**Lab Sheet 4: State Machines**

Submit before the end of your week 6 lab session

# Aims

The aims of this lab are to:

* Practice the use of Stateflow to model control systems.
* Understand the abstract concepts of control states/modes and transitions.

# Activities

Perform the following tasks and answer the questions on the answer sheet.

1. Task 0: Download and load the sample diagram.
2. Task 1: Model the original flashing LED control loop.
3. Task 2: Model the button-controlled external LED.

## Task 0: Download and Load the Sample Diagram

Download the sample diagram. The diagram has the following features:

* A single stateflow chart.
* Constant inputs to a switch (which will model the button).
* A scope logging the outputs to LEDs.

## Task 1: Model the Original Flashing LED Control Loop

## Task 2: Model the Button-controlled external LED

# Answer Sheet

*This sheet should be printed out and handed in during the lab session. It can be completed either electronically or by hand.*

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| **Date submitted** | 30/10/2015 |

## Questions from The Lab

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| **Question** | | **Answer** |
| 1 | How do you mark the initial state of a state machine? |  |

## Viva Record

Task 1: Demonstrate simulation of the flashing LEDs.

Task 2: Demonstrate simulation of the button-controlled system.

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| **Viva comment (completed by TA / lecturer)** |  |
| **Name:** |  |

## Question about concepts

Answer the following questions concisely (up to 30 words each):

1. What is the role of a guard in state machines?
2. How does full (or partial) address decoding select the flip-flops to load data from.?

## Feedback

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| **Marker** | **Date** | **Grade** |
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