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Project Dice
Embedded Systems
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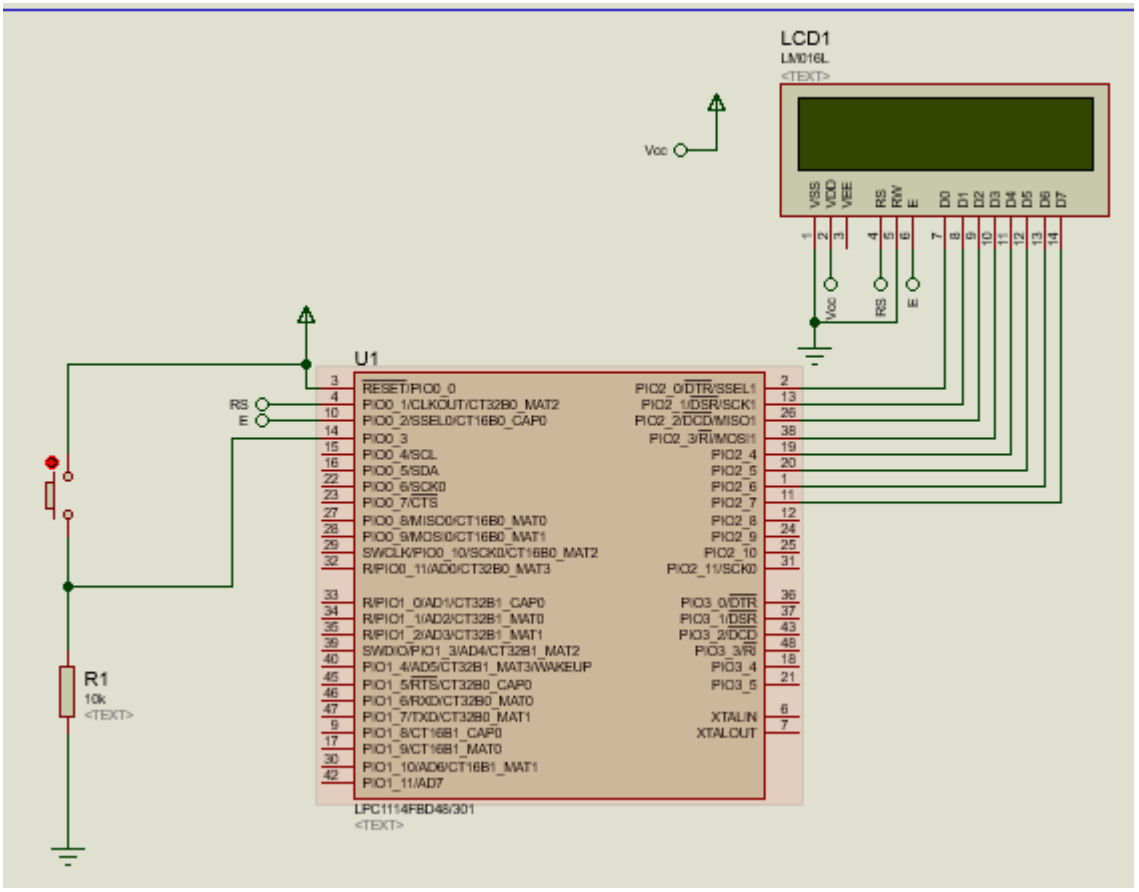
06/09/2021

The project is Dice
when you click on the button will generate random number from 1 to 6



File lcd_lib.c has all the methods we want.
and here the code as follow:

```
#include "lcd_lib.h"

void delay_us (int count)
{
    count = 42 * count / 10;
    for (int i = 0; i < count; i++);
}

void send_cmd (uint8_t cmd)
{
    LCDCMD = 0b000;
    LCDDATA = cmd;
    LCDCMD = LCD_E;
    delay_us(1);
    LCDCMD = 0b000;
    delay_us(40);
```

