A Multifunctional student computer based on 51 single chip microcomputer(See pictures in README.pdf)

> Hardware: Stc89c52 and some electronic components
>
> Software: Altium Designer 17, Keil5(Using C Language)

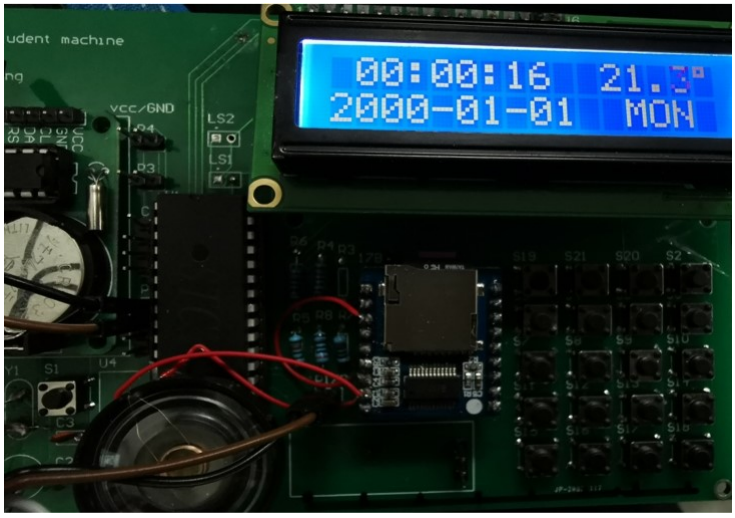
Ⅰ. Product introduction

1、2019.7.20——2019.10.20

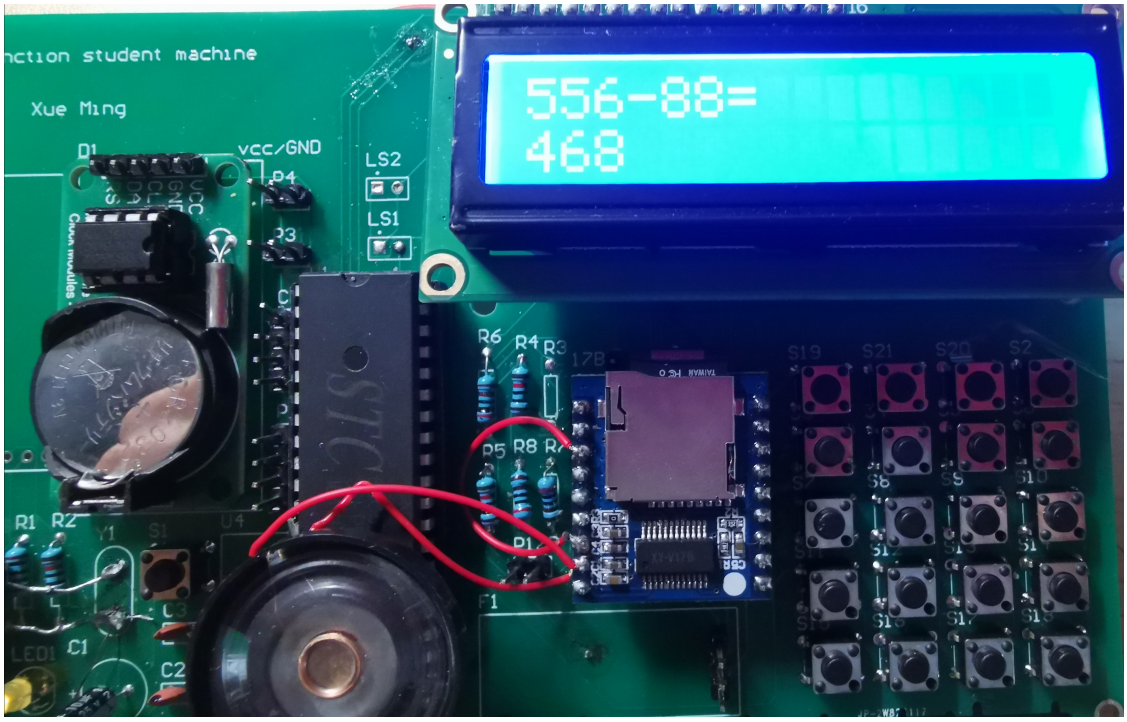
2、You can refer to the demo video and GIF files.

