Lab 3: David Sladkowski

Link to your `Digital-electronics-2` GitHub repository:

(https://github.com/david3891/Digital-electronic-2)

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
`void`	-	-	Function does not return a value

GPIO library

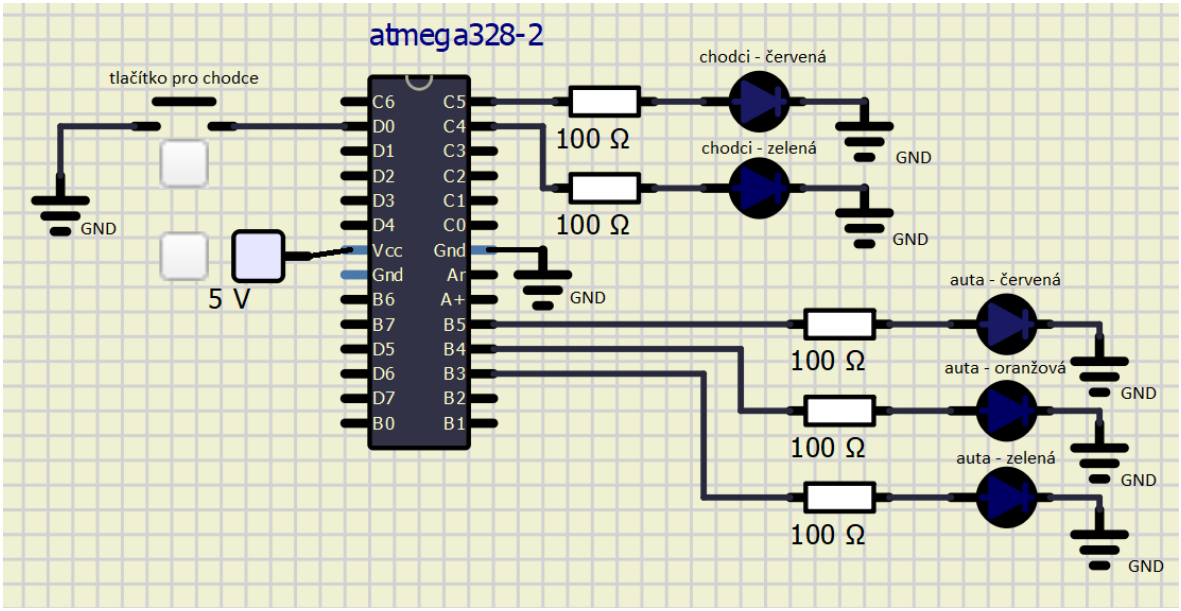
1. In your words, describe the difference between the declaration and the definition of the function in C.
    - Function declaration - Deklarace funkce je prototyp, který určuje název funkce, návratové typy a parametry bez těla funkce.
    - Function definition - Definice funkce na druhé straně odkazuje na skutečnou funkci, která určuje název funkce, návratové typy a parametry s tělem funkce.
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
GPIO_read(&PORTD, BUTTON);
GPIO_config_input_pullup(&DDRD, BUTTON);

// Infinite loop
while (1)
{
    if(bit_is_clear(PIND, BUTTON))
    {
       _delay_ms(BLINK_DELAY);
       PORTB = PORTB ^ (1<<LED_GREEN);
       PORTC = PORTC ^ (1<<LED_RED);
       _delay_ms(BLINK_DELAY);
       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!


atmega328-2
tlačítko pro chodce
GND
5 V
C6
D0
D1
D2
D3
D4
Vcc
Gnd
B6
B7
D5
D6
D7
B0
C5
C4
C3
C2
C1
C0
Gnd
Ar
A+
B5
B4
B3
B2
B1
100 Ω
100 Ω
chodci - červená
chodci - zelená
GND
GND
GND
100 Ω
100 Ω
100 Ω
auta - červená
auta - oranžová
auta - zelená
GND
GND
GND