Code 1

void LCD\_Custom\_Char (unsigned char loc, unsigned char \*msg)

{

unsigned char i;

if(loc<8)

{

/\* Command 0x40 and onwards forces the device to point CGRAM address \*/

LCD\_Command (0x40 + (loc\*8));

for(i=0;i<8;i++) /\* Write 8 byte for generation of 1 character \*/

LCD\_Char(msg[i]);

}

}

Code 2

/\*

LCD16x2 8 bit 8051 custom character

http://www.electronicwings.com

\*/

#include<reg51.h>

sfr lcd\_data\_port=0x90; /\* P1 port as data port \*/

sbit rs=P2^0; /\* Register select pin \*/

sbit rw=P2^1; /\* Read/Write pin \*/

sbit en=P2^2; /\* Enable pin \*/

void delay(unsigned int count) /\* Function to provide delay Approx 1ms \*/

{

int i,j;

for(i=0;i<count;i++)

for(j=0;j<112;j++);

}

void LCD\_Command (char cmd) /\* LCD16x2 command funtion \*/

{

lcd\_data\_port= cmd;

rs=0; /\* command reg. \*/

rw=0; /\* Write operation \*/

en=1;

delay(1);

en=0;

delay(5);

}

void LCD\_Char (char char\_data) /\* LCD data write function \*/

{

lcd\_data\_port=char\_data;

rs=1; /\*Data reg.\*/

rw=0; /\*Write operation\*/

en=1;

delay(1);

en=0;

delay(5);

}

void LCD\_String (char \*str) /\* Send string to LCD function \*/

{

int i;

for(i=0;str[i]!=0;i++) /\* Send each char of string till the NULL \*/

{

LCD\_Char (str[i]); /\* Call LCD data write \*/

}

}

void LCD\_String\_xy (char row, char pos, char \*str) /\* Send string to LCD function \*/

{

if (row == 0)

LCD\_Command((pos & 0x0F)|0x80);

else if (row == 1)

LCD\_Command((pos & 0x0F)|0xC0);

LCD\_String(str); /\* Call LCD string function \*/

}

void LCD\_Init (void) /\* LCD Initialize function \*/

{

delay(20); /\* LCD Power ON Initialization time >15ms \*/

LCD\_Command (0x38); /\* Initialization of 16X2 LCD in 8bit mode \*/

LCD\_Command (0x0C); /\* Display ON Cursor OFF \*/

LCD\_Command (0x06); /\* Auto Increment cursor \*/

LCD\_Command (0x01); /\* clear display \*/

LCD\_Command (0x80); /\* cursor at home position \*/

}

void LCD\_Custom\_Char (unsigned char loc, unsigned char \*msg)

{

unsigned char i;

if(loc<8)

{

/\* Command 0x40 and onwards forces the device to point CGRAM address \*/

LCD\_Command (0x40 + (loc\*8));

for(i=0;i<8;i++) /\* Write 8 byte for generation of 1 character \*/

LCD\_Char(msg[i]);

}

}

void main()

{

char i;

/\* Custom char set for alphanumeric LCD Module \*/

unsigned char Character1[8] = { 0x00, 0x0A, 0x15, 0x11, 0x0A, 0x04, 0x00, 0x00 };

unsigned char Character2[8] = { 0x04, 0x1F, 0x11, 0x11, 0x1F, 0x1F, 0x1F, 0x1F };

unsigned char Character3[8] = { 0x04, 0x0E, 0x0E, 0x0E, 0x1F, 0x00, 0x04, 0x00 };

unsigned char Character4[8] = { 0x01, 0x03, 0x07, 0x1F, 0x1F, 0x07, 0x03, 0x01 };

unsigned char Character5[8] = { 0x01, 0x03, 0x05, 0x09, 0x09, 0x0B, 0x1B, 0x18 };

unsigned char Character6[8] = { 0x0A, 0x0A, 0x1F, 0x11, 0x11, 0x0E, 0x04, 0x04 };

unsigned char Character7[8] = { 0x00, 0x00, 0x0A, 0x00, 0x04, 0x11, 0x0E, 0x00 };

unsigned char Character8[8] = { 0x00, 0x0A, 0x1F, 0x1F, 0x0E, 0x04, 0x00, 0x00 };

LCD\_Init();

LCD\_Custom\_Char(0, Character1); /\* Build Character1 at position 0 \*/

LCD\_Custom\_Char(1, Character2); /\* Build Character2 at position 1 \*/

LCD\_Custom\_Char(2, Character3); /\* Build Character3 at position 2 \*/

LCD\_Custom\_Char(3, Character4); /\* Build Character4 at position 3 \*/

LCD\_Custom\_Char(4, Character5); /\* Build Character5 at position 4 \*/

LCD\_Custom\_Char(5, Character6); /\* Build Character6 at position 5 \*/

LCD\_Custom\_Char(6, Character7); /\* Build Character6 at position 6 \*/

LCD\_Custom\_Char(7, Character8); /\* Build Character6 at position 7 \*/

LCD\_Command(0x80); /\* Cursor at home position \*/

LCD\_String("Custom char LCD");

LCD\_Command(0xc0);

for(i=0;i<8;i++) /\* Function will send data 1 to 8 to lcd \*/

{

LCD\_Char(i);

LCD\_Char(' '); /\* Space between each custom char \*/

}

while(1);

