

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

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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)

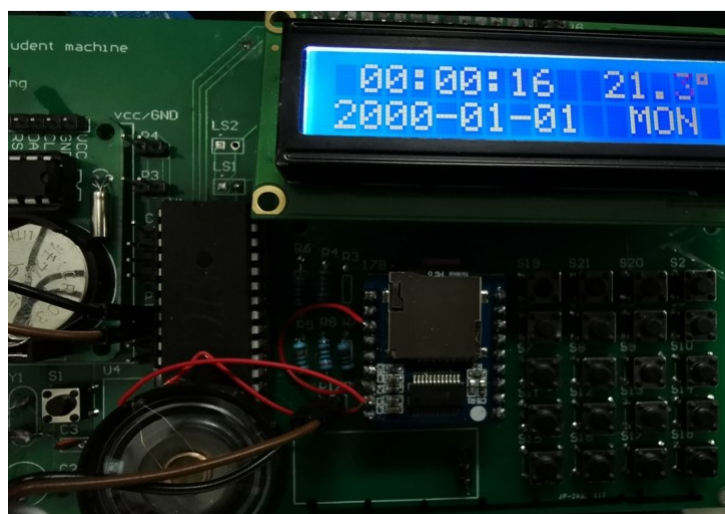
I . Product introduction

1、 2019.7.20——2019.10.20

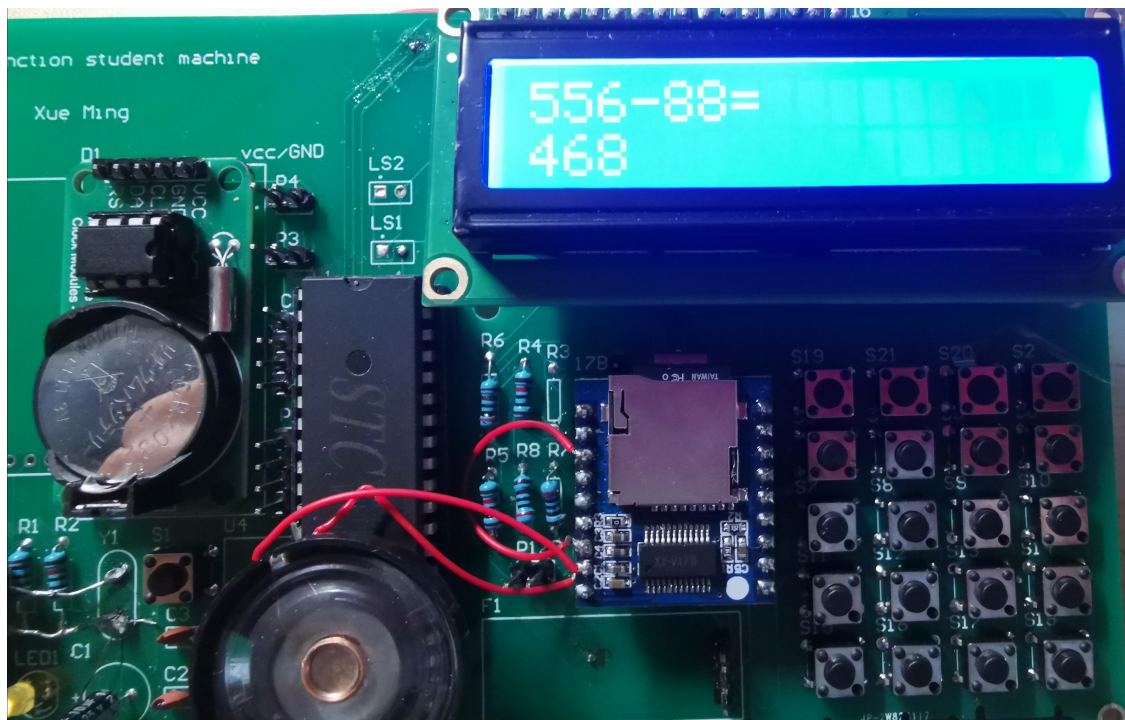
2、 You can refer to the demo video and GIF files.

2、 Product function:

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



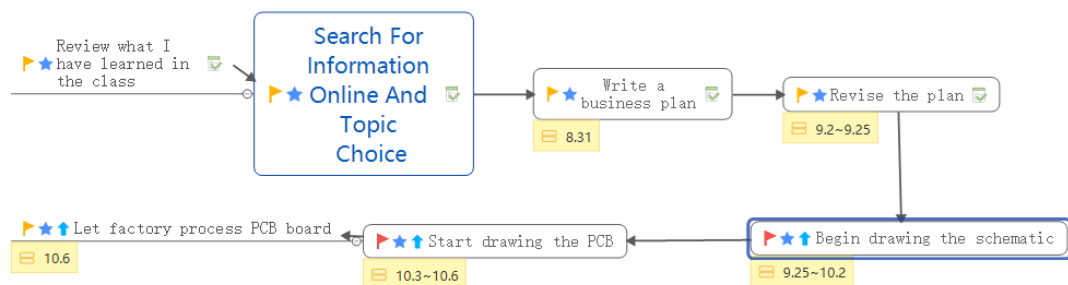
- Calculator: (addition, subtraction, multiplication and division, and decimal point operation, which can be used for continuous numerical calculation)



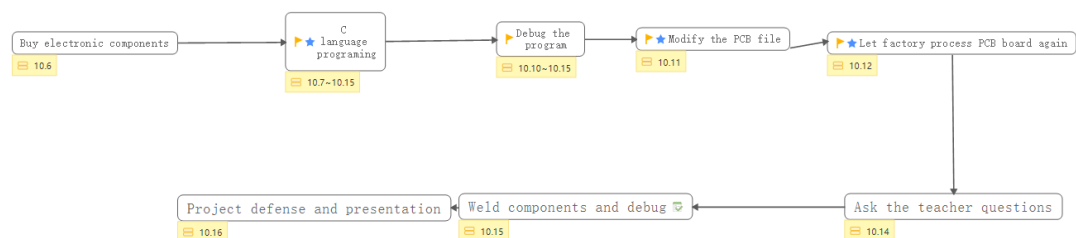
- Music Playing: (contains multiple music, support play and pause music, with the function of manually switching songs)
- The edge is marked with scale, which can be used as a ruler for drawing and measuring

II. Brief description of operation steps

- First step



- Second step



III. Project details

1、Schematic diagram and PCB diagram

Software: Altium Designer 17

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