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Digital-electronics-2 / Labs / 03-gpio / GPIOLed / README.md



xtomes07 Update README.md



👤 1 contributor

☰ 52 lines (36 sloc) | 1.99 KB

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Lab 3: YOUR_FIRSTNAME FAMILYNAME

Link to my Digital-electronics-2 GitHub repository:

<https://github.com/xtomes07/Digital-electronics-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,...,127	Signed 8-bit Integer
uint16_t	16	0, 1, ...,65535	Unsigned 16-bit integer
int16_t	16	-32768, -32767, ..., 32767	Signed 16-bit integer
float	32	-3.4e+38, ..., 3.4e+38	Single-precision floating-point
void	0	0	No return type for function / generic pointer

GPIO library

1. In your words, describe the difference between the declaration and the definition of the function in C.
 - Function declaration - prototyp funkce používaný k informování kompilátoru, že s těmito parametry bude existovat taková funkce
 - Function definition - skutečný kód funkce, která bude spuštěna
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
GPIO_config_input_pullup(&DDRD, BUTTON);

// Infinite loop
while (1)
{
    // Pause several milliseconds
    if (GPIO_read(&PIND, BUTTON) == 0) {
        _delay_ms(BLINK_DELAY);
        PORTC ^= (1 << LED_RED);
        PORTB ^= (1 << LED_GREEN);
    }
}
```

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!

