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)

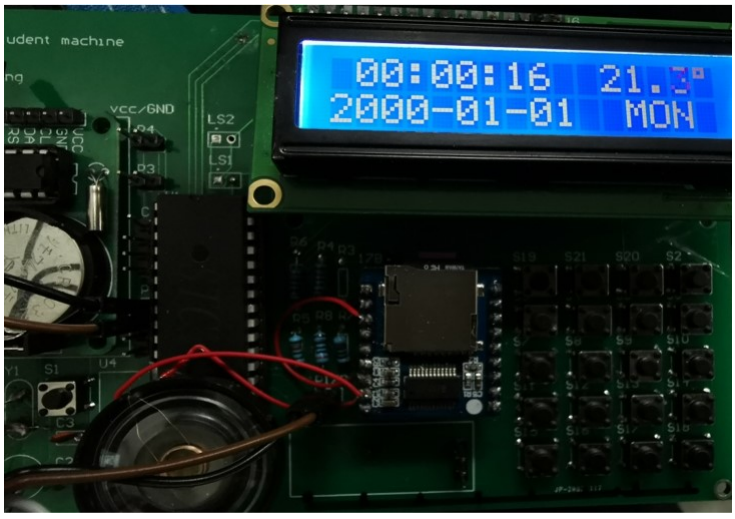
Ⅰ. Product introduction

1、2019.7.20——2019.10.20

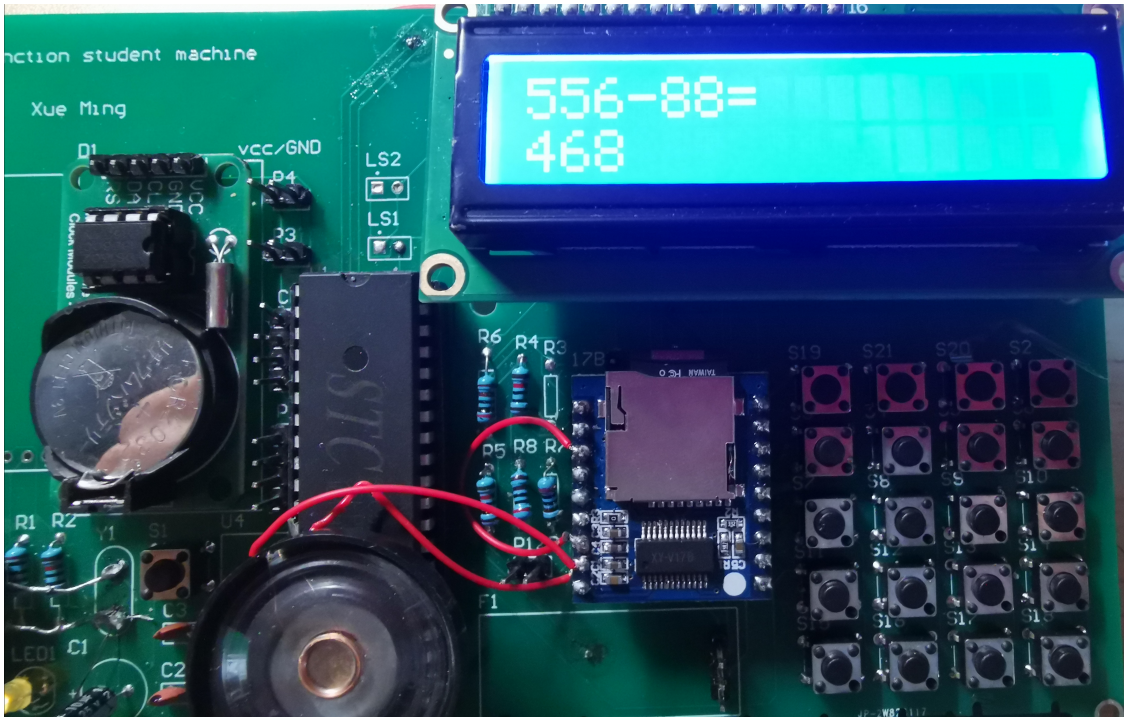
2、You can refer to the demo video and GIF files.

