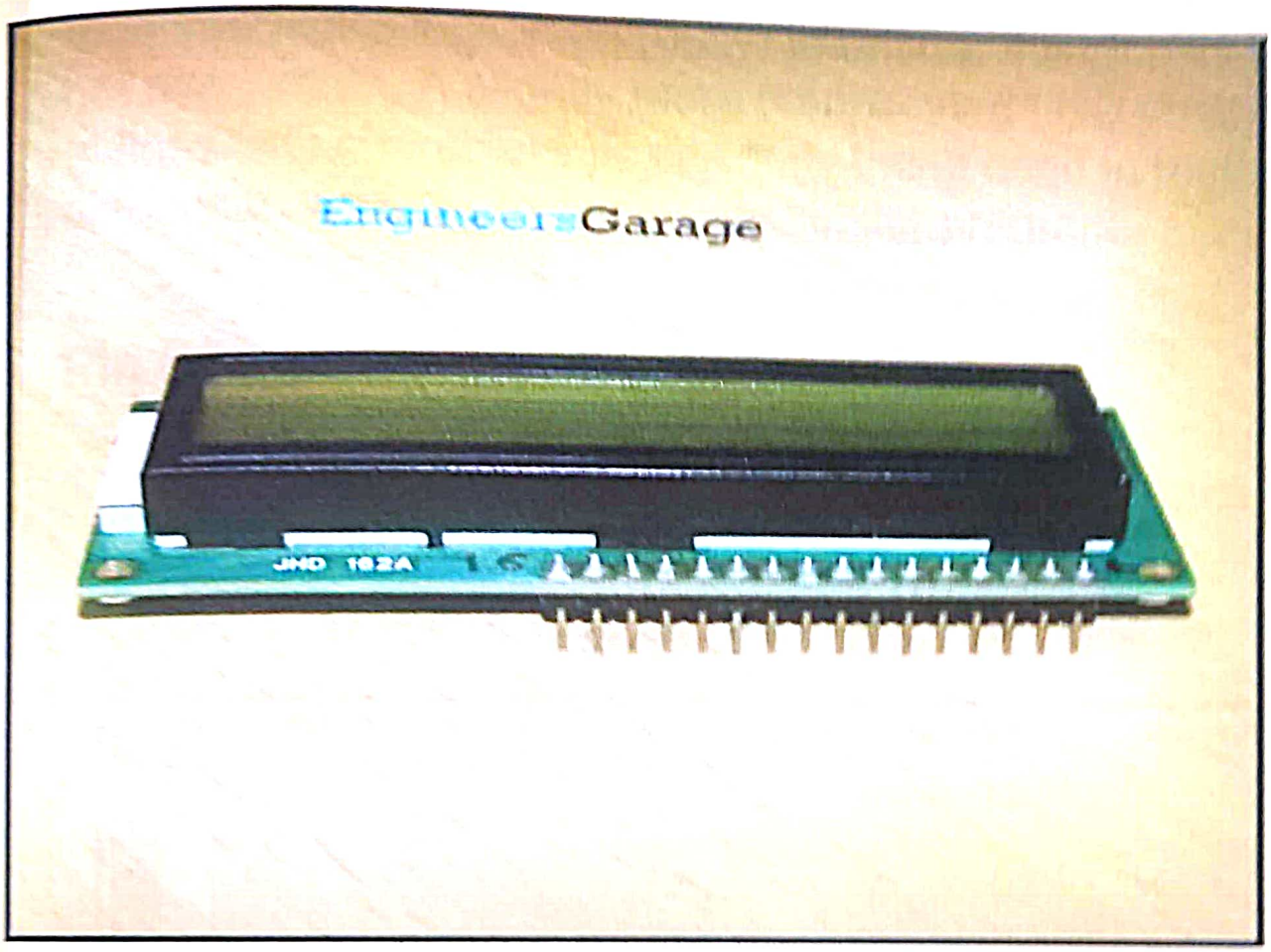
Supported Software

- AVRdude - Version 5.2 or later. AVRdude is available for many platforms.(1)
- Khazama AVR Programmer- Windows XP/Vista GUI application for USBasp and avrdude.(1)
- Progisp -Windows GUI application for AVR and AT89Sxx.(2)

Note:

