# COLLISION AVOIDANCE SYSTEM

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## Contents

# 1.0 CASE STUDY

It is required to implement an obstacle-avoiding robot which has two functionalities:

- STOP: If an object is detected less than 50cm in front of the robot, The robot stops
- GO: If the sensor reading is more than 50cm the robot moves with speed = 30cm/s

# 2.0 METHOD

