UNIVERSITY OF WESTMINSTER

INFORMATICS INSTITUTE OF TECHNOLOGY

Department Of Computing

Module : Reasoning About Programming

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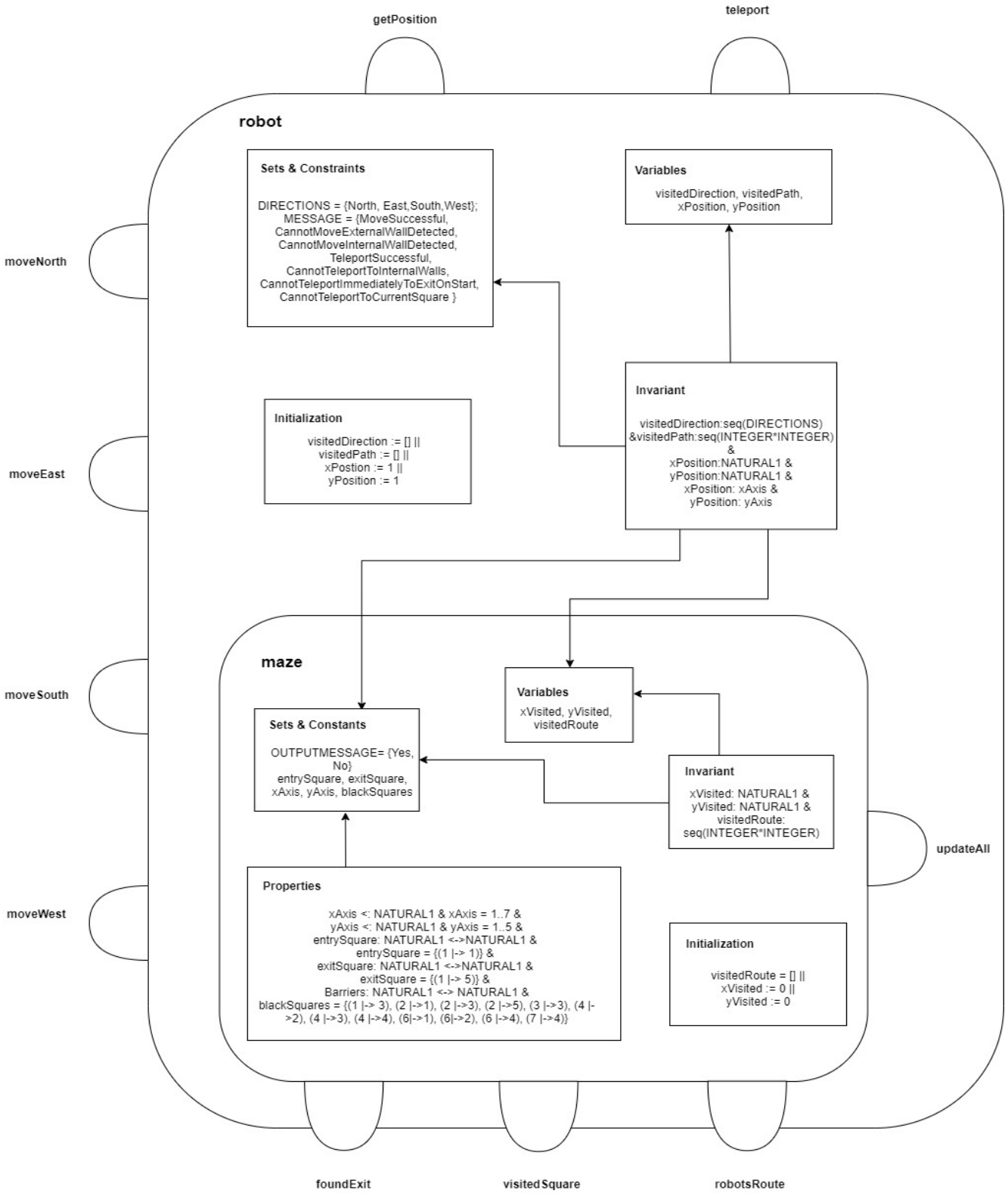
Structure Diagram



Explanation of state invariants

- xVisited :NATURAL - visited x co-ordinate by the robot.NATURAL is used, as the initial visited x co-ordinates are null.
- yVisited - visited y co-ordinate by the robot. NATURAL is used, as the initial visited y co-ordinates are null.
- visitedRoute : seq(INTEGER*INTEGER) – visitedRoute contain sequence of grid squares visited by the robot. visitedRoute is set to empty initially till the robot makes it's first move.
- visitedDirection: seq(DIRECTIONS) – Sequence of directions of the SET DIRECTIONS. This contain a sequence of visited directions which will get updated for every move that robot takes in the maze.
- xPosition: NATURAL1 – current x co-ordinate of the robot in the maze .NATURAL1 is used, as the value can be an element of non-null natural numbers.
- xPosition: xAxis – current x co-ordinate is an element of xAxis which is of an element of NATURAL1 and contain a value range from 1 to 5.
- yPosition: NATURAL1 – current y co-ordinate of the robot in the maze.NATURAL1 is used as the value can be an element of non-null natural numbers.
- yPosition: yAxis – current y co-ordinate is an element of yAxis which is of an element of NATURAL1 and contain a value range from 1 to 7.