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/*
 * Blink a LED and use the function from the delay library.
 * ATmega328P (Arduino Uno), 16 MHz, AVR 8-bit Toolchain 3.6.2
 *
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 *
 */

/* Github ----- */
// https://github.com/venca611/Digital-electronics-2

/* Defines ----- */
#define LED_GREEN PB5 // AVR pin where green LED is connected
#define SHORT_D 200 // Delay in milliseconds
#define LONG_D SHORT_D*3 // Delay in milliseconds

#ifndef F_CPU
#define F_CPU 16000000 // CPU frequency in Hz required for delay func
#endif

/* Includes ----- */
#include <util/delay.h> // Functions for busy-wait delay loops
#include <avr/io.h> // AVR device-specific IO definitions
#include <string.h>

/* Variables ----- */
/* Function prototypes ----- */
void blink(char);
void morse_char(char);
void morse_code(char *);

/* Functions ----- */
void blink(char charD){
    PORTB = PORTB ^ (1<<LED_GREEN);
    if(charD == 'S')
        _delay_ms(SHORT_D); // tecka
    else
        _delay_ms(LONG_D); // carka

    PORTB = PORTB ^ (1<<LED_GREEN);
    _delay_ms(SHORT_D);
    return;
}

void morse_char(char character){
    switch(character){
        case 'D': blink('L'); blink('S'); blink('S'); break;
        case 'E': blink('S'); break;
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        case '2': blink('S'); blink('S'); blink('L'); blink('L'); blink('L');  
            break;  
    }  
    _delay_ms(LONG_D);  
    return;  
}  
  
void morse_code(char *name){  
    for(int i = 0; i < strlen(name); i++)  
        morse_char(name[i]);  
    return;  
}  
  
/**  
 * Toggle one LED and use the function from the delay library.  
 */  
int main(void)  
{  
    // Set pin as output in Data Direction Register  
    // DDRB = DDRB or 0010 0000  
    DDRB = DDRB | (1<<LED_GREEN);  
  
    // Set pin LOW in Data Register (LED off)  
    // PORTB = PORTB and 1101 1111  
    PORTB = PORTB & ~(1<<LED_GREEN);  
  
    char *name = "DE2";  
    // Infinite loop  
    while (1)  
    {  
        morse_code(name);  
        for(int i = 0; i < 7; i++)  
            _delay_ms(SHORT_D);  
    }  
    // Will never reach this  
    return 0;  
}  
  
/* Interrupt routines -----*/
```