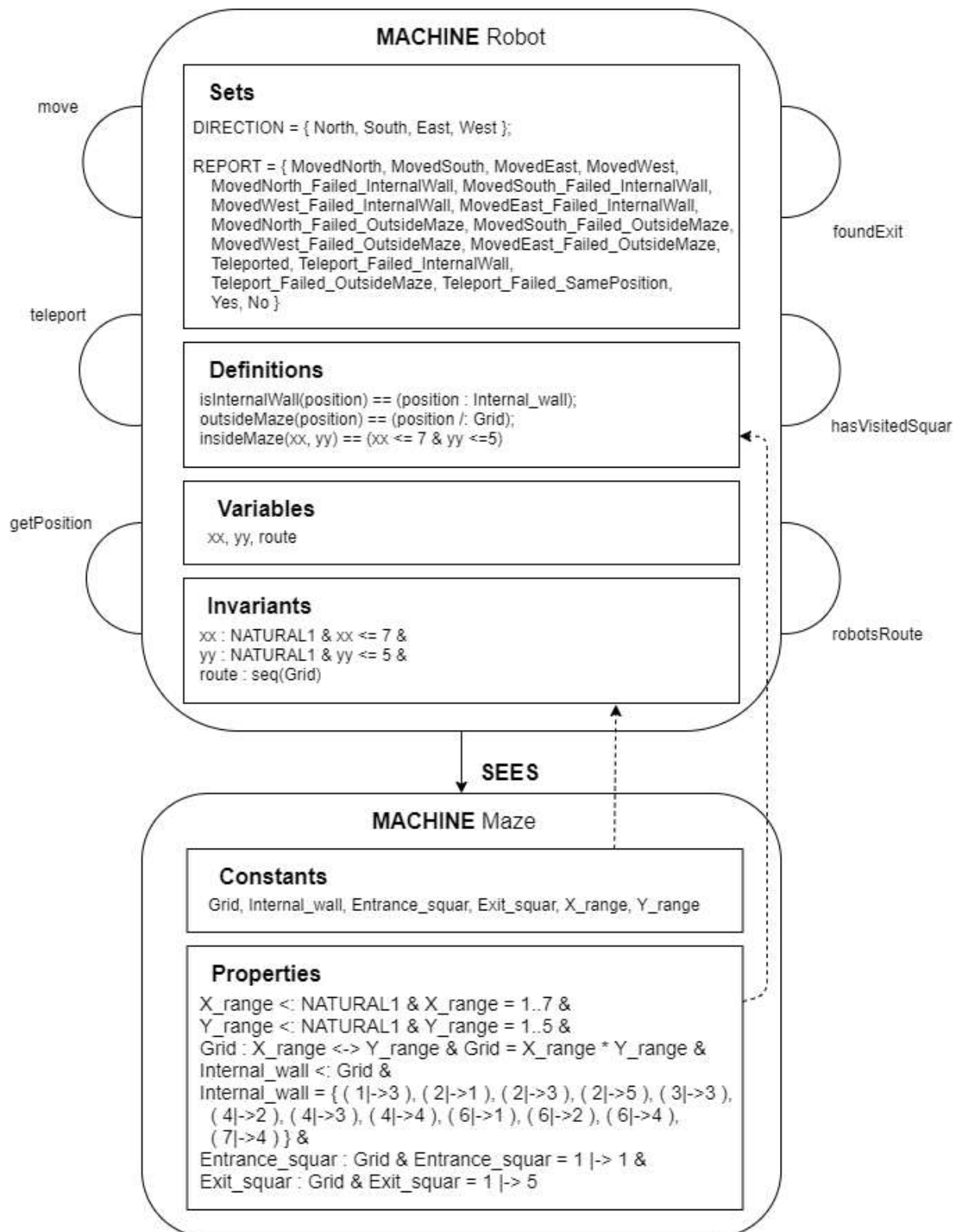


Structure Diagram



Explanation for State Invariants (MACHINE Robot)

```
xx : NATURAL1 & xx <= 7 &  
yy : NATURAL1 & yy <= 5 &  
route : seq(Grid)
```

- 'xx' is a whole number between 1 to 7 which represents the x-axis.
- 'yy' is a whole number between 1 to 5 which represents the y-axis.
- 'route' is a list which is used to store the Grid's data in an ordered way.

Explanation for Properties (MACHINE Maze)

```
X_range <: NATURAL1 & X_range = 1..7 &  
Y_range <: NATURAL1 & Y_range = 1..5 &  
  
Grid : X_range <-> Y_range &  
Grid = X_range * Y_range &  
  
Internal_wall <: Grid &  
Internal_wall = { (1|->3), (2|->1), (2|->3), (2|->5), (3|->3),  
(4|->2), (4|->3), (4|->4), (6|->1), (6|->2), (6|->4), (7|->4) }  
&  
  
Entrance_squar : Grid &  
Entrance_squar = 1 |-> 1 &  
  
Exit_squar : Grid &  
Exit_squar = 1 |-> 5
```

- X_range contains whole numbers from 1 to 7 and Y_range contains whole numbers from 1 to 5.
- Grid is a set, which contains an ordered pairs of X_range and Y_range values.
- Internal_wall is a subset of 'Grid'.
- Entrance_squar is a member 'Grid' and it is positioned at x-axis 1 and y-axis 1.
- Exit_squar is a member of Grid and it is positioned at x-axis 1 and y-axis 5.