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INSTITUTE OF  
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INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

BEng. (Hons) in Software Engineering

Reasoning About Programs

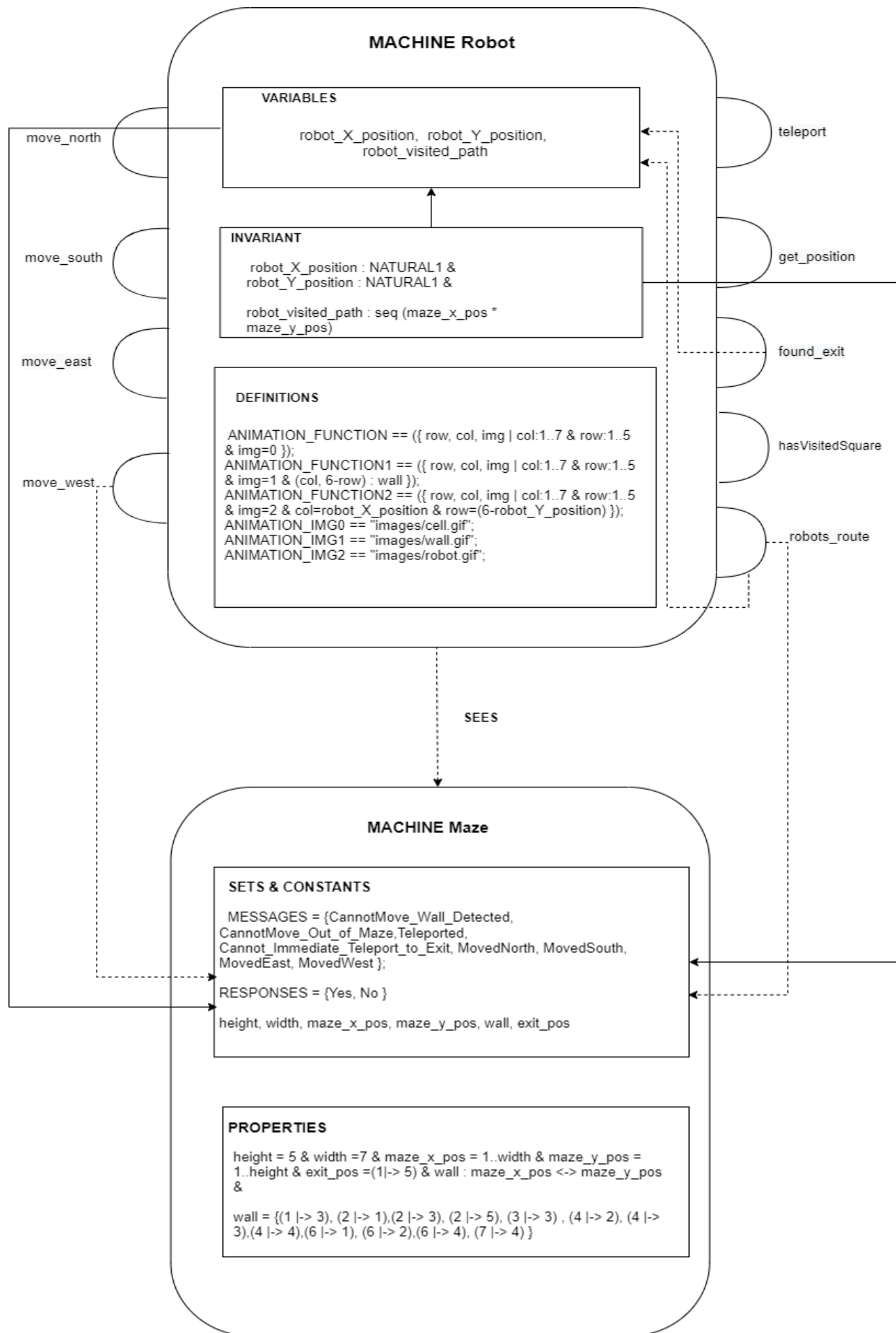
6SENG001W

Coursework

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## **Explanation for Invariants**

### **Invariants in the Roboto machine**

**robot\_X\_position : NATURAL1**

– Robot's current position for X coordinates and can only have Natural numbers starting from 1

**robot\_Y\_position : NATURAL1**

-Robot's current position for Y coordinates and can only have Natural numbers starting from 1.

**robot\_visited\_path : seq(INTEGER \* INTEGER)**

-This will contain the robot's moved paths as a sequence and it contains two integer values

## **Explanations for the Constants**

**height** – Integer value which define the number of rows in the Maze

**width** – Integer value which define the number of columns in the Maze

**maze\_x\_pos** – Range of the x coordinates from 1 to 7

**maze\_y\_pos** – Range of the y coordinates from 1 to 5

**wall** – Value which holds the set of x and y coordinates of the blocked cells in the maze where robot cannot move

**exit\_pos** – Exit position of the the x and y coordinates