PREPARATION

You will need a LaunchPad and access to TM4C123_LaunchPadUsersManual.pdf (/c4x/UTAustinX/UT.6.01x/asset/TM4C123_LaunchPadUsersManual.pdf).

STARTER PROJECT

Lab7_SOS

PURPOSE

In Lab7 you will learn how to write software that reads from two switches, makes decisions, and outputs to an LED. You will learn and understand the steps required to initialize parallel ports.

SYSTEM REQUIREMENTS

The Lab7 starter project is the same as C7_SOS example but includes the connections to the Lab7 grader. You will make three changes. First, you will modify the system so a yellow SOS is flashed instead of the green. Yellow is created by mixing red and green (PF3 high, PF2 low, and PF1 high). Second, make the SOS flash only if both switches SW1 and SW2 are pressed (this means both PF4 and PF0 inputs are 0). Third, you will decrease the time between SOS outputs from 5 to 4 seconds. In summary the system should perform these steps:

1) Make PF1, PF2, and PF3 outputs.
Make PF0 and PF4 inputs (enable PUR for PF0 and PF4).
2) If either SW1 or SW2 are off, the LEDs should be off.
If both SW1 and SW2 are on, the SOS is sent on the yellow LED
a) Send an 'S' as short short short pulses on the yellow LED
b) Send an 'O' as long long long pulses on the yellow LED
c) Send an 'S' as short short short pulses on the yellow LED
d) Wait 4 seconds
3) Repeat step 2 over and over.

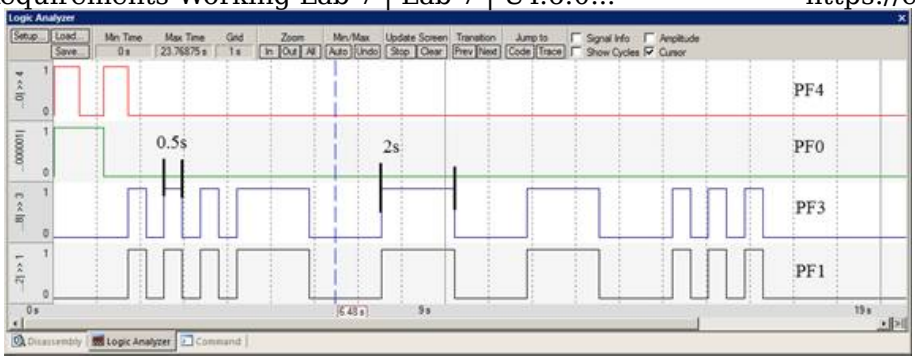

Figure 7.1. Example screenshot in simulation mode.

WORKING LAB 7

Help

	0:00 / 0:45	**1.0x**				

JONATHAN VALVANO: Let's begin Lab 7A by showing you what the final product

will look like.

It has no external parts, just the LaunchPad.

I've downloaded the program, and now I'm going to push the reset

button to start it.

In this lab, to get SOS, we have to push both Switch One and Switch Two.

So if I push and hold down both switches, I see the S, three shorts,

and now a long, long, long.

That's the O. And then we're going to have three shorts.

And after I let go of the switches, the SOS should stop.

The comments of the Lab7 starter files refer to Green lights and SW2 turning it off. These are not typos, but rather the comments describe what the starter file does before you modify it.

```
// Input from PF4(SW1) and PF0(SW2), output to PF3 (Green LED)
// Pressing SW1 starts SOS (Green LED flashes SOS).
```

So, as you make changes to the C code, be sure to update the comments too.

```
// Input from PF4(SW1) and PF0(SW2), output to PF3, PF2, PF1 (LED)
// Pressing SW1 starts SOS (Yellow LED flashes SOS).
```