

LAB 8

GPIOS

OBJECTIVES:

- To connect LEDs and Switches to the pins of the MCU and write programs with the I/O pins.

REFERENCE:

- Mazidi & Naimi “The STM32F103 Arm Microcontroller and Embedded Systems,” Chapter 8

MATERIALS:

- Keil IDE
- Blue Pill or any other STM32F10x trainer board
- ST-Link V2
- LEDs
- Resistors (120 ohms and 10K ohms)
- Wires
- A dip-switch
- Bread board

ACTIVITY 0

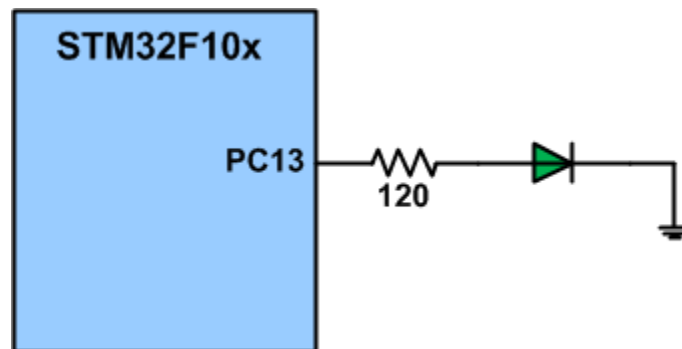
Read “*Programming the Blue Pill and Debugging Using ST-Link*”.

ACTIVITY 1

Write a program that toggles PC13, every second.

ACTIVITY 2

Connect an LED to one of the I/O pins as shown in the following figure and write a code that toggles the LED, every 0.2 seconds.

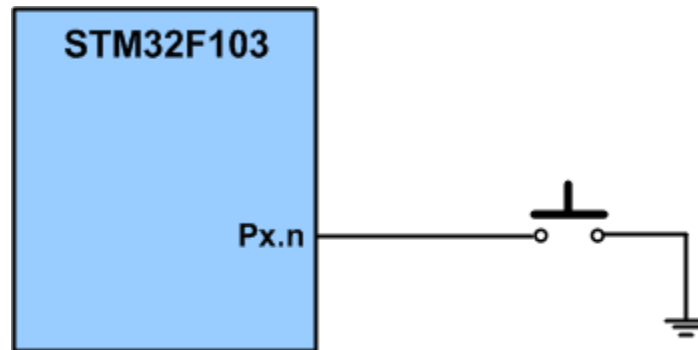


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ACTIVITY 3

Connect a switch to one of the I/O pins and write a program that makes PC13 low, when the switch is pressed. Otherwise, PC13 is high.



ACTIVITY 4

Connect four LEDs to four I/O pins and write a code that turns on the LEDs, respectively. When all of the LEDs are on, turn them off, respectively.

ACTIVITY 5

Connect a switch to one of the I/O pins and change your last program so that the LEDs blink faster when the switch is pressed.