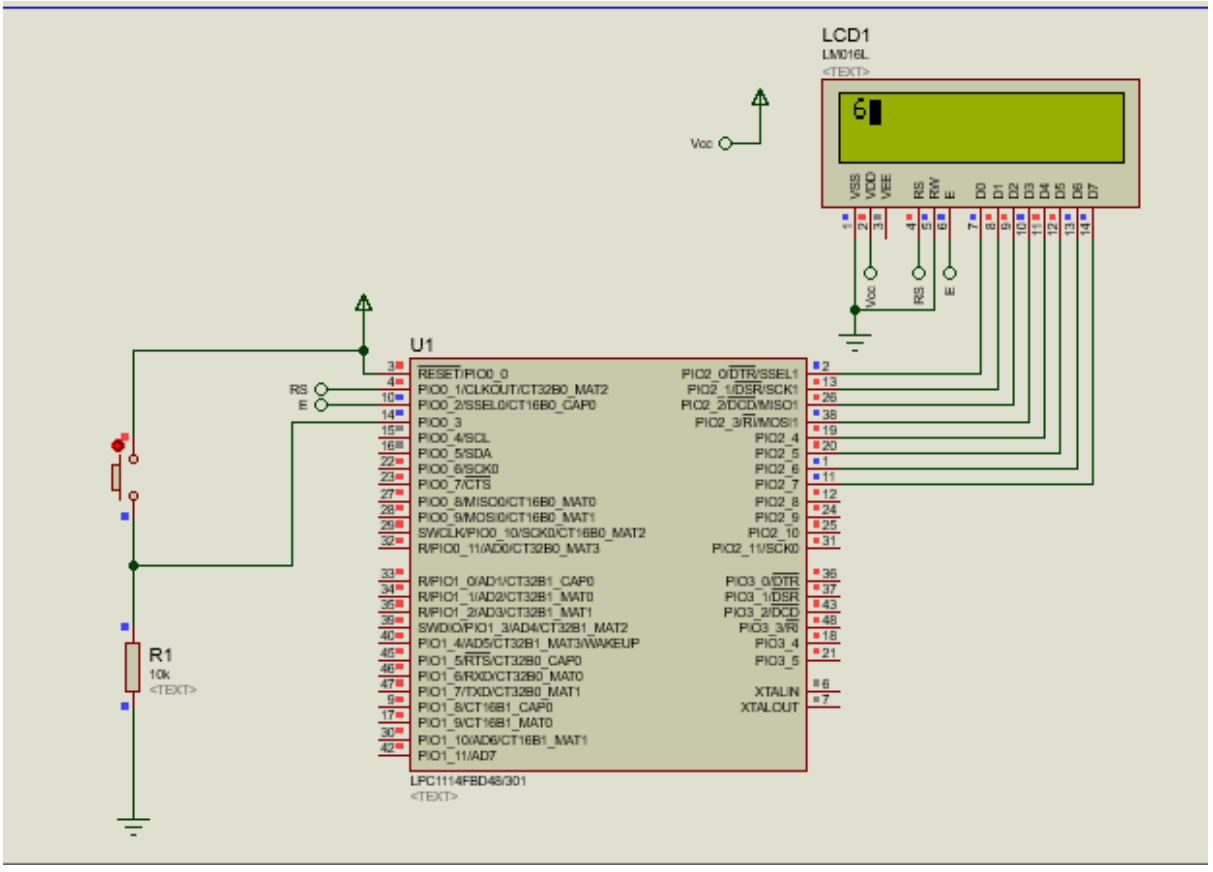
```
}

void setup_display()
{
    LCDCMD = 0;
    LCDDATA = 0;

    delay_us(15000);
    send_cmd(0x30);
    delay_us(4100);
    send_cmd(0x30);
    delay_us(100);
    send_cmd(0x30);
    send_cmd(0x38);
    send_cmd(0x0F);
    send_cmd(0x01);
    delay_us(1600);
    send_cmd(0x06);
}

void send_char(char letter)
{
    LCDCMD = LCD_RS;
    LCDDATA = letter;
    LCDCMD = LCD_E | LCD_RS;
    delay_us(1);
    LCDCMD = LCD_RS;
    delay_us(40);
}

void clear_lcd()
{
    send_cmd(0x01);
    delay_us(1600);
}
```

Here the Main file to run the project

```
#include "lcd_lib.h"

char map[6] = {'1' , '2', '3', '4', '5', '6'};


int main (void)
{
    GPIO0DIR |= 0x0F;
    GPIO2DIR |= 0xFF;
    setup_display();

    int button = 0;
```

```
int rand = 0;
    while (1)
    {
    rand = (rand + 1) % 6;
        if (((GPIO0DATA >> 3) % 2) ^ button)         {
            if (button == 1)
            {
                        clear_lcd();
                        send_char(map[rand]);
            }
            button ^= 1;
        }


    }
    return 0;
}
```

Simulation



Here The repo will full code