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/*
 * Keyb4x4.c
 *
 * Created: 26/10/2015 3:07:28 pm
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 */

#include <avr/io.h>
#include <util/delay.h>

unsigned char i1;
unsigned char line;
unsigned char data;

void Keyb (void) //Keyboard routine
{
    line = 1;
    for (i1 = 0; i1 < 4; i1++)
    {
        PORTA = ~line;
        line = line << 1;
        while (PINA < 0b11101111)
        {
            _delay_ms (5);
            switch (PINA)
            {
                case 0b11101110: //Button 1 pressed
                    data = 1;
                    while (PINA == 0b11101110); //Wait if button is still pressed
                    break;

                case 0b11101101: //Button 4 pressed
                    data = 4;
                    while (PINA == 0b11101101); //Wait if button is still pressed
                    break;

                case 0b11101011: //Button 7 pressed
                    data = 7;
                    while (PINA == 0b11101011); //Wait if button is still pressed
                    break;

                case 0b11100111: //Button * pressed
                    data = 14;
                    while (PINA == 0b11100111); //Wait if button is still pressed
                    break;

                case 0b11011110: //Button 2 pressed
                    data = 2;
                    while (PINA == 0b11011110); //Wait if button is still pressed
                    break;

                case 0b11011101: //Button 5 pressed
                    data = 5;

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while (PINA == 0b11011101);           //Wait if button is still pressed
break;

case 0b11011011:                       //Button 8 pressed
data = 8;
while (PINA == 0b11011011);         //Wait if button is still pressed
break;

case 0b11010111:                       //Button 0 pressed
data = 0;
while (PINA == 0b11010111);         //Wait if button is still pressed
break;

case 0b10111110:                       //Button 3 pressed
data = 3;
while (PINA == 0b10111110);         //Wait if button is still pressed
break;

case 0b10111101:                       //Button 6 pressed
data = 6;
while (PINA == 0b10111101);         //Wait if button is still pressed
break;

case 0b10111011:                       //Button 9 pressed
data = 9;
while (PINA == 0b10111011);         //Wait if button is still pressed
break;

case 0b10110111:                       //Button # pressed
data = 15;
while (PINA == 0b10110111);         //Wait if button is still pressed
break;

case 0b01111110:                       //Button A pressed
data = 10;
while (PINA == 0b01111110);         //Wait if button is still pressed
break;

case 0b01111101:                       //Button B pressed
data = 11;
while (PINA == 0b01111101);         //Wait if button is still pressed
break;

case 0b01111011:                       //Button C pressed
data = 12;
while (PINA == 0b01111011);         //Wait if button is still pressed
break;

case 0b01110111:                       //Button D pressed
data = 13;
while (PINA == 0b01110111);         //Wait if button is still pressed
break;
}

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    }  
  }  
}  
  
int main (void)  
{  
  DDRA = 0b00001111;           //Port A upper inputs, lower outputs (keyboard)  
  PORTA = 0b11111111;        //Enable pull up resistors on inputs, send 1 to outputs (keyboard)  
  DDRC = 0b11111111;        //Port C outputs (LEDs)  
  while (1)  
  {  
    Keyb ();                 //Check keyboard  
    PORTC = ~data;          //Send key to LEDs  
  }  
}
```