



Ivo-Toceny-222683 readme 03 done ...

10 seconds ago History

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GpioLed

yesterday



images

10 seconds ago



README.md

10 seconds ago



README.md



Lab 3: Ivo Točený

Link to your Digital-electronics-2 GitHub repository:

<https://github.com/Ivo-Toceny-222683/Digital-electronics-2/tree/main/Labs/03-gpio>

Data types in C

1. Complete table.

Data type	Number of bits	Range	Description
uint8_t	8	0, 1, ..., 255	Unsigned 8-bit integer
int8_t	8	-128, ..., 127	Signed 8-bit integer
uint16_t	16	0, ..., 65 535	Unsigned 16-bit integer
int16_t	16	-32 768, ..., 32 767	Signed 16-bit integer
float	32	-3.4e+38, ..., 3.4e+38	Single-precision floating-point

Data type	Number of bits	Range	Description
void	0	-	Empty data type, cant have any size

GPIO library

1. In your words, describe the difference between the declaration and the definition of the function in C.
 - o Function declaration - used in header files (.h) to tell compiler something like this function/variable/class exist with this type. In short, Its function, but without its body.
 - o Function definition - Body of that function is DEFINED in .c files, where the complete, for example, function is.
2. Part of the C code listing with syntax highlighting, which toggles LEDs only if push button is pressed. Otherwise, the value of the LEDs does not change. Use function from your GPIO library. Let the push button is connected to port D:

```
// Configure Push button at port D and enable internal pull-up resistor
// WRITE YOUR CODE HERE

// Green LED at port B
GPIO_config_output(&DDRB, LED_GREEN);
GPIO_write_low(&PORTB, LED_GREEN);

// Configure the second LED at port C
GPIO_config_output(&DDRC, LED_RED);
GPIO_write_high(&PORTC, LED_RED);

// Configure Push button at port D and enable internal pull-up resistor
GPIO_config_input_pullup(&DDRD, BUTTON);

// Infinite loop
while (1)
{
    // WRITE YOUR CODE HERE
    if((bit_is_clear(&PIND, BUTTON))
    {
        GPIO_toggle(&PORTB, LED_GREEN);
        GPIO_toggle(&PORTC, LED_RED);
        loop_until_bit_is_set(&PIND, BUTTON);
    }
}
```

Traffic light

1. Scheme of traffic light application with one red/yellow/green light for cars and one red/green light for pedestrians. Connect AVR device, LEDs, resistors, one push button (for pedestrians), and supply voltage. The image can be drawn on a computer or by hand. Always name all components and their values!

