Mahfuz Rahman

217847518

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**

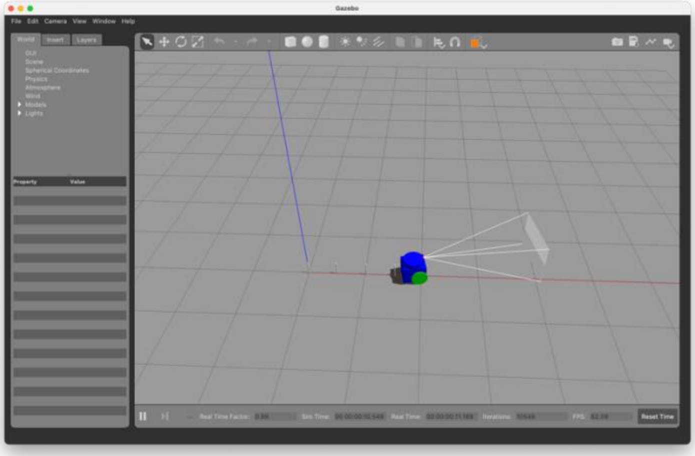
Movement Paths:

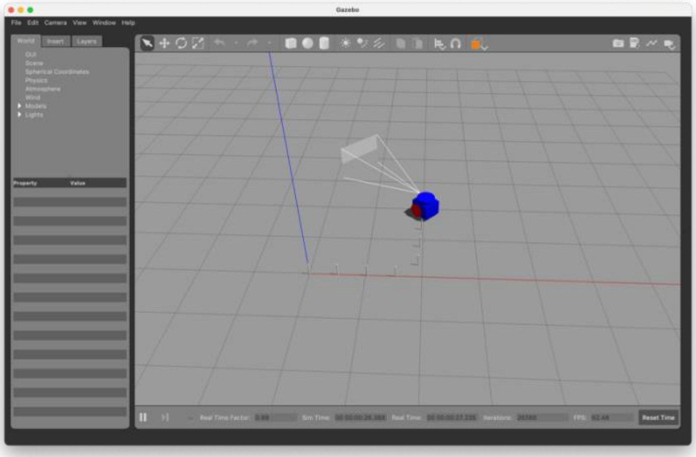
- I defined two paths for the robot to follow: a **square** and a **triangle** and stored the waypoints in two variables, **points_square** and, **points_triangle.** The lists holds the points and orientation the robot needs to follow for the respective path.

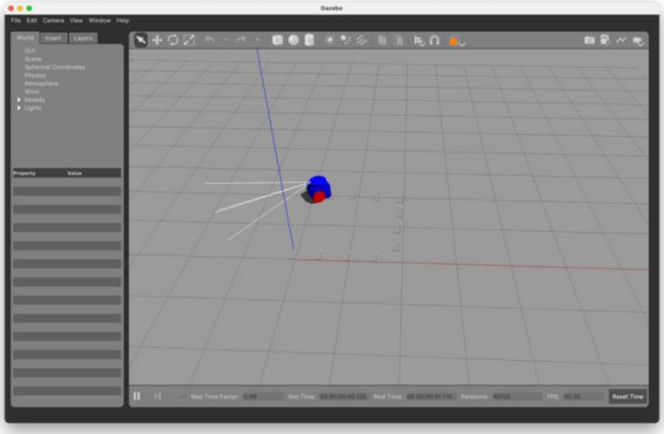
FSM Logic:

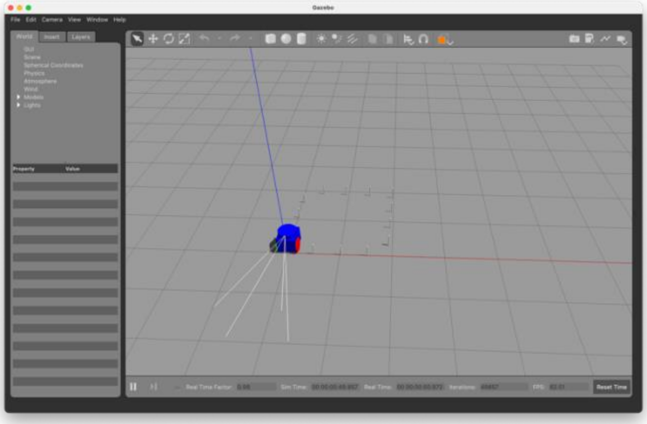
- In the **MOVE_SQUARE** state, the robot moves through the points defined in points_square.
- Once the square path is completed, the FSM transitions to **MOVE_TRIANGLE**.
- After completing the triangle, the robot returns to the start in the **RETURNING_FROM_TASK** state, then reaches the **TASK_DONE** state.

