ENGINE

Teaching online electronics, microcontrollers and programming in Higher Education

Output 2: Online Course for Microcontrollers: syllabus, open educational resources

Open project leaflet: Module_2-2 pins as inputs

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Declaration

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Executive summary

This file contains open projects.

Chapter 1: **Open project 1**

Control of 4 LEDs with 4 switches connected on the same parallel port

Draw the schematic of the Figure 1 in the Proteus Design Suite

- Write a program so that:
    - When D7="1" and D3="0" then the LEDs D3 and D2 are ON
    - When D7="0" and D1="1" then the LEDs D1 and D0 are ON
    - In all the other cases all four LEDs are ON
- Check that the value of the amperemeter is that predicted by the voltage drop across the LED as it is shown on the voltmeter
- Change the LEDs with yellow LEDs
    - What is the voltage drop across the yellow LEDs when they are ON?
    - What is the current through the yellow LEDs when they are ON?
- Make a search on the voltage drop of LEDs with different colors

Tip1. *The PORTD must be defined half input half output*

Tip2. *The state of an input pin can be read with the function:*
input (PIN_X)

Tip3*. The state of an output pin can be set with the function:*
output_high(PIN_X)

Tip4*. The state of an output pin can be cleared with the function:*
output_low(PIN_X)

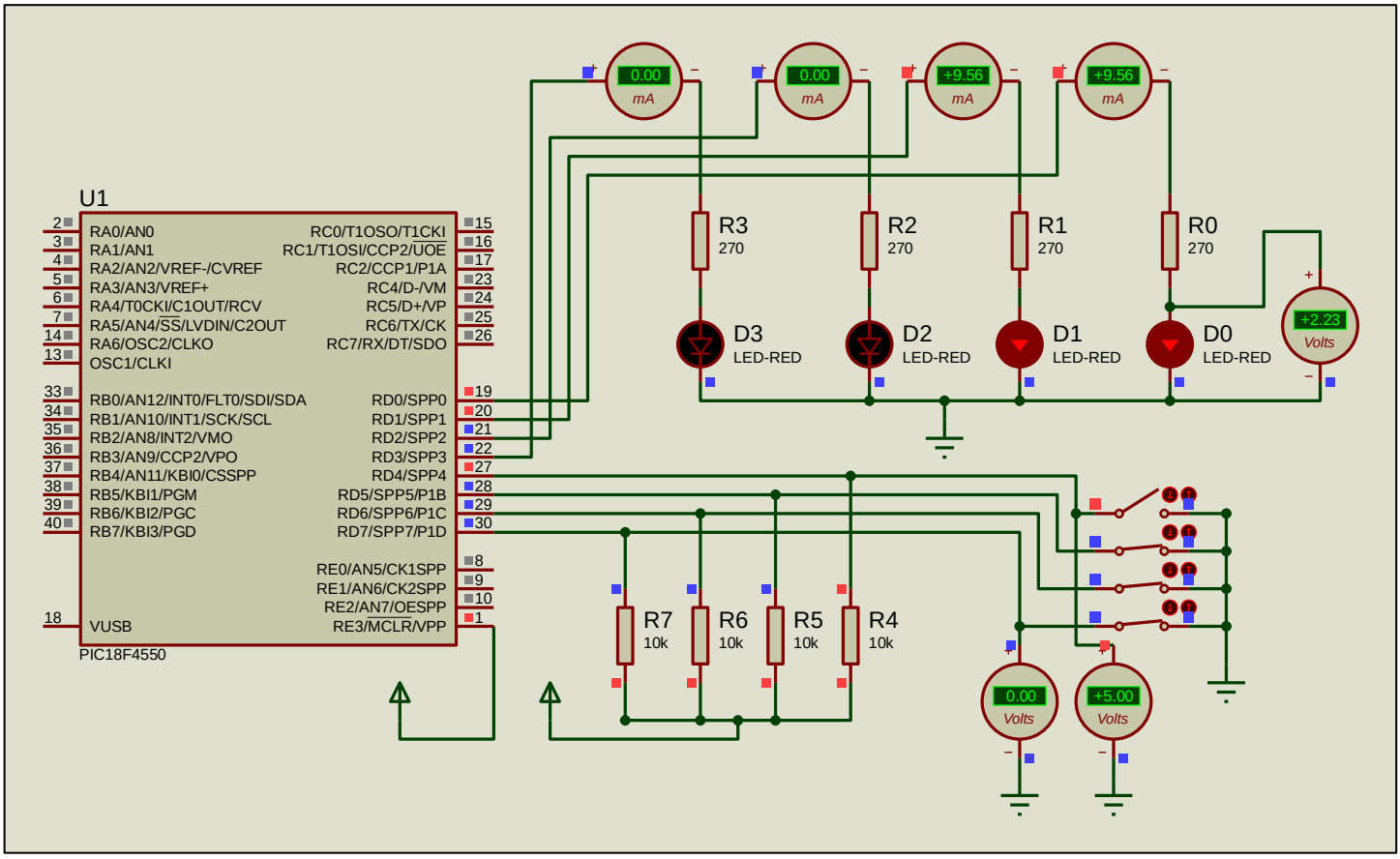

Figure 1. LEDs and switches connected on the same parallel port