}

Code 3

/\*

LCD16x2 8 bit 8051 animation

http://www.electronicwings.com

\*/

#include<reg51.h>

sfr lcd\_data\_port=0x90; /\* P1 port as data port \*/

sbit rs=P2^0; /\* Register select pin \*/

sbit rw=P2^1; /\* Read/Write pin \*/

sbit en=P2^2; /\* Enable pin \*/

void lcd\_built(void);

unsigned char addr,i;

void delay(unsigned int count) /\* Function to provide delay Approx 1ms \*/

{

int i,j;

for(i=0;i<count;i++)

for(j=0;j<112;j++);

}

void LCD\_Command (char cmd) /\* LCD16x2 command funtion \*/

{

lcd\_data\_port= cmd;

rs=0; /\* command reg. \*/

rw=0; /\* Write operation \*/

en=1;

delay(1);

en=0;

delay(5);

}

void LCD\_Char (char char\_data) /\* LCD data write function \*/

{

lcd\_data\_port=char\_data;

rs=1; /\*Data reg.\*/

rw=0; /\*Write operation\*/

en=1;

delay(1);

en=0;

delay(5);

}

void LCD\_String (char \*str) /\* Send string to LCD function \*/

{

int i;

for(i=0;str[i]!=0;i++) /\* Send each char of string till the NULL \*/

{

LCD\_Char (str[i]); /\* Call LCD data write \*/

}

}

void LCD\_String\_xy (char row, char pos, char \*str) /\* Send string to LCD function \*/

{

if (row == 0)

LCD\_Command((pos & 0x0F)|0x80);

else if (row == 1)

LCD\_Command((pos & 0x0F)|0xC0);

LCD\_String(str); /\* Call LCD string function \*/

}

void LCD\_Init (void) /\* LCD Initialize function \*/

{

delay(20); /\* LCD Power ON Initialization time >15ms \*/

LCD\_Command (0x38); /\* Initialization of 16X2 LCD in 8bit mode \*/

LCD\_Command (0x0C); /\* Display ON Cursor OFF \*/

LCD\_Command (0x06); /\* Auto Increment cursor \*/

LCD\_Command (0x01); /\* Clear display \*/

LCD\_Command (0x80); /\* Cursor at home position \*/

}

void LCD\_Clear()

{

LCD\_Command (0x01); /\* Clear display \*/

LCD\_Command (0x80); /\* Cursor at home position \*/

}

void LCD\_Custom\_Char (unsigned char loc, unsigned char \*msg)

{

unsigned char i;

if(loc<8)

{

LCD\_Command (0x40 + (loc\*8));

for(i=0;i<8;i++)

LCD\_Char(msg[i]);

}

}

void show\_set1()

{

LCD\_Char(0x0);

LCD\_Char(0x01);

}

void show\_set2()

{

LCD\_Char(0x2);

LCD\_Char(0x3);

}

void show\_dots(char j)

{

LCD\_Command(0x80|(addr&0x0f));

LCD\_Char(j);

}

int main(void)

{

LCD\_Init();

LCD\_String("Ewings");

LCD\_Command(0x0c3);

LCD\_String("Animation");

delay(300);

lcd\_built();

addr=0xc1;

while(1)

{

addr=0xc1;

i=4;

/\* showing set 1 left to right rolling \*/

do{

LCD\_Command(addr++);

show\_set1();

show\_dots(i);

if(i<7)

i++;

else

i=4;

delay(200);

LCD\_Clear();

LCD\_Command(addr++);

show\_set2();

show\_dots(i);

if(i<7)

i++;

else

i=7;

delay(200);

LCD\_Clear();

}while(addr<0xce);

/\* showing set 2 right to left rolling \*/

do{

LCD\_Command(addr--);

show\_set1();

show\_dots(i);

if(i<7)

i++;

else

i=4;

delay(200);

LCD\_Clear();

LCD\_Command(addr--);

show\_set2();

show\_dots(i);

if(i<7)

i++;

else

i=7;

delay(200);

LCD\_Clear();

}while(addr>0xc2);

}

}

void lcd\_built(void)

{

unsigned char Character1[8] = { 0x01, 0x03, 0x07, 0x0D, 0x0F, 0x02, 0x05, 0x0A };

unsigned char Character2[8] = { 0x10, 0x18, 0x1C, 0x16, 0x1E, 0x08, 0x14, 0x0A };

unsigned char Character3[8] = { 0x01, 0x03, 0x07, 0x0D, 0x0F, 0x05, 0x08, 0x04 };

unsigned char Character4[8] = { 0x10, 0x18, 0x1C, 0x16, 0x1E, 0x14, 0x02, 0x04 };

unsigned char Character5[8] = { 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x18, 0x18 };

unsigned char Character6[8] = { 0x00, 0x00, 0x00, 0x00, 0x06, 0x06, 0x00, 0x00 };

unsigned char Character7[8] = { 0x00, 0x00, 0x03, 0x03, 0x00, 0x00, 0x00, 0x00 };

unsigned char Character8[8] = { 0x00, 0x18, 0x18, 0x00, 0x00, 0x00, 0x00, 0x00 };

/\* ---------- Build Custom Characters -----------------\*/

LCD\_Custom\_Char(0, Character1); /\* Build Character1 at position 0 \*/

LCD\_Custom\_Char(1, Character2); /\* Build Character2 at position 1 \*/

LCD\_Custom\_Char(2, Character3); /\* Build Character3 at position 2 \*/

LCD\_Custom\_Char(3, Character4); /\* Build Character4 at position 3 \*/

LCD\_Custom\_Char(4, Character5); /\* Build Character5 at position 4 \*/

LCD\_Custom\_Char(5, Character6); /\* Build Character6 at position 5 \*/

LCD\_Custom\_Char(6, Character7); /\* Build Character6 at position 6 \*/

LCD\_Custom\_Char(7, Character8); /\* Build Character6 at position 7 \*/

}