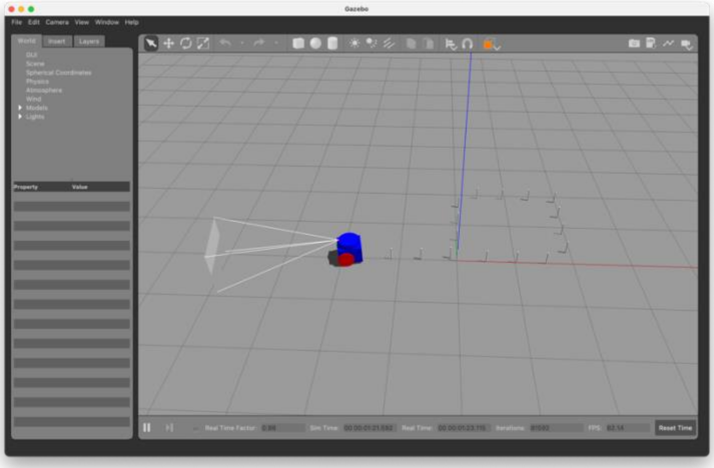
Video is provided with the submission and Screenshots are below:

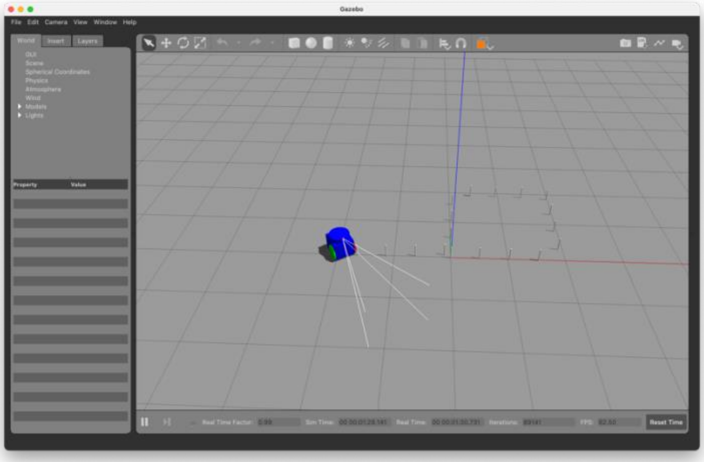


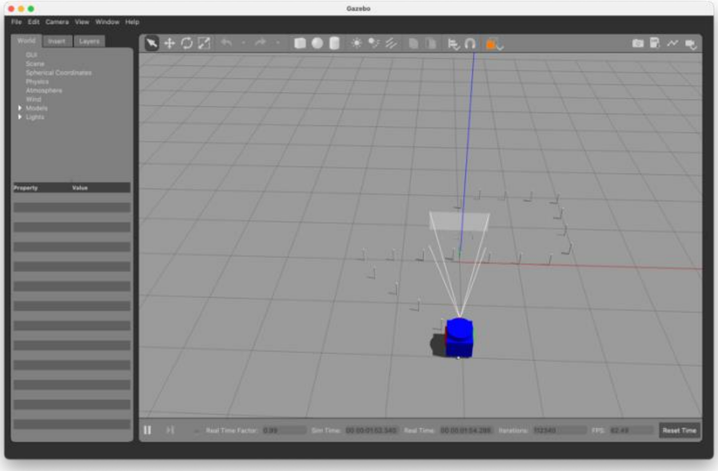


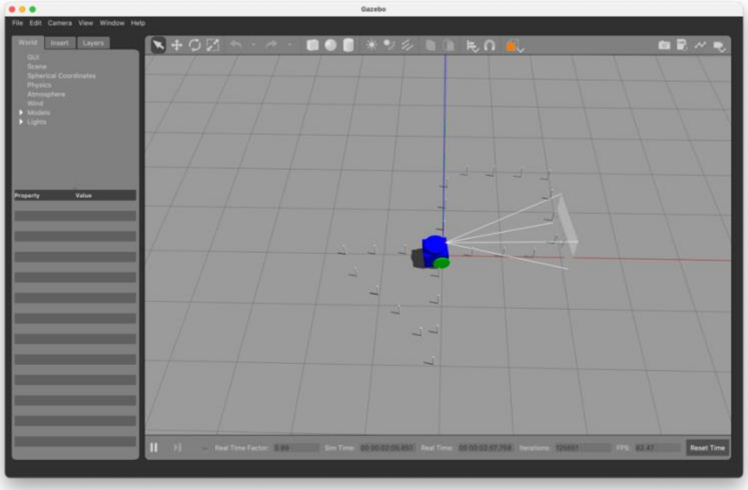

Gazebo
File Edit Camera View Window Help
World Insert Layers
GUI
Scene
Spherical Coordinates
Physics
Atmosphere
Wind
Models
Lights
Property Value
Real Time Factor:
Sim Time:
Real Time:
Iterations:
FPS:
Reset Time


Gazebo
File Edit Camera View Window Help
World Insert Layers
GUI
Scene
Spherical Coordinates
Physics
Atmosphere
Wind
Models
Lights
Property Value
Real Time Factor:
Sim Time:
Real Time:
Iterations:
FPS:
Reset Time


Gazebo
File Edit Camera View Window Help
World Insert Layers
GUI
Scene
Spherical Coordinates
Physics
Atmosphere
Wind
Models
Lights
Property Value
Real Time Factor:
Sim Time:
Real Time:
Iterations:
FPS:
Reset Time


Gazebo
File Edit Camera View Window Help
World Insert Layers
GUI
Scene
Spherical Coordinates
Physics
Atmosphere
Wind
Models
Lights
Property Value
Real Time Factor:
Sim Time:
Real Time:
Iterations:
FPS:
Reset Time


Gazebo
File Edit Camera View Window Help
World Insert Layers
GUI
Scene
Spherical Coordinates
Physics
Atmosphere
Wind
Models
Lights
Property Value
Real Time Factor:
Sim Time:
Real Time:
Iterations:
FPS:
Reset Time


Gazebo
File Edit Camera View Window Help
World Insert Layers
GUI
Scene
Spherical Coordinates
Physics
Atmosphere
Wind
Models
Lights
Property Value
Real Time Factor:
Sim Time:
Real Time:
Iterations:
FPS:
Reset Time