2、Product function：

- Calender, temperature： （time（can be corrected）、date、week、temperature）



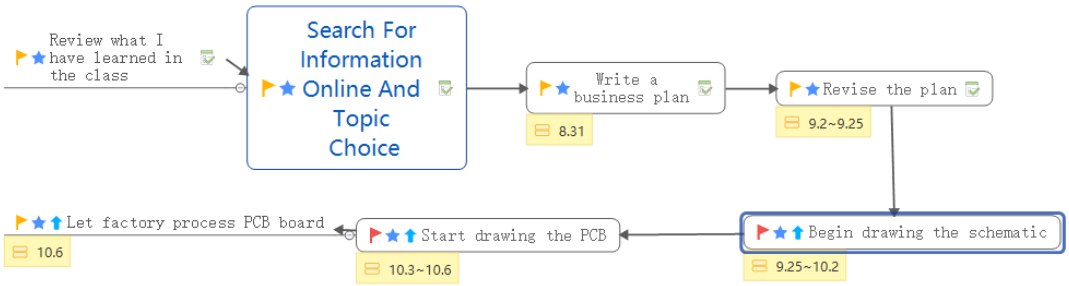
- Calculator： （addition, subtraction, multiplication and division, and decimal point operation, which can be used for continuous numerical calculation）



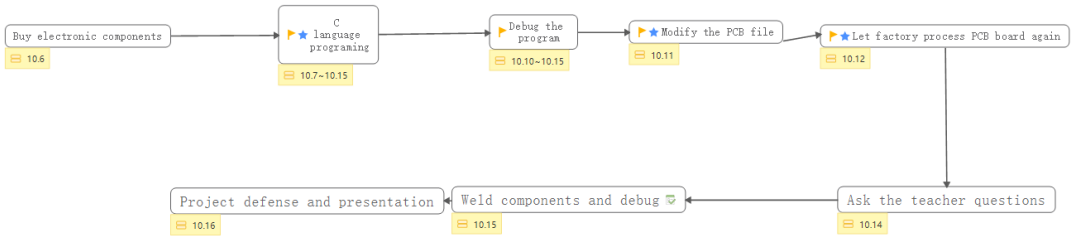
- Music Playing： （contains multiple music, support play and pause music, with the function of manually switching songs）
- The edge is marked with scale, which can be used as a ruler for drawing and measuring

