Embedded Systems - Lab Assignment Sample

Name : Mandeesh Singh
Class : Embedded Systems
ID : **2022HT65561**

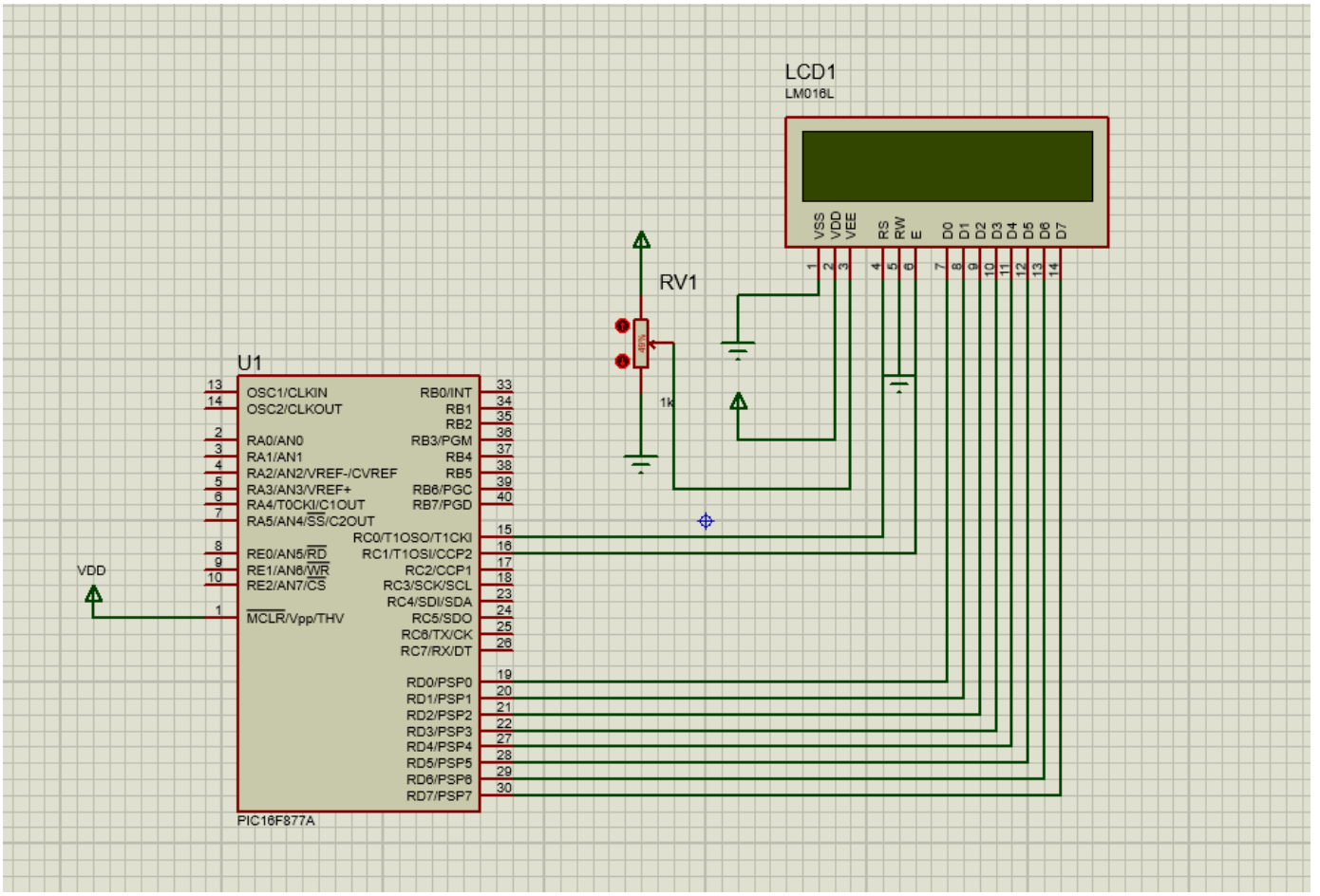
Code

```
#define _XTAL_FREQ 20e6
#include <xc.h>
#define ms __delay_ms
#define LCD PORTD
#define RS RC0          //LCD Register Select
#define EN RC1          //LCD Enable

void lcd_delay(unsigned int);
void lcd_data(unsigned char);
void lcd_cmd(char);
void lcd_clr();

void lcd_init()
{
   RS=0;
   lcd_cmd(0x38);
   lcd_cmd(0x01);
   lcd_cmd(0x0C);
   lcd_cmd(0x06);
   lcd_cmd(0x80);
   EN=1;
   lcd_delay(20);
   EN=0;
}

void lcd_data(unsigned char dta)
{
   RS=1;
   LCD = dta;
   EN=1;
   lcd_delay(20);
   EN=0;
}
```

```
void lcd_cmd(char cmmd)
{
    RS=0;
    LCD = cmmd;
    EN=1;
    lcd_delay(20);
    EN=0;
}


void lcd_delay(unsigned int DD)
{
    unsigned int i,j;
    for(i=1;i<=DD;i++)
    {
    for(j=1;j<=50;j++);
    }
}

void lcd_clr()
{
    lcd_cmd(0x01);
    lcd_cmd(0x80);
}

void lcd_string(const char *dat)
{
    while(*dat)
    lcd_data(*dat++);
}

void gpioInit()
{
    TRISC  = 0b11111000;
    TRISD  = 0x00;
    PORTC =  0xFF;
}

void main(void)
{
    gpioInit();  //Initialize GPIO
```

```
    lcd_init();
    lcd_clr();
    lcd_string("Embedded Systems");
    lcd_cmd(0xC0);
    lcd_string("   BITS PILANI        ");
    ms(2000);

    while(1)
    {
    }
}
```

Circuit Diagram



Proteus File Link

PIC16F_LCD_Basic_Display.pdsprj 22 kB