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）

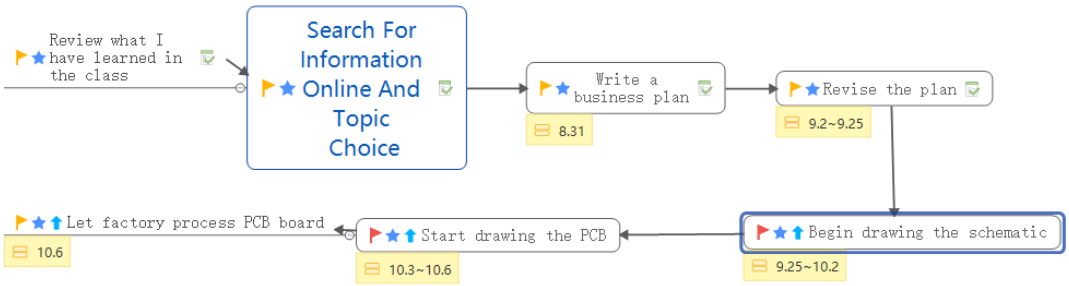


- Music Playing： （contains multiple music, support play and pause music, with the function of manually switching songs）
- The edge is marked with scale, which can be used as a ruler for drawing and measuring.

Ⅱ. Brief description of operation steps

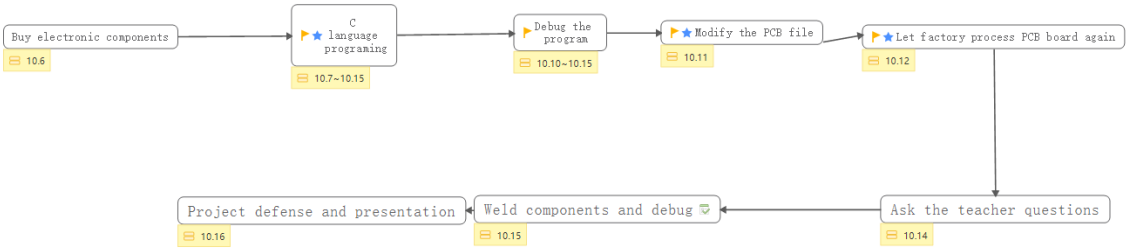
- First step

> Write a business plan to select a topic, draw the schematic and PCB diagram, let a factory to process PCB board



- Second step

> Buy electronic components, C language programing, and weld components on PCB board,etc

