Demo 1: GPIO Input

ECE3056 Fall 2016

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1 Overview

This program flashes both LEDs of the STM32 Value Line Discovery board in a regular pattern, using simple delay loops to control timing. It reads the state of the pushbutton switch labeled `USER` and changes the pattern of flashing based on whether it is held down.

2 Operation

This demo makes two very simple additions to the previous one; GPIO port A is used in addition to C, and it is used as an input. The pushbutton switch labeled `USER` on the board is connected to port A bit 0. [1] By simply configuring port A as an input and polling its IDR (input data register; compare to the ODR used for output); we can read the state of this switch. The internal pull-ups are not needed, since an external one is provided. [2]

3 Further Reading

The Demo 0 documentation provides a list of cited books, all of which are readily available online in PDF format.

4 Exercises

The following exercises can be completed by modifying the demo code.

1. Modify the code so that the LED only flashes when the button is released after being held.
2. Building on the code from the previous exercise, make the number of flashes correspond to the length of time the button was held.

[1] UM0919 p. 12
[2] UM0919 p. 24

3. Modify the previous code again so that after the button has been released for about a second, the user's pattern of button presses is repeated back on the LEDs.