Project 9:
Finite State Machines I
Questions?
Project 8

• Demos by Monday
Project 9: “Your Mission”

Produce the following behavior:

• Wait for the switch to be pressed.
• Record the current orientation as your goal.
• After a 5-second delay, ramp up the middle fan to a point where the craft begins to turn (as measured by the gyro).
• Slightly drop the middle fan thrust.
• Move forward until a wall is detected.
• Stop
• Make a 90 degree turn to the left
• Move forward until another wall is detected.
• Stop
Implementation

We are using a Finite State Machine to implement this entire sequence

• Use a FSM diagram to plan your machine

Code:

• Use an enumerated data type State to capture the different possible states

• Define behavior for each state:
  • What are the events, actions and transitions?

• Implement and test incrementally
• Examine code skeleton in specification
Notes

• Implement and test the FSM incrementally
• You can test your code while holding onto the craft
  • Person holding simulates the sequence of movements
• We have a partial field set up now; a full set of walls will be installed soon
• Consider turning your lateral fans so that they point toward the midline of the craft (better rotational control, with less forward acceleration)
• Middle fan thrust should be such that your craft is still dragging a bit on the ground
Next Time

Finite State Machines continued…