Lab 6: Finite State Machines

Objective: Design a Finite State Machine (FSM) in C for execution on the MicroBlaze processor to simulate a car turn signal system.

The system will control LEDs to emulate a car's turn signal operation using two buttons: one for indicating a left turn, one for a right turn. Re-pressing the same button after a turn deactivates the flashing.

Step 1: implement an FSM to implement "debouncing" of buttons. Consider the advice provided in FSM_slides.pdf

Step 2: implement an FSM with three states [Left, Center, Right] to manage the LEDs depending on the buttons, based on the implementatio of the FSM from Step1. Assign LED values in the main by using a global variable set by the FSM and writing to the GPIO.

Step 3: Use a timer to enable flashing the lights

Step 4: (bonus): implement a sliding activation of the single LEDs.