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Lab 9 Submission

**Finite State Machine (FSM)**:

* I modified the provided **Finite State Machine (FSM)** to control the robot's movement through different phases.
* The FSM has the following states:
  + **AT\_START**
  + **MOVE\_SQUARE**
  + **MOVE\_TRIANGLE**
  + **RETURNING\_FROM\_TASK**
  + **TASK\_DONE**

**Movement Paths**:

* I defined two paths for the robot to follow: a **square** and a **triangle** and stored the waypoints in two variables, **points\_square** and, **points\_triangle.** The lists holds the points and orientation the robot needs to follow for the respective path.

**FSM Logic**:

* In the **MOVE\_SQUARE** state, the robot moves through the points defined in points\_square.
* Once the square path is completed, the FSM transitions to **MOVE\_TRIANGLE**.
* After completing the triangle, the robot returns to the start in the **RETURNING\_FROM\_TASK** state, then reaches the **TASK\_DONE** state.

Video is provided with the submission and Screenshots are below:

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