1. Khazama AVR Programmer And AVRdude does not support AT89SXX.
2. Progisp support both AVR and AT89SXX controller.

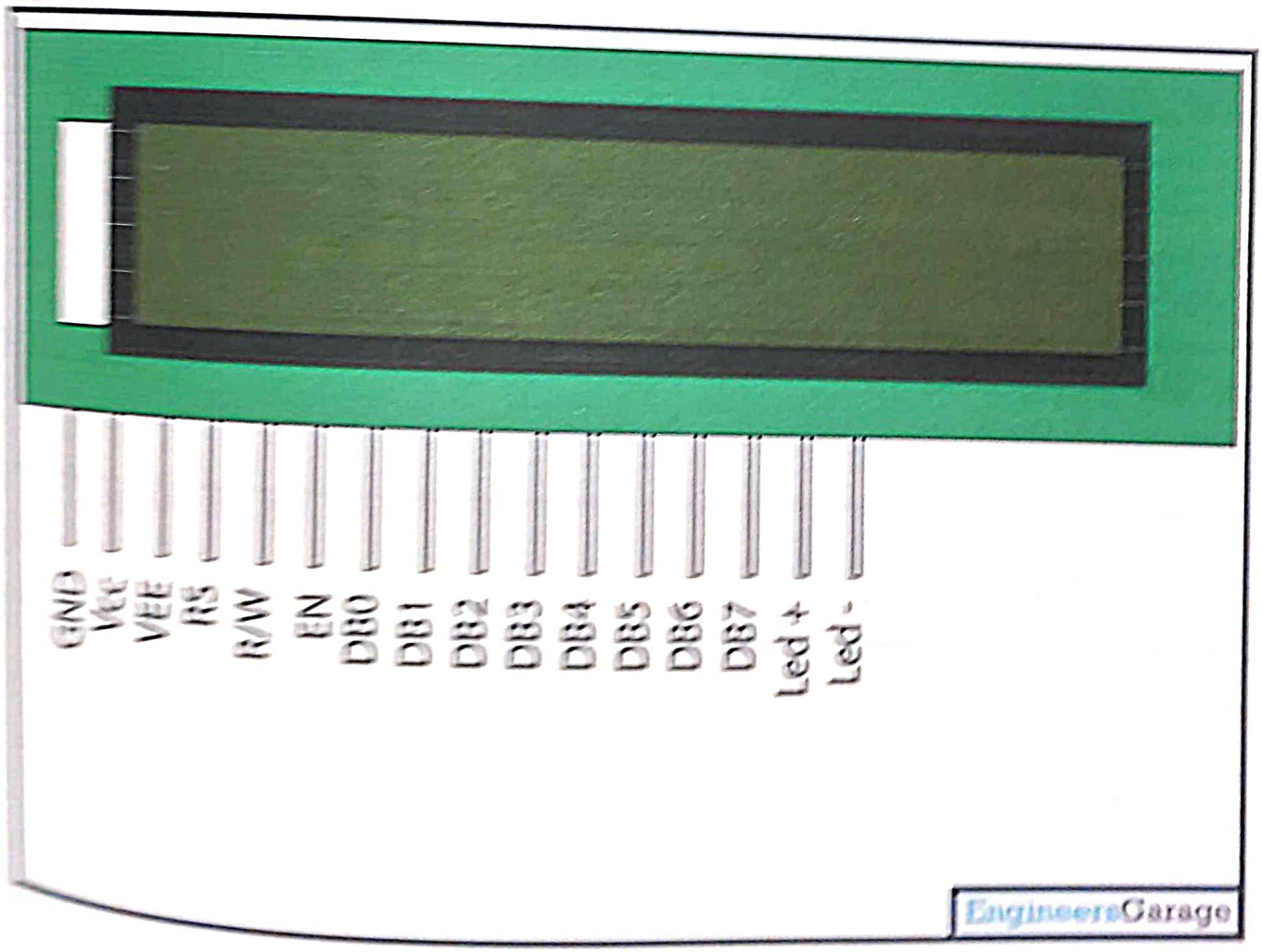
LCD DISPLAY:



In our project we use an intelligent LCD display of two lines,16 character per line,that is interfaced to the 8051. The display contains two internal byte-wide registers, one for commands(RS=O) and the second for the characters to be displayed(RS=I). It also contains a user-programmed RAM area that can be programmed to generate any desired character that can be formed using a dot matrix.To distinguish between these two data areas, the hex command byte 80 will be used to signify that the display RAM address 00h is choosen.

The display takes varying amounts of time to accomplish the functions listed in the table.LCD bit 7 is monitored for a logic high (busy) to ensure the display is not overwritten. A slightly more complicated LCD display (4 linesX4O characters)is currently being used in medical diagnostic systems to run a very similar program.

Pin Diagram:

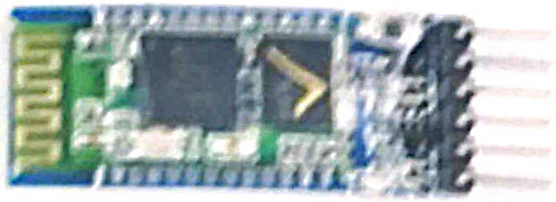


Pin Description:

Pin No	Function	Name
1	Ground (0V)	Ground
2	Supply voltage; 5V (4.7V – 5.3V)	Vcc
3	Contrast adjustment; through a variable resistor	V_{EE}
4	Selects command register when low; and data register when high	Register Select
5	Low to write to the register; High to read from the register	Read/write
6	Sends data to data pins when a high to low pulse is given	Enable
7	8-bit data pins	DB0
8		DB1
9		DB2
10		DB3
11		DB4
12		DB5
13		DB6
14		DB7
15	Backlight Vcc (5V)	Led+
16	Backlight Ground (0V)	Led-

BLUETOOTH MODULE:

Introduction



The Bluetooth module HC-05 is a MASTER/SLAVE module.By default the factory setting is SLAVE.The Role of the module (Master or Slave) can be configured only by AT COMMANDS.The slave modules cannot initiate a connection to another Bluetooth device, but can accept connections.Master module can initiate a connection to other devices.The user can use it simply for a serial port replacement to establish connection between MCU and GPS, PC to your embedded project, etc.