Ⅱ. Brief description of operation steps

- First step



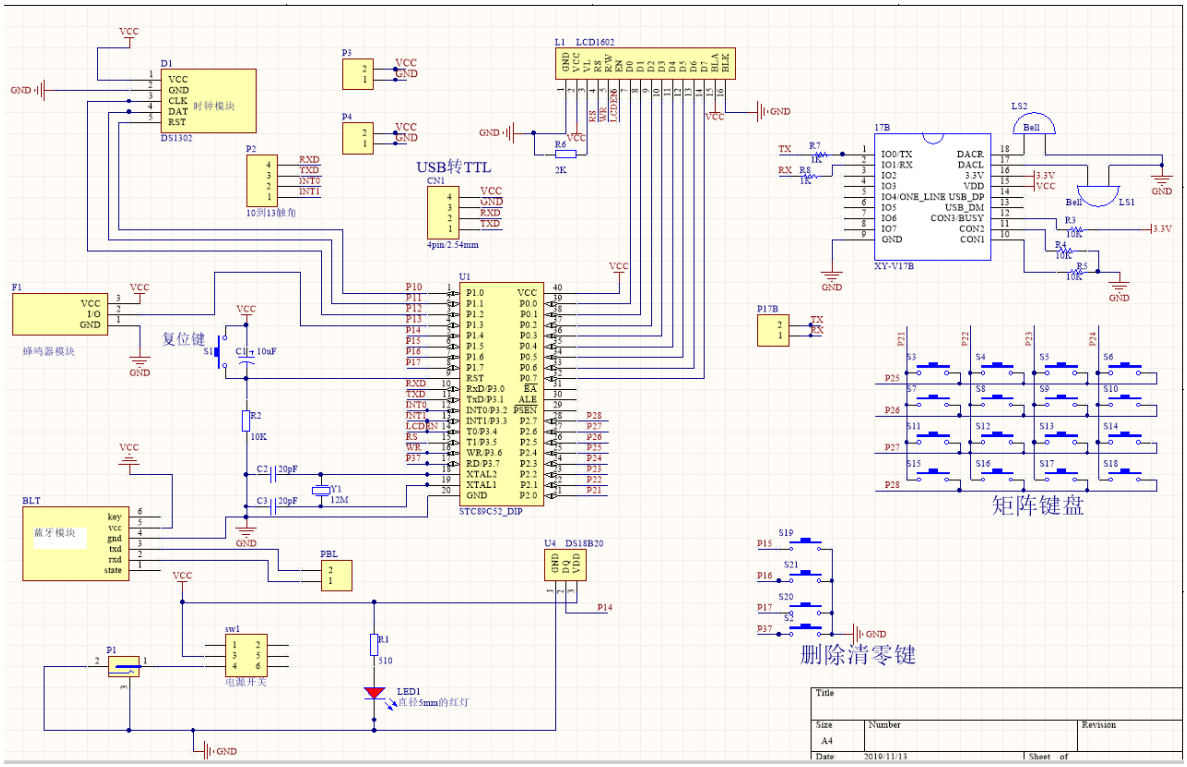
- Second step

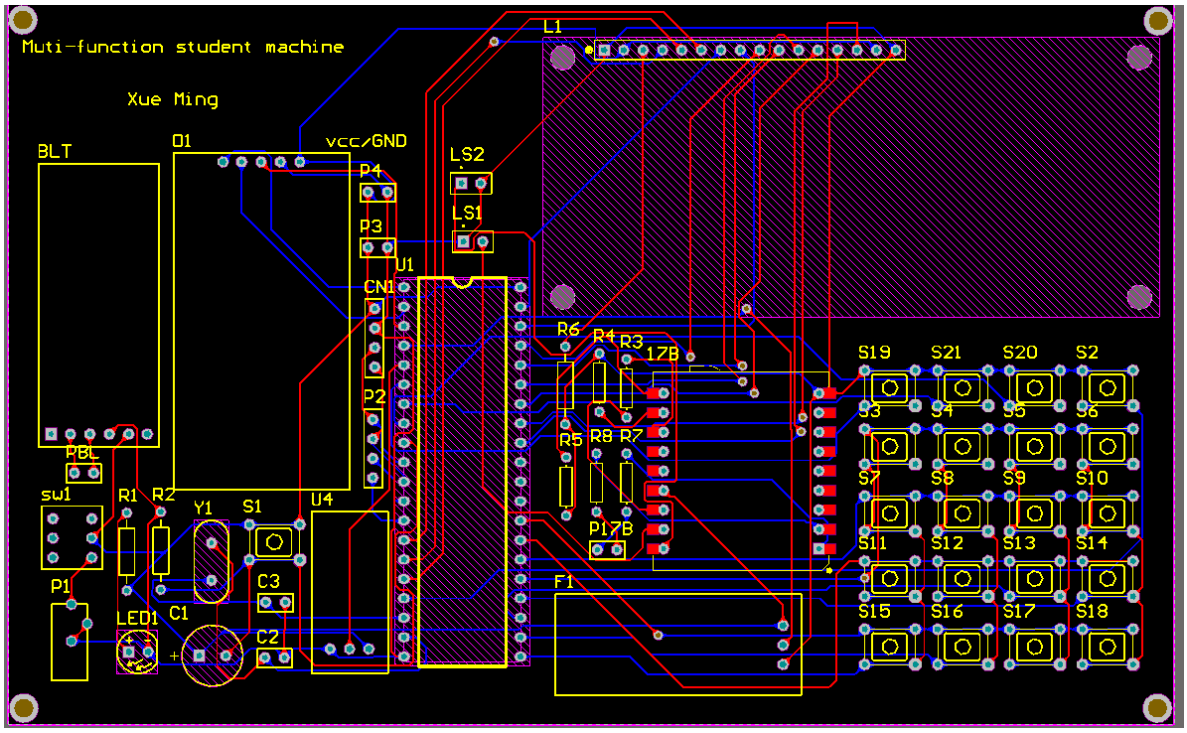


Ⅲ. Project details

1、Schematic diagram and PCB diagram

> Software: Altium Designer 17





2、List of electronic components

Components	Number
Switch	1
11.0592 Crystal oscill	1
Key	21
20pF Capacitor	2
10uF Capacitor	1
LCD Light	1
510 Resistance	1
10k Resistance	4
1k Resistance	2
2k Resistance	1
Power outlet	1
Trumpet	1
Pin header	15
Stc89c52	1
Xy-v17b	1
Ds1302	1
Lcd1602	1
HC-05	1
DS18B20	1
Dupont Line	2

3、Key description

- Interface of calculator

删除一个字符 Delete	切换为时间界面 Switch the page	Music	Next song
1	2	3	+
4	5	6	-
7	8	9	*
.（小数点）	0	0	/

- Interface of time

下一个 Alter the year, month, date...	切换为计算器界面 Calculator		
1	2	3	+（时间加） alter the time
4	5	6	-（时间减） alter the time
7	8	9	*
.（小数点）	0	0	/

IV. Description of the code

> Software: Keil 5

1、Voice Play

> Control the component(xyv17b) by UART communication
>
> Store songs in a SD Card, remember to rename the song as the rule required.

- Initialize the Uart

```
void uart_init()
{
  delay(300);// delay
    TMOD = 0x20; // Timer 1 works in 8-bit automatic overload mode, generate baud rates
