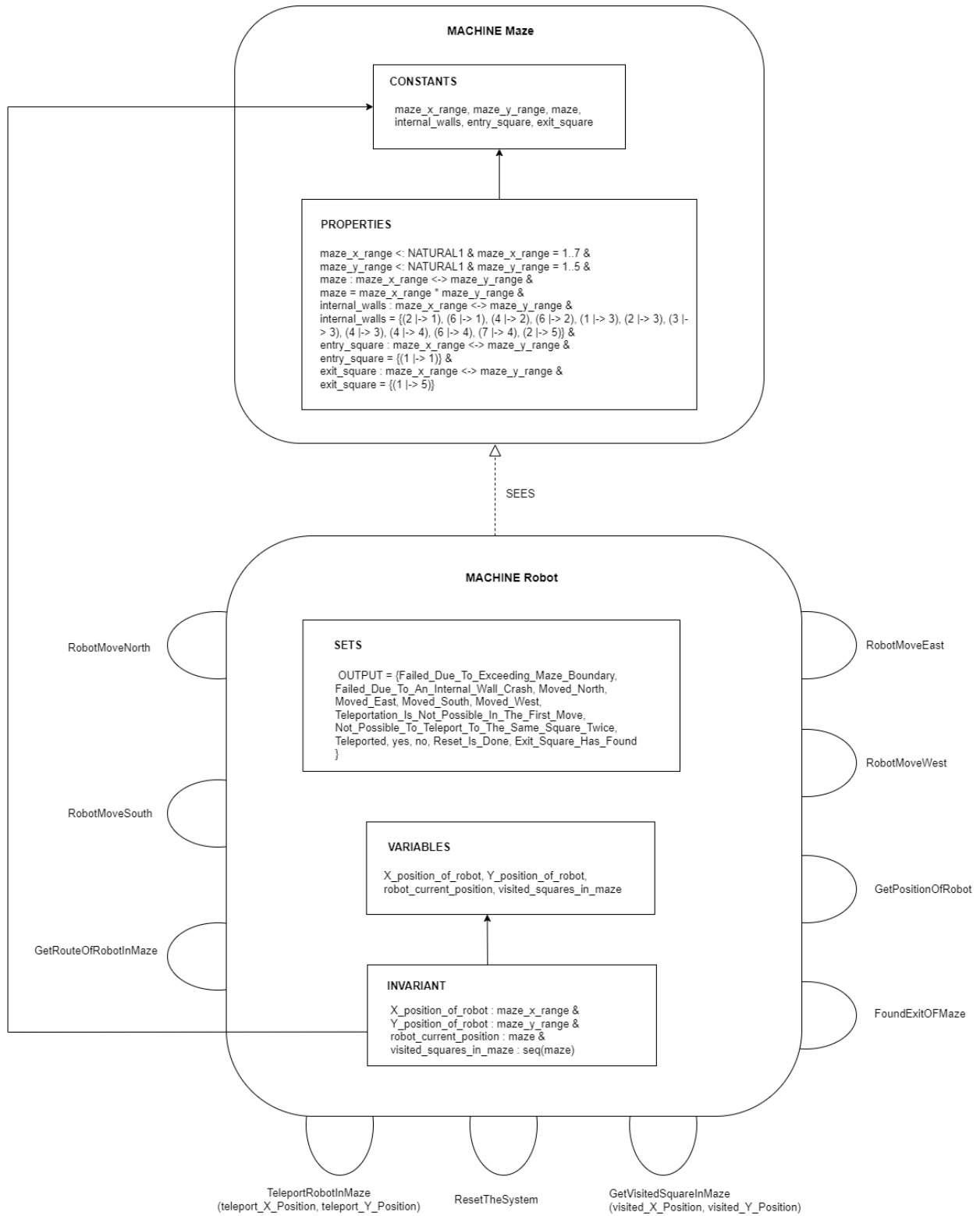


Structure Diagram



State ‘INVARIANTS’ description

1. X_position_of_robot : maze_x_range

This variable holds the robot's position of the 'x' axis. The values to be assigned are from the Maze.mch and are natural numbers ranging from 01 to 07. The 'X_position_of_robot' variable collects the x coordinates of the robot's positions, either where it is or where it is going, and compares them to the 'maze_x_range' constant, which displays the cartesian of the maze. NAT1 was used to define the constant 'maze_x_range' since the cartesian of maze starts horizontally at 01 and has a maximum x direction of 07 squares.

2. Y_position_of_robot : maze_y_range

This variable holds the robot's position of the 'y' axis. The values to be assigned are from the Maze.mch and are natural numbers ranging from 01 to 05. The 'Y_position_of_robot' variable collects the y coordinates of the robot's positions, either where it is or where it is going, and compares them to the 'maze_y_range' constant, which displays the cartesian of the maze. NAT1 was used to define the constant 'maze_y_range' since the cartesian of maze starts horizontally at 01 and has a maximum x direction of 05 squares.

3. robot_current_position : maze

The current position of the robot is stored in this variable. It is represented here as a relation of the x and y coordinates, which are mapped using a maplet relation.

4. visited_squares : seq(maze)

This variable stores the visited coordinates of the maze. To retain the route taken by the robot, the variable is updated by attaching the new coordinates to the tail of the sequence.