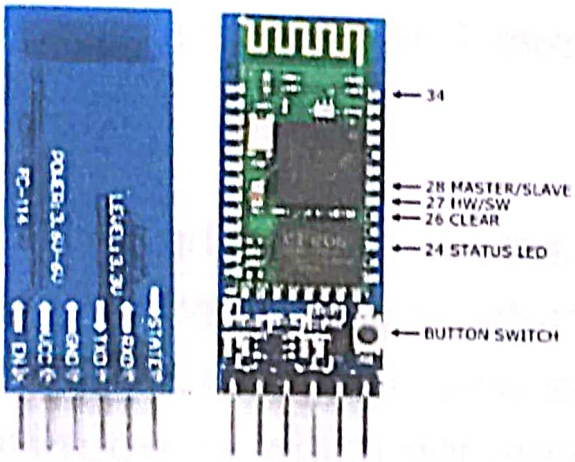
Hardware Features

1. Typical -80dBm sensitivity.
2. Up to +4dBm RF transmit power.
3. 3.3 to 5 V I/O.
4. PIO(Programmable Input/Output) control.
5. UART interface with programmable baud rate.

6. With integrated antenna.
7. With edge connector.

Software Features

1. Slave default Baud rate: 9600, Data bits:8, Stop bit:1,Parity:No parity.
2. Auto-connect to the last device on power as default.
3. Permit pairing device to connect as default.
4. Auto-pairing PINCODE:"1234" as default.



Pin Description

The HC-05 Bluetooth Module has 6pins. They are as follows:

ENABLE:

When enable is pulled **LOW**, the module is disabled which means the module will **not turn on** and it **fails to communicate**.

When enable is **left open or connected to 3.3V**, the module is enabled i.e the module **remains on** and **communication also takes place**.

Vcc:

Supply Voltage 3.3V to 5V

GND:

Ground pin

TXD & RXD:

These two pins acts as an UART interface for communication

STATE:

It acts as a status indicator.When the module is **not connected to / paired** with any other bluetooth device,signal goes **Low**.At this **low state**,the **led flashes continuously** which denotes that the module is **not paired** with other device.When this module is **connected to/paired** with any other bluetooth device,the signal goes **High**.At this **high state**,the **led blinks with a constant delay**say for example 2s delay which indicates that the module is **paired**.

BUTTON SWITCH:

This is used to switch the module into AT command mode.To enable AT command mode,press the button switch for a second.With the help of AT commands,the user can change the parameters of

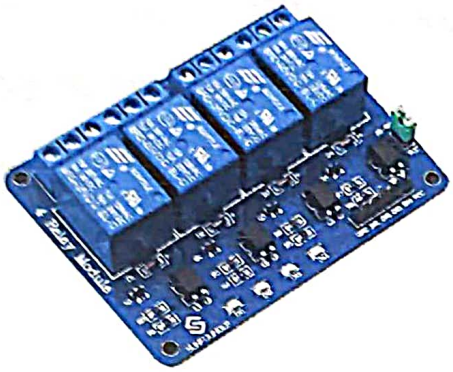
this module but only when the module is not paired with any other BT device.If the module is connected to any other bluetooth device, it starts to communicate with that device and fails to work in AT command mode.

HARDWARE CONNECTIONS:

As we know that Vcc and Gnd of the module goes to Vcc and Gnd of Devolopment board.The TXD pin goes to RXD pin of Devolopment board and RXD pin goes to TXD pin of Devolopment board.

RELAY MODULE:

Introduction



This is a 5V 4-channel relay interface board, and each channel needs a 15-20mA driver current. It can be used to control various appliances and equipment with large current. It is equiped with high-current relays that work under AC250V 10A or DC30V 10A. It has a standard interface that can be controlled directly by microcontroller.

Working of Relay

When power is supplied to relay current start flowing through the control coil, as a result electromagnetic starts energizing. Hear points A,B,C are used as control points. When input is not applied there will be no electromagnetic effect ,at this condition the c and a will be connected thus makes an open circuit .

When power is applied to input terminal due to electromagnetic effect, B and C are connected thus closes the contacts causing a short circuit for the power to the load. This force is mainly provided by two factors they are spring and gravity.

Pin Description

Input:

VCC: Positive supply voltage
GND: Ground
IN1--IN4: Relay control port

Output:

Connect a load, DC 30V/10A, AC 250V/10A

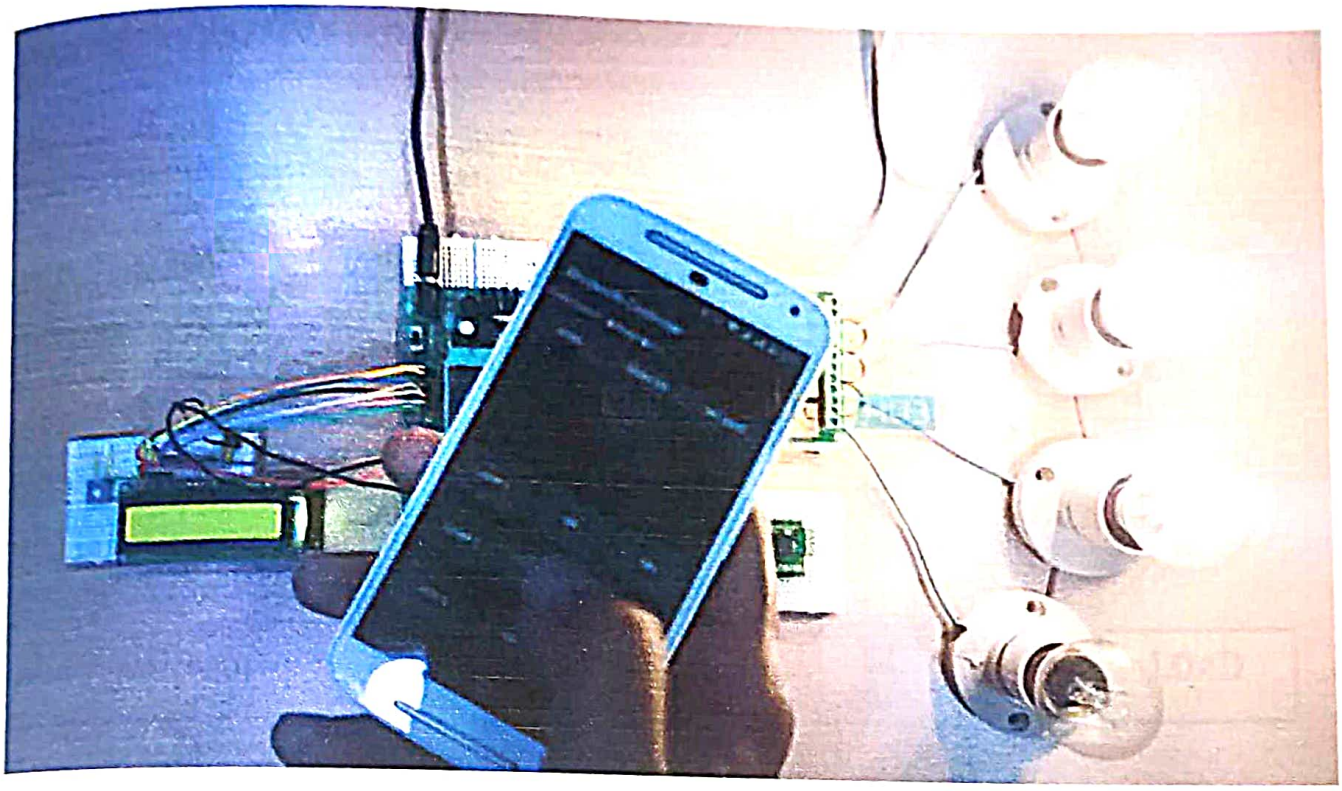
SOFTWARE REQUIREMENTS:

PROTEUS: For the designing of this project with hardware component proteus software is used, which is fast, accurate, flexible and high performance simulator for MIMD multiprocessor. This can be reproduced the results from real multiprocessor and configured to simulate a wide range of architecture. you can watch **Proteus video tutorials** here.

KEIL:For converting the C language in HEX file Keil software is used which can easily burn in microcontroller.

ANDROID APP: It is mobile operating software developed by google based on Linux kernel and is used in touchscreen mobile devices such as smartphones and tablets.it have a so much human interference and in this project we have used it for home automation to control the home appliances

CIRCUIT EXPLANATION AND WORKING:

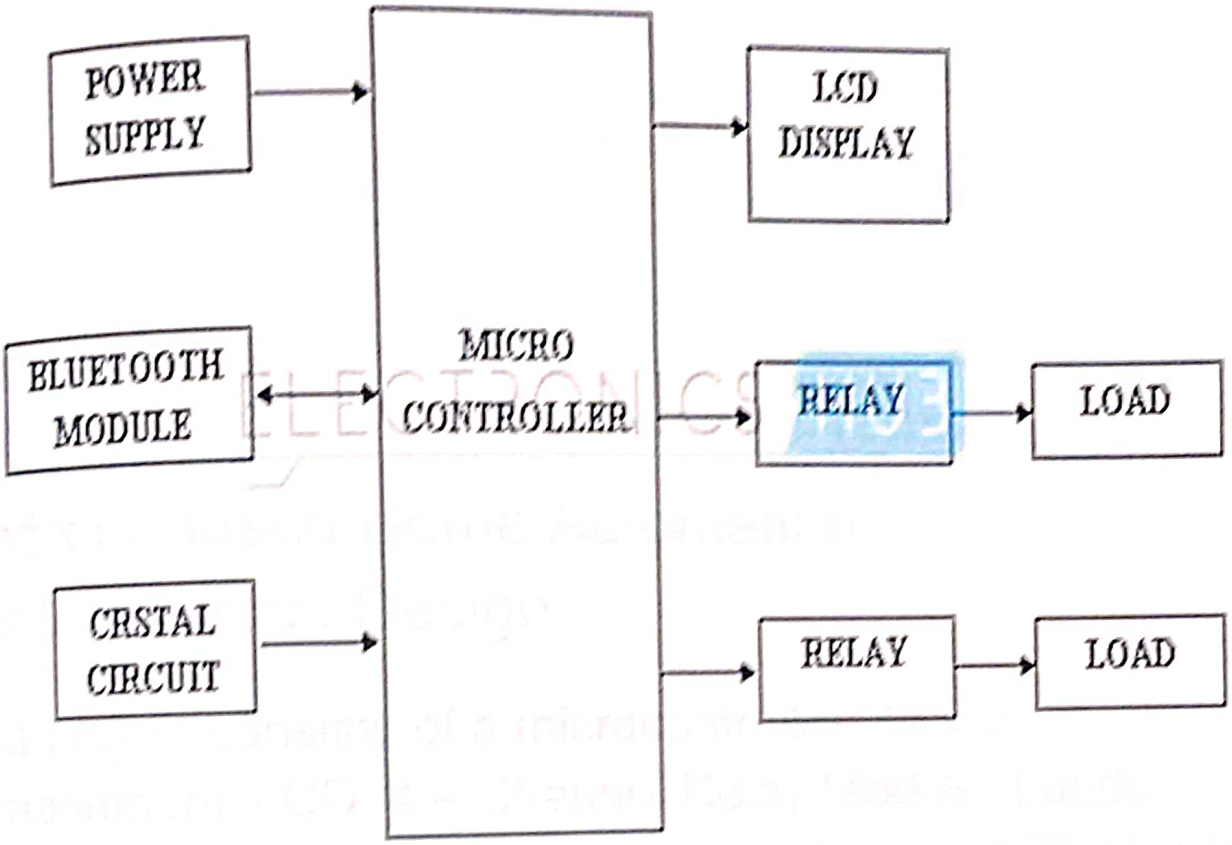


Bluetooth Controlled Electronic Home Appliances Circuit Principle

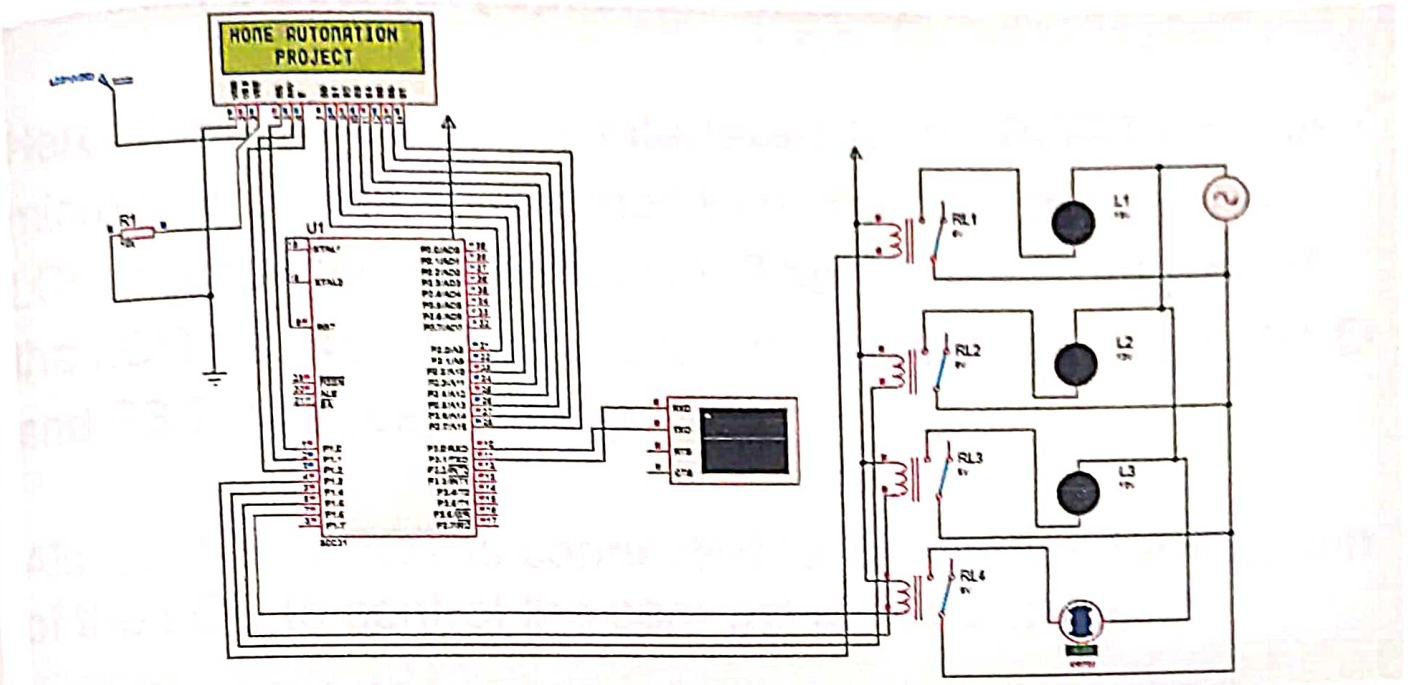
In this project, a Bluetooth module is interfaced to 8051 Microcontroller. This Bluetooth Module receives the commands from the Android application that is installed on the Android device, using wireless communication (Bluetooth Technology). The program which is written to the 8051 microcontroller communicates with Bluetooth module serially to receive the commands.

Microcontroller switches the electrical loads automatically based on the commands received from the Bluetooth.

Block Diagram



Circuit Diagram



Android Based Home Automation System Circuit Design

This project consists of a microcontroller, 16 x 2 alphanumeric LCD, 4 – Channel Relay Module, Loads (Light Bulbs are used in the demonstration) and Bluetooth Module.