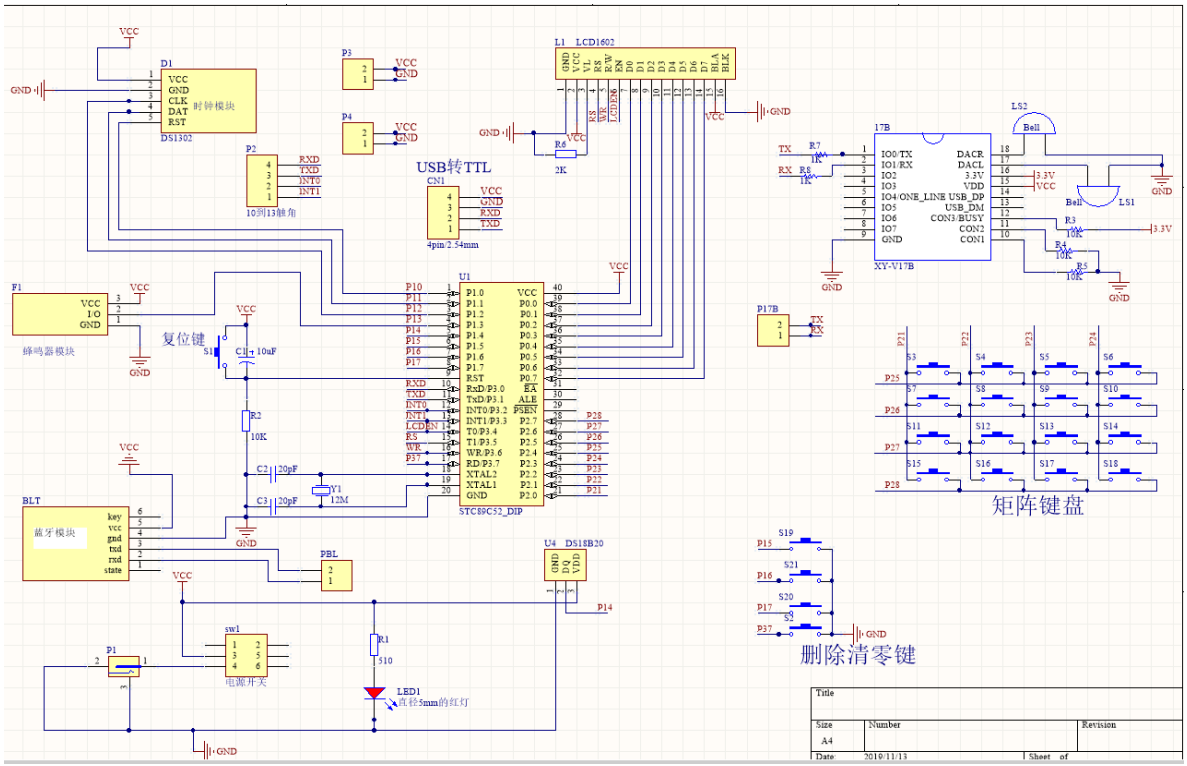


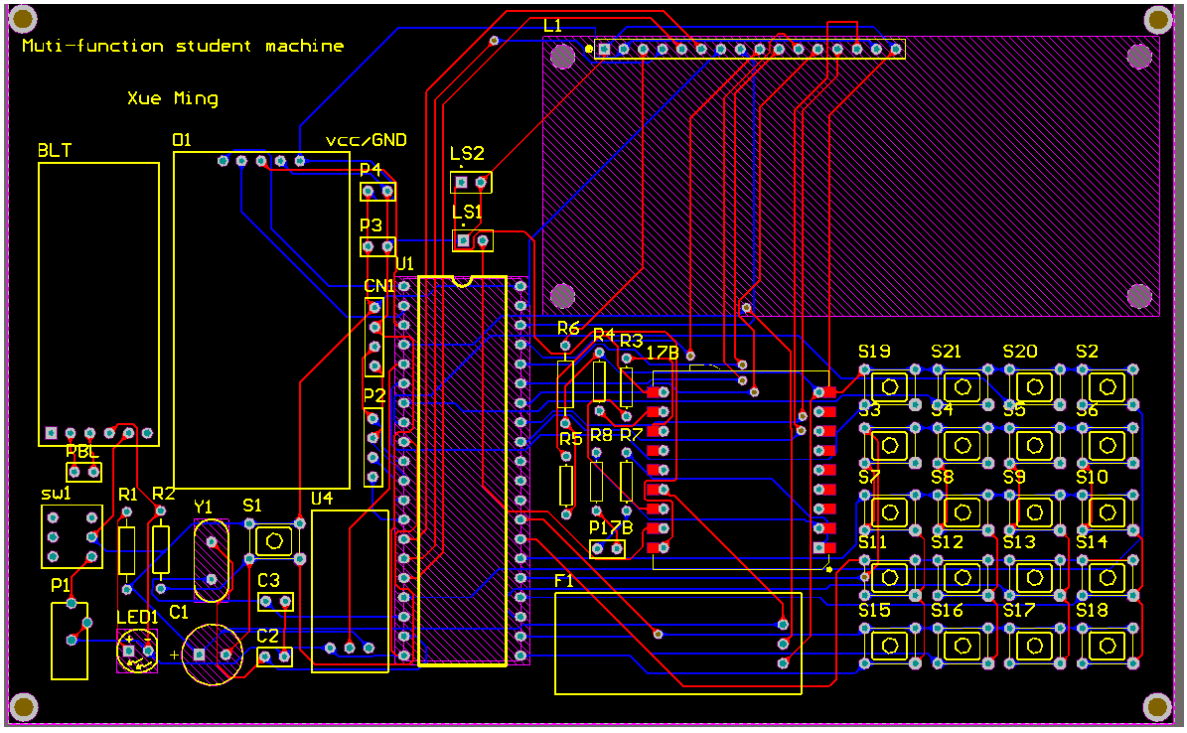
Ⅲ. Project details

1、Schematic diagram and PCB diagram

> Software: Altium Designer 17

See pictures and files in "README.PDF" or "images"





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

> See pictures and files in "README.PDF" or "images"

- 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 music_time()
{
   delay(3000);
   uart_init();
   nextt();
         //while(1);
}
```

- Stop playing (by using the independent button)

```
void keystop() // Stop playing the music
{
    if(k1==0)         // Check whether the key K1 is pressed
    {
        delay(1000);   // debouncing 一般大约 about 10ms
        if(k1==0)    // Determine if the key is pressed again
        {
            delay(3000);
      uart_init();
      stop();
        }
        while(!k1);  // Check whether the button is released
    }
}
```

- Play the next song (by using the independent button)

```
void keynextt() // Play the next music
{
    if(k3==0)         // Check whether the key K1 is pressed
    {
        delay(1000);
        if(k3==0)
        {
            delay(3000);
      uart_init();
      nextt1();
        }
        while(!k3);  // Check whether the key K1 is pressed
    }
}
```

- 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