    TH1=(unsigned char)(256 - (XTAL / (32L * 12L * baudrate)));
    TL1=(unsigned char)(256 - (XTAL / (32L * 12L * baudrate))); //
    SCON = 0x50;
    PCON = 0x00;
    TR1 = 1;
    ES = 1; // Open receive interrupt
    EA =1;  //
}
```

- Play a song

```
void uart_tx_byte(uchar str)
{
  ES=0; // Close the serial port interrupt
    SBUF=str;
    while(TI==0);
    TI = 0;
  ES=1; // Open...
}
/*uart_tx_string, Send a string*/
void music_1(void)// Play the first song
```

```
{
   uart_tx_byte(0xAA); // Follow the Specified command in the instruction
of the xyv17b
   uart_tx_byte(0x07);
   uart_tx_byte(0x02);
   uart_tx_byte(0x00);
   uart_tx_byte(0x01);
   uart_tx_byte(0xB4);
   for(;g<=3;g++)
  delay(65534);
}
```

- Play the next song

```
void nextt(void)
{
//0xAA, 0x02, 0x00, 0xAC,
   uart_tx_byte(0xAA);
   uart_tx_byte(0x02);
   uart_tx_byte(0x00);
   uart_tx_byte(0xAC);
}
```

- The interrupt function

```
void SerialService() interrupt 4
{
 if(RI)
 {
  RI=0;
  if(mode==0)
    {//
     TestBuff[ArrayIndex]=SBUF; // read the SBUF
    ArrayIndex++;
    }
  if(ArrayIndex==3)
  {
  sflag=1;
  }
 }
}
```

2、You can see other functions codes in .c file