CS224 / Lab 7.

Sec 2 Sec 2

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**PART2\_B**

1. **SFRs**

I-O Devices

A DC motor->PORTA, TRISA, LATA

2 Button Switches ->PORTE, TRISE, LATE

**b) code**

#include <P32.xxxx.h>

//DC motor

// J4: Control1 : 10, MOTOR1:3

// Control2 : 2, MOTOR2:6

//Push Buttons

//J1 Button0 : 1

// Button1 : 10

void main() {

AD1PCFG = 0xFFFF; // Configure AN pins as digital I/O

JTAGEN\_bit = 0; // Disable JTAG

TRISE = 0xFFFF //portE inputs(switch buttons)

TRISA = 0x0000 //portA outputs for DC motor

LATA = 0Xffff; //default values

LATE = 0X0000; //default values

while(1) {

if(PORTEbits.RB0 & PORTEbits.RB1) { //if you push two button at the same time, no turn

PORTAbits.CONTROL1 = 0;

PORTAbits.CONTROL2 = 0;

}

else{

PORTAbits.CONTROL1 = PORTEbits.RB0; //if you push button 0(RB0) turn counter-clockwise

PORTAbits.CONTROL2 = PORTEbits.RB1; //if you push button 1(RB1) turn clockwise

}

}

}

**PART2\_C**

**c) SFRs**

I-O Devices

Seven Segment Module--> > D->TRISA, PORTA,

AN->TRISE, PORTE

**d) code**

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Configuration for the code below:

Connect portA to J1 Port of 4 Digit Seven Segment Module

Jumpers of portA are : 5V, pull down ( top one to left, other to right )

Connect portE to J2 Port of 4 Digit Seven Segment Module

Jumpers of portE are : 5V, pull down ( top one to left, other to right )

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// Hexadecimal values for digits in 7 segment

unsigned char binary\_pattern[]={0x3F,0x06,0x5B,0x4F,0x66,0x6D,0x7D,0x07,0x7F,0x6F};

void main() {

AD1PCFG = 0xFFFF; // Configure AN pins as digital I/O

JTAGEN\_bit = 0; // Disable JTAG

TRISA = 0x00; //portA is output to D

TRISE = 0X00; //portE is output to AN

int i = 1;

while(1)

{

//Digit1

PORTA=binary\_pattern[i % 10];

PORTE=0x01;

Delay\_ms(1);

// Digit 2

PORTA=binary\_pattern[(i + 1) % 10]; // Put 2 to the second digit

PORTE=0x02; // Open second digit

Delay\_ms(1);

// Digit 3

PORTA=binary\_pattern[(i + 2) % 10];

PORTE=0x04;

Delay\_ms(1);

// Digit 4

PORTA=binary\_pattern[(i + 3) % 10];

PORTE=0x08;

Delay\_ms(1);

Delay\_ms(1000); // wait 1 second

i++;

}

}//main

**PART2\_D**

**e) SFRs**

**f) code**