Here, AT89S51 Microcontroller is used. It is an 8 – bit microcontroller and it requires supply voltage of 5V DC. Use 7805 power supply circuit to provide 5V DC to the microcontroller. We can use 9V DC battery or 12V, 1A adapter to provide the supply to the circuit.

In the above circuit, the LCD display is used to indicate the status of electrical loads and also used to display received data from Bluetooth (Optional Feature).

Here, the LCD Display is interfaced to the PORT1 of the microcontroller in 8 – bit mode i.e. the data pins of the LCD are connected to PORT1. The three control pins of the LCD i.e. RS, RW and EN are connected to P3.6, GND and P3.7 pins respectively.

Also, a 10KΩ POT is connected to the Contrast Adjust pin of the LCD to control the contrast of the display.

The TX and RX Pins of the Bluetooth Module are connected to the RXD and TXD pins (P3.0 and P3.1) of the microcontroller. VCC pin (Pin 40) is connected to the +5V and GND pin (Pin 20) is connected to ground.

The Microcontroller communicates with Bluetooth Module using serial communication (UART protocol). Use a baud rate of 9600 to communicate with Bluetooth.

Electrical loads (like Lamp and DC motor) are connected to the P0.0 to P0.3 Pins through the 4 – Channel Relay Module. Here, relays are used to switch AC loads using small DC voltages. NPN transistors are used to drive the relays.

If you are using a relay module, then transistor and other important components to drive the relay are already embedded on the module itself.

Working Explanation:

In this project we have used 8051 microcontroller for controlling the whole process of this project. And a Bluetooth module is used for controlling the home appliances wirelessly. Home appliances will turned ON and OFF when user will touch button in the Bluetooth mobile app in Android mobile phone. To run this project, first we need to download Bluetooth app form Google play store. We can use any Bluetooth app that can send data using Bluetooth. Here are some apps name that can be used:

1. Bluetooth Spp pro
2. Bluetooth controller

After installing the App, you need to open it and then search Bluetooth device and select HC-05 Bluetooth device. And then configure keys.

Here in this project we have used Bluetooth controller app.

1. Download and install Bluetooth Controller.
2. Turned ON mobile Bluetooth.

3. Now open Bluetooth controller app
4. Press scan
5. Select desired Bluetooth device (Bluetooth Module HC-05).
6. Now set keys by pressing set buttons on screen

To set keys we need to press 'set button' and set key according to picture given below:

After setting keys press ok.

You can see in the above picture that there are 9 buttons in which first row is for fan controlling, second one is for light controlling and last one is for TV controlling. Means First row's ON and OFF buttons are used to ON and OFF the fan, second row's buttons are for Light and third ones are for TV. We have used three bulbs of different colors instead of TV and fan, for demonstration purpose.

Now, when we touch any button in Bluetooth controller app then Android phone sends a value to Bluetooth module, after receiving this value, Bluetooth module sends the received value to the microcontroller and then microcontroller reads it and compare it with predefined value. If any match is occurred then microcontroller performs relative operation. Same operation will performed each time when button pressed.

Now, when user touch 'Fan On' button in Bluetooth controller app then microcontroller receives '1' via Bluetooth module and then controller Switch 'On' the Fan by using relay driver and relay. And when user touch 'Fan Off' button in Bluetooth controller app then microcontroller receives '2' via Bluetooth module and then controller Switch 'Off' the Fan by using relay driver and relay.

Likewise 3,4,5,6 numbers are sent by Android Phone, when Light On, Light Off, TV On, TV Off button has been touched respectively:

Bluetooth Controlled Electronic Home Appliances Project Applications

1. This project is used to control the various electrical appliances from the remote area.
2. Using this project we can control all the loads using a single remote and a control unit.

