**Expt No. 5 KEYPAD INTERFACING**

#include<LPC21xx.h>

#include<ucos.h>

/\*#include<lcd1.h>\*/

#define KEYPORTDIR \*IODIR0

#define KEYPORTSET \*IOSET0

#define KEYPORTCLR \*IOCLR0

#define rowpattern 0x04

#define colpattern 0x40

//unsigned char numarray[]={0x2d,0x3f,0x3b,0x79,0x66,0x6d,0x7d,0x07,0x7f,0x6f};

unsigned char numarray[]={0x3f,0x06,0x5b,0x4f,0x66,0x6d,0x7d,0x07,0x7f,0x6f};

static char num[4][4]={

 {0,4,7,0},

 {2,5,8,0},

 {3,6,9,0},

 {0,0,0,0}

 };

void delay(long y)

{

 long x=0;

 while(x!=y)

 x++;

}

// to print given number on 7-segment display

void putnum\_7seg(unsigned char n)

{

 \*IOSET1 = (numarray[n]<<16) ;

 //\*IODIR1 = 0xff0000; // segment pins as output

 //\*IOPIN1 = (unsigned int) (numarray[n]<<16) ;

}

// clear 7 segment display

void clear\_7seg()

{

 \*IOCLR1 = 0X00FF0000; //Clear Data Bit

 //\*IODIR1 = 0xff0000; // segment pins as output

 //\*IOPIN1 = (unsigned int) (0x00<<16) ;

}

unsigned char detectkey()

{

 int col=0,row=0,x;

 \*IODIR0 = \*IODIR0 | 0x03fc;

xyz: for(col=0;col<4;col++)

 {

 \*IOCLR0 = \*IOCLR0 | (~(0x0200>>col));

 \*IOSET0 = \*IOSET0 | (0x0200>>col);

 x= (\*IOPIN0 & 0x3c)>>2;

 if(x == 0x01)

 {

 row = 0;

 q\_printf("\n Key from %d th row and %d column",col+1, row+1);

 return num[row][col];

 }

 if(x == 0x02)

 {

 row=1;

 q\_printf("\n Key from %d th row and %d column",col+1,row+1);

 return num[row][col];

 }

 if(x == 0x04)

 {

 row = 2;

 q\_printf("\n Key from %d th row and %d column",col+1,row+1);

 return num[row][col];

 }

 if(x == 0x08)

 {

 row = 3;

 q\_printf("\n Key from %d th row and %d column",col+1,row+1);

 return num[row][col];

 }

 }

 goto xyz;

}

void debounce()

{

 unsigned int i=10000;

 while(i<=10000)

 i--;

}

unsigned int getch\_keypadto7seg()

{

 unsigned char temp,nexttemp;

 temp = detectkey();

 debounce();

 nexttemp = detectkey();

 if( nexttemp == temp)

 return nexttemp;

 else

 return 0;

}

int main()

{

 unsigned char ch;

 // write your program here

 \*PINSEL2= \*PINSEL2 & 0xFFFFFFF3;

 \*IODIR1 = 0X017F0000;

 \*IODIR0 = 0x10000000;

 \*IOSET0 = 0x10000000; //select Seven Segment S1 ,S3,S4

 \*IOSET1 = 0X01000000; //Select Seven Segment S2

 \*IOCLR1 = 0X00FF0000; //Clear Data Bit

 while(1)

 {

 ch= getch\_keypadto7seg();

 clear\_7seg();

 putnum\_7seg(ch);

 }

 return 0;

}