آزمایش پنجم میکروپروسسور

گروه5:محسن فرج پور، عرفان میرحاجی، امیرمحمدحریمی

قسمت اول:

#include "LPC17xx.h"

#include "timer.h"

#include "adc.h"

#include "gpio.h"

#include "lcd.h"

#include "uart.h"

// variables

char password[] = "%GROUP 05\n";

char received[8];

char i = 0;

// functions

int main(void)

{

//system

SystemInit();

//adc pin direction

GPIO\_PinDirection(P0\_23,INPUT);

GPIO\_PinDirection(P0\_24,INPUT);

GPIO\_PinDirection(P0\_25,INPUT);

GPIO\_PinDirection(P0\_26,INPUT);

//lcd pin direction & init

GPIO\_PinDirection(P0\_0,INPUT);

GPIO\_PinDirection(P0\_1,INPUT);

GPIO\_PinDirection(P0\_2,INPUT);

GPIO\_PinDirection(P0\_4,INPUT);

GPIO\_PinDirection(P0\_5,INPUT);

GPIO\_PinDirection(P0\_6,INPUT);

GPIO\_PinDirection(P0\_7,INPUT);

LCD\_SetUp(P0\_0,P0\_1,P0\_2,P\_NC,P\_NC,P\_NC,P\_NC,P0\_4,P0\_5,P0\_6,P0\_7);

LCD\_Init(2,16);

LCD\_Clear();

//uart2 init

UART2\_Init(9600);

**for (i=0;i<=9;i++)**

**UART2\_TxChar(password[i]);**

**for (i=0;i<=6;i++)**

**received[i] = UART2\_RxChar();**

**LCD\_GoToLine(0);**

**LCD\_Printf("GROUP 05");**

**LCD\_GoToLine(1);**

**LCD\_Printf("pass = %s",received);**

}

رمز عبور:



سوال دوم:

از تابع sprintf برای تبدیل اعداد دسیمال به رشته استفاده شده است، خروجی ها در فیلم موجود است. (زمان ارسال :9.24 دقیقه AM صبح چهارشنبه)



کاارکتر #

#include "LPC17xx.h"

#include "timer.h"

#include "adc.h"

#include "gpio.h"

#include "lcd.h"

#include "uart.h"

#include "stdio.h"

// variables

int voltage = 0;

int light = 0;

int temp = 0;

int humid = 0;

char password[] = "%GROUP 05\n";

char received[8];

char c = 0;

int i = 0;

char message\_ok;

char string\_i[1];

char string\_temp[2];

char string\_light[4];

char string\_volt[4];

char string\_humid[2];

// functions

int voltage\_sensor(void);

int light\_intensity(void);

int temperature\_sensor(void);

int humidity\_sensor(void);

**void myFunction(void)**

**{**

**i++;**

**if(i<=10)**

**{**

**LCD\_GoToLine(0);**

**LCD\_Printf("&05-");**

**UART2\_TxString("&05-");**

**LCD\_Printf("%s-",received);**

**UART2\_TxString(received);**

**UART2\_TxChar('-');**

**LCD\_Printf("%d-",i);**

**sprintf(string\_i, "%d", i);**

**UART2\_TxString(string\_i);**

**UART2\_TxChar('-');**

**LCD\_Printf("%d-",voltage\_sensor());**

**sprintf(string\_volt, "%d", voltage\_sensor());**

**UART2\_TxString(string\_volt);**

**UART2\_TxChar('-');**

**LCD\_Printf("%d-",light\_intensity());**

**sprintf(string\_light, "%d", light\_intensity());**

**UART2\_TxString(string\_light);**

**UART2\_TxChar('-');**

**LCD\_Printf("%d-",temperature\_sensor());**

**sprintf(string\_temp, "%d", temperature\_sensor());**

**UART2\_TxString(string\_temp);**

**UART2\_TxChar('-');**

**LCD\_Printf("%2d",humidity\_sensor());**

**sprintf(string\_humid, "%d", humidity\_sensor());**

**UART2\_TxString(string\_humid);**

**UART2\_TxChar('\n');**

**message\_ok = UART2\_RxChar();**

**LCD\_Printf("%c",message\_ok);**

**}**

**if(i > 10)**

**{**

**}**

**}**

int main(void)

{

//system

SystemInit();

//adc pin direction

GPIO\_PinDirection(P0\_23,INPUT);

GPIO\_PinDirection(P0\_24,INPUT);

GPIO\_PinDirection(P0\_25,INPUT);

GPIO\_PinDirection(P0\_26,INPUT);

//lcd pin direction & init

GPIO\_PinDirection(P0\_0,INPUT);

GPIO\_PinDirection(P0\_1,INPUT);

GPIO\_PinDirection(P0\_2,INPUT);

GPIO\_PinDirection(P0\_4,INPUT);

GPIO\_PinDirection(P0\_5,INPUT);

GPIO\_PinDirection(P0\_6,INPUT);

GPIO\_PinDirection(P0\_7,INPUT);

LCD\_SetUp(P0\_0,P0\_1,P0\_2,P\_NC,P\_NC,P\_NC,P\_NC,P0\_4,P0\_5,P0\_6,P0\_7);

LCD\_Init(2,16);

LCD\_Clear();

// adc init

ADC\_Init();

//uart2 init

UART2\_Init(9600);

for (c=0;c<=9;c++)

UART2\_TxChar(password[c]);

for (c=0;c<=6;c++)

received[c] = UART2\_RxChar();

//timer

TIMER\_Init(TIMER\_1,**10000000**);

TIMER\_AttachInterrupt(TIMER\_1, myFunction);

TIMER\_Start(TIMER\_1);

while(1){}

}

int voltage\_sensor(void)

{

int x;

x = (ADC\_GetAdcValue(0)\*3300/(4096));

return x;

}

int light\_intensity(void)

{

int x;

x = (ADC\_GetAdcValue(1));

x = 10000 - ((x\*9990)/4096);

return x;

}

int temperature\_sensor(void)

{

int x;

x = (ADC\_GetAdcValue(2));

x = (x\*330)/4096;

return x;

}

int humidity\_sensor(void)

{

int x;

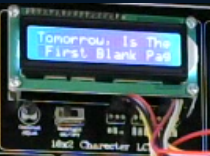
x = ((3300 - ((ADC\_GetAdcValue(3)\*3300)/(4096)))/3300)\*100 ;

return x;

}

سوال سوم:

متن خوانده شده به صورت زیر است (پس از capitalize first letter):



باید مشابه سوال قبل ارسال شده و کاراکتر شارپ دریافت شود: (ارسال 9.19 چهارشنبه صبح AM)

#include "LPC17xx.h"

#include "timer.h"

#include "adc.h"

#include "gpio.h"

#include "lcd.h"

#include "uart.h"

#include "stdio.h"

#define MAX 53

// variables

char password[4] = "$05\n";

char received[MAX];

char i = 0;

char message\_ok;

char str[MAX];

int main(void)

{

//system

SystemInit();

//adc pin direction

GPIO\_PinDirection(P0\_23,INPUT);

GPIO\_PinDirection(P0\_24,INPUT);

GPIO\_PinDirection(P0\_25,INPUT);

GPIO\_PinDirection(P0\_26,INPUT);

//lcd pin direction & init

GPIO\_PinDirection(P0\_0,INPUT);

GPIO\_PinDirection(P0\_1,INPUT);

GPIO\_PinDirection(P0\_2,INPUT);

GPIO\_PinDirection(P0\_4,INPUT);

GPIO\_PinDirection(P0\_5,INPUT);

GPIO\_PinDirection(P0\_6,INPUT);

GPIO\_PinDirection(P0\_7,INPUT);

LCD\_SetUp(P0\_0,P0\_1,P0\_2,P\_NC,P\_NC,P\_NC,P\_NC,P0\_4,P0\_5,P0\_6,P0\_7);

LCD\_Init(2,16);

LCD\_Clear();

//uart2 init

UART2\_Init(9600);

for (i=0;i<=3;i++)

UART2\_TxChar(password[i]);

for (i=0;i<=MAX;i++)

received[i] = UART2\_RxChar();

**for(i=0; received[i]!='\0'; i++)**

**{**

**if(i==0)**

**{**

**if((received[i]>='a' && received[i]<='z'))**

**received[i]=received[i]-32;**

**continue;**

**}**

**if(received[i]==' ')**

**{**

**++i;**

**if(received[i]>='a' && received[i]<='z')**

**{**

**received[i]=received[i]-32;**

**continue;**

**}**

**}**

**else**

**{**

**if(received[i]>='A' && received[i]<='Z')**

**received[i]=received[i]+32;**

**}**

**}**

/\*LCD\_GoToLine(0);

for(i=32;i<=MAX;i++)

{

LCD\_Printf("%c",received[i]);

}\*/

**UART2\_TxString("@05:");**

**UART2\_TxString(received);**

**UART2\_TxChar('\n');**

**message\_ok=UART2\_RxChar();**

**LCD\_Printf("%c", message\_ok);**

}