Limitations of the Circuit

1. In this project the distance between control unit and android device is limited.

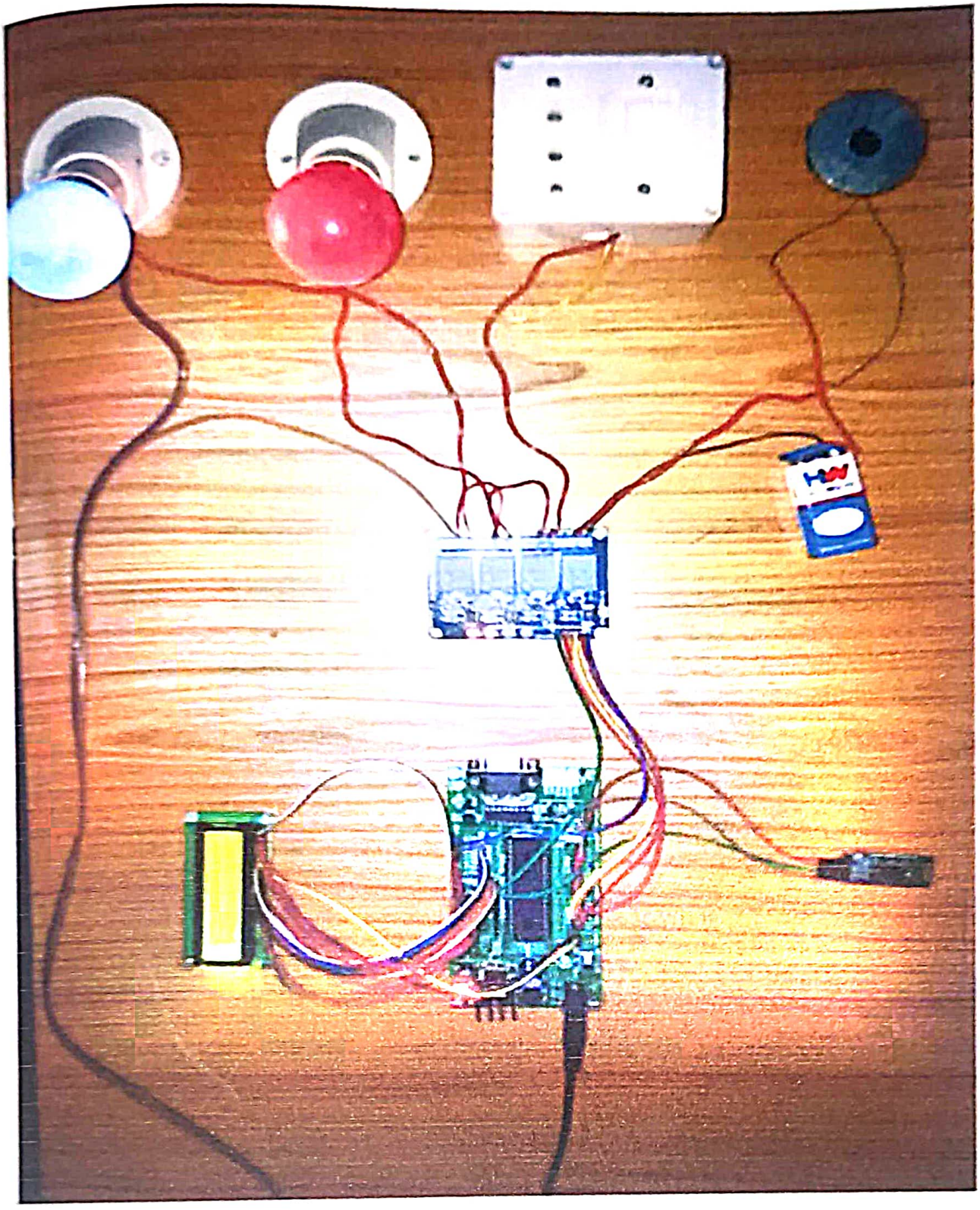
ADVANTAGES

1. It is a robust and easy to use system.
2. There is no need for extra training of that person who is using it.
3. All the control would be in your hands by using this home automation system.
4. This project can provide the facility of monitoring all the appliances with in the communication range through Bluetooth.
5. By using this system the users can check the status of the appliances at whatever time of the day
6. Manual control is also given in this project so the unskilled person can easily change the status.

DISADVANTAGES

1. Bluetooth is used in this home automation system, which have a rage 10 to 20 meters so the control cannot be achieved from outside this range.
2. Application is connected after disconnect of the Bluetooth.
3. when the new users want to connect the first download application software then the code and configuration must be done

PROJECT MODEL



C LANGUAGE PROGRAM

```
#include <reg51.h>
#define lcd P2

sbit load1=P1^3;
sbit load2=P1^4;
sbit load3=P1^5;
sbit load4=P1^6;
sbit rs=P1^0;
sbit rw=P1^1;
sbit en=P1^2;

void msdelay(unsigned int t)
{
    unsigned int i,j;
    for(i=0;i<t;i++);
    for(j=0;j<1275;j++);
}
void lcd_cmd(unsigned char c)
{
 lcd=c;
    rs=0;
    rw=0;
    en=1;
    msdelay(10);
    en=0;
}
```

```
void lcd_data(unsigned char d)
{
 lcd=d;
     rs=1;
     rw=0;
     en=1;
     msdelay(10);
     en=0;
}
void main()
 {
      unsigned char x;
      load1=load2=load3=load4=0;
      SCON=0X50;
  TMOD=0X20;
  TH1=-3;
  TR1=1;

      P2=0X00;
      lcd_cmd(0X38);
      msdelay(10);
      lcd_cmd(0X01);
      msdelay(10);
      lcd_cmd(0X06);
      msdelay(10);
      lcd_cmd(0X10);
      msdelay(10);
      lcd_cmd(0X0c);
      msdelay(10);
```

```
while(1)
{
   while(RI==0);
   x=SBUF;
   SBUF=x;
   while(TI==0);
         TI=0;
         RI=0;

   if(x=='1')
   {
        lcd_cmd(0X01);
    load1=1;
    lcd_data('F');
    msdelay(100);
    lcd_data('A');
    msdelay(100);
    lcd_data('N');
    msdelay(100);
    lcd_data(' ');
    msdelay(100);
    lcd_data('0');
    msdelay(100);
    lcd_data('N');
    msdelay(100);
                    }
   if(x=='2')
   {
                    lcd_cmd(0X01);
    load1=0;
    lcd_data('F');
```

```
 msdelay(100);
 lcd_data('A');
 msdelay(100);
 lcd_data('N');
 msdelay(100);
 lcd_data(' ');
 msdelay(100);
 lcd_data('0');
 msdelay(100);
 lcd_data('F');
 msdelay(100);
 lcd_data('F');
 msdelay(100);
}

if(x=='3')
{
 lcd_cmd(0X01);
 load2=1;
 lcd_data('T');
 msdelay(100);
 lcd_data('V');
 msdelay(100);
 lcd_data(' ');
 msdelay(100);
 lcd_data('O');
 msdelay(100);
 lcd_data('N');
 msdelay(100);
}
```

```
if(x=='4')
{
  lcd_cmd(0X01);
  load2=0;
  lcd_data('T');
  msdelay(100);
  lcd_data('V');
  msdelay(100);
  lcd_data(' ');
  msdelay(100);
  lcd_data('O');
  msdelay(100);
  lcd_data('F');
  msdelay(100);
  lcd_data('F');
  msdelay(100);
}
if(x=='5')
{
  lcd_cmd(0X01);
  load3=1;
  lcd_data('M');
  msdelay(100);
  lcd_data('O');
  msdelay(100);
  lcd_data('T');
  msdelay(100);
  lcd_data('O');
  msdelay(100);
  lcd_data('R');
  msdelay(100);
```

```
    lcd_data(' ');
    msdelay(100);
    lcd_data('O');
    msdelay(100);
    lcd_data('N');
    msdelay(100);
}

if(x=='6')
{
    lcd_cmd(0X01);
    load3=0;
    lcd_data('M');
    msdelay(100);
    lcd_data('O');
    msdelay(100);
    lcd_data('T');
    msdelay(100);
    lcd_data('O');
    msdelay(100);
    lcd_data('R');
    msdelay(100);
    lcd_data(' ');
    msdelay(100);
    lcd_data('O');
    msdelay(100);
    lcd_data('F');
    msdelay(100);
    lcd_data('F');
    msdelay(100);
```

```
}

if(x=='7')
{
  lcd_cmd(0X01);
  lcd_data('L');
  msdelay(100);
  lcd_data('I');
  msdelay(100);
  lcd_data('G');
  msdelay(100);
  lcd_data('H');
  msdelay(100);
  lcd_data('T');
  msdelay(100);
  lcd_data(' ');
  msdelay(100);
  lcd_data('O');
  msdelay(100);
  lcd_data('N');
  msdelay(100);
  load4=1;
}

 if(x=='8')
{

  lcd_cmd(0X01);
  lcd_data('L');
  msdelay(100);
  lcd_data('I');
```

```
msdelay(100);
lcd_data('G');
msdelay(100);
lcd_data('H');
msdelay(100);
lcd_data('T');
msdelay(100);
lcd_data(' ');
msdelay(100);
lcd_data('O');
msdelay(100);
lcd_data('F');
msdelay(100);
lcd_data('F');
msdelay(100);
load4=0;

}

if(x=='0')

{

load1=load2=load3=load4=0;
lcd_cmd(0X01);
lcd_data('A');
msdelay(100);
lcd_data('L');
msdelay(100);
lcd_data('L');
msdelay(100);
```

```
lcd_data(' ');
msdelay(100);
lcd_data('A');
msdelay(100);
lcd_data('P');
msdelay(100);
lcd_data('P');
msdelay(100);
lcd_data('L');
msdelay(100);
lcd_data('I');
msdelay(100);
lcd_data('A');
msdelay(100);
lcd_data('N');
msdelay(100);
lcd_data('C');
msdelay(100);
lcd_data('E');
msdelay(100);
lcd_data('S');
msdelay(100);
lcd_data(' ');
msdelay(100);

lcd_cmd(0XC0);

lcd_data('A');
msdelay(100);
lcd_data('R');
msdelay(100);
```

```
lcd_data('E');
msdelay(100);
lcd_data(' ');
msdelay(100);
lcd_data('O');
msdelay(100);
lcd_data('F');
msdelay(100);
lcd_data('F');
msdelay(100);

}

  if(x=='9')

{

  load1=load2=load3=load4=1;
  lcd_cmd(0X01);
  lcd_data('A');
  msdelay(100);
  lcd_data('L');
  msdelay(100);
  lcd_data('L');
  msdelay(100);
  lcd_data(' ');
  msdelay(100);
  lcd_data('A');
  msdelay(100);
  lcd_data('P');
  msdelay(100);
```

```
lcd_data('P');
msdelay(100);
lcd_data('L');
msdelay(100);
lcd_data('I');
msdelay(100);
lcd_data('A');
msdelay(100);
lcd_data('N');
msdelay(100);
lcd_data('C');
msdelay(100);
lcd_data('E');
msdelay(100);
lcd_data('S');
msdelay(100);
lcd_data(' ');
msdelay(100);

lcd_cmd(0XC0);

lcd_data('A');
msdelay(100);
lcd_data('R');
msdelay(100);
lcd_data('E');
msdelay(100);
lcd_data(' ');
msdelay(100);
lcd_data('O');
msdelay(100);
```

```
        lcd_data('N');
        msdelay(100);

    }

}

}
```

CONCLUSION

As students, we stand with pride as we have given an opportunity by our lecturers to learn something better by doing things practically and yet better understanding of Home Automation, its working, advantages.

This experience helps us to get awareness on Home Automation and about its advanced technology

Our project helped us to update our knowledge in learning about the advancement and improvement in day-to-day changes in present world and latest technologies and advancements made in Home Automation. Our project really helped us to boost our confidence in ourselves what we have learnt theoretically that we have learnt we have proved with out line in our project.

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