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/*
 * project3.c
 *
 * Created: 05-03-2020 12:54:56
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 */


#include<avr/io.h>
#define F_CPU 1000000UL
#include<util/delay.h>
//#include "lcd_.h"
#define lcd PORTD
#define rs  0
#define rw  1
#define en  2

void lcd_init()
{
	lcd_command(0x02);
	lcd_command(0x28);
	lcd_command(0x06);
	lcd_command(0x0c);
}
void lcd_command(unsigned char com)
{
	lcd = com & 0xF0;		//send higher bit

	lcd &= ~(1<<rs);		//rs =0
	lcd &= ~(1<<rw);		//rw =0
	lcd |=(1<<en);			//en =1
	_delay_ms(1);
	lcd &= ~(1<<en);		//en =0
	_delay_ms(1);

	lcd = (com<<4) & 0xF0;		//send lower bit

	lcd &= ~(1<<rs);		//rs =0
	lcd &= ~(1<<rw);		//rw =0
	lcd |=(1<<en);			//en =1
	_delay_ms(1);
	lcd &= ~(1<<en);		//en =0
	_delay_ms(1);
}
void lcd_data(unsigned char value)
{

	lcd =value & 0xF0;			//send higher bit

	lcd |= (1<<rs);			//rs =1
	lcd &= ~(1<<rw);		//rw =0
	lcd |=(1<<en);			//en =1
	_delay_ms(1);
	lcd &= ~(1<<en);		//en =0
	_delay_ms(1);


	lcd =(value<<4) & 0xF0;		//send lower bit

	lcd |= (1<<rs);			//rs =1
	lcd &= ~(1<<rw);		//rw =0
	lcd |=(1<<en);			//en =1
	_delay_ms(1);
	lcd &= ~(1<<en);		//en =0
	_delay_ms(1);
}

void lcd_string(unsigned char *str)
{
	char i=0;
	while(str[i]!='\0')
	{
		lcd_data(str[i]);
		i++;
	}
}

void lcd_number(unsigned int value)
{
	unsigned int d=0;
	lcd_command(0x04);		//auto decrement mode

	if(value==0)
	lcd_data(value+48);

	while(value!=0)
	{
		d=value%10;
		lcd_data(d+48);
		value=value/10;
	}
	lcd_command(0x06);		//auto increment mode
}

void adc_init()
{

	ADMUX|=(1<<REFS0);
	ADCSRA|=(1<<ADEN)|(1<<ADIE)|(1<<ADPS2)|(1<<ADPS1);
}
int acd_read(int ch)
{
	ch &= 0b00001111;
	ADMUX = 0x40|ch;
	ADCSRA|=(1<<ADSC);
	while(!(ADCSRA &(1<<ADIF)));
	return ADC;


}
void main()
{
	DDRB=0xFF;
	DDRD=0xFF;
	DDRC=0x00;

	int x=0,y=0;
	lcd_init();
	adc_init();
	lcd_command(0x01);
	while(1)
	{
		x=acd_read(0);
		y=acd_read(1);
		lcd_command(0x89);
		lcd_number(x);
		_delay_ms(1000);

		if(x>=30 && x<=50 && y>=75 && y<=95)
		{
			lcd_command(0x89);
			lcd_string("forward");
			PORTB=0x05;

		}
		if(x>=30&&x<=50&&y>=20&&y<=45)
		{
			lcd_command(0xc6);
			lcd_string("backward");
			PORTB=0x0A;

		}
		if(x>0&&x<=30&&y>=50&&y<=70)
		{
			lcd_command(0x80);
			lcd_string("left");
			PORTB=0x01;

		}
		if(x>50&&x<=80&&y>=50&&y<=70)
		{
			lcd_command(0x80);
			lcd_string("right");
			PORTB=0x04;

		}
		if(x>30&&x<=50&&y>=50&&y<=70)
		{
			lcd_command(0x80);
			lcd_string("stop");
			PORTB=0x00;

		}

	}}
```