Project 4
Project 4 Objectives

At the end of this project, you should be able to:

• design a Finite State Machine (FSM) that performs a specified high-level task,
• implement the FSM in code,
• connect FSM events to sensor events, and
• connect FSM actions to control actions.

Andrew H. Fagg: Embedded Real-Time Systems: Project 3
Starting location: one of 1, 2, or 3 (unknown)

Switch zero in some state
Project 4: Phase 1

- If starting at 1, then navigate to C
- If starting at 2, then navigate to B
- If starting at 3, then navigate to A

Must infer which location you are starting at
Project 4: Phase 1

• If starting at 1, then navigate to C
• If starting at 2, then navigate to B
• If starting at 3, then navigate to A

Note: you may choose to handle any 2 of these 3 cases
Project 4: Phase 2

- If switch was in FALSE configuration, then navigate to A and stop
- Otherwise: navigate to B and stop
Part 1: Design the FSM

• What are the events?
  – E.g., reaching a wall

• Actions?
  – E.g., setting the heading_goal or braking

• States?

• Transitions?
Part 2: Implement the FSM

• Implement and test incrementally
Checkpoint

• 30 minute meeting by Tuesday
• Have part 1 completed and part of part 2 completed and tested
  – FSM must do something interesting
• Demonstrate that your project 3 PD controller is properly tuned up
• A successful checkpoint is worth 10% of the project grade