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\* automation\_of\_restaurant\_menu\_ordering.c

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#include <util/delay.h>

#include <avr/io.h>

#define Rows PORTC //Pc0,pc1,pc2,pc3

#define Columns PIND //PD4,PD5,PD6

unsigned char upperNibble, keyCode, keyPressed,k,c[6];

char press\_key()

{

unsigned char i;

DDRC = 0x0f;

PORTC=0x0f;

PORTD = 0xf0;

k=1;

while(k==1)

{

upperNibble = 0xff;

for(i=0; i<4; i++)

{

\_delay\_ms(1);

Rows = ~(0x01 << i);

\_delay\_ms(1);

upperNibble = Columns| 0x0f;

if (upperNibble != 0xff)

{

\_delay\_ms(20); //key debouncing delay

upperNibble = Columns | 0x0f;

if(upperNibble == 0xff) goto OUT;

keyCode = (upperNibble & 0xf0) | (0x0f & ~(0x01 << i));

while (upperNibble != 0xff)

upperNibble = Columns | 0x0f;

\_delay\_ms(20); //key debouncing delay

switch (keyCode)

{

case (0xee): keyPressed = ‘1’;k=0;

break;

case (0xed): keyPressed = ‘4’;k=0;

break;

case (0xeb): keyPressed = ‘7’;k=0;

break;

case (0xe7): keyPressed = ‘\*’;k=0;

break;

case (0xde): keyPressed = ‘2’;k=0;

break;

case (0xdd): keyPressed = ‘5’;k=0;

break;

case (0xdb): keyPressed = ‘8’;k=0;

break;

case (0xd7): keyPressed = ‘0’;k=0;

break;

case (0xbe): keyPressed = ‘3’;k=0;

break;

case (0xbd): keyPressed = ‘6’;k=0;

break;

case (0xbb): keyPressed = ‘9’;k=0;

break;

case (0xb7): keyPressed = ‘#’;k=0;

break;

case (0x7e): keyPressed = ‘/’;k=0;

break;

case (0x7d): keyPressed = ‘X’;k=0;

break;

case (0x7b): keyPressed = ‘-‘;k=0;

break;

case (0x77): keyPressed = ‘+’;k=0;

break;

default : keyPressed = ‘X’;k=0;

}

OUT:;

}

}

}

return keyPressed;

}

void uart\_init()

{

UCSRC=(1<<URSEL)|(1<<UCSZ1)|(1<<UCSZ0);

UCSRB=(1<<RXEN)|(1<<TXEN);

UBRRL=0x33; // baud rate(51 for 9600)

}

void tx\_data(unsigned char c)

{

UDR=c;

while(!(UCSRA & (1<<TXC)));

UCSRA=(1<<TXC);

}

unsigned char rx\_data()

{

while ( !(UCSRA & (1<<RXC)) );

UCSRA=(0<<RXC);

return UDR;

}

void Tx\_String(unsigned char \*str)

{

while(\*str)

{

tx\_data(\*str);

str++;

\_delay\_ms(100);

}

}

int main(void)

{

uart\_init();

unsigned char x,y[4];

int i,j=0;

\_delay\_ms(100);

while(1)

{

x=press\_key();

if((x)!=’#’)

{

y[j]=x;

++j;

}

else if(x==’#’)

{

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

tx\_data(y[i]);

\_delay\_ms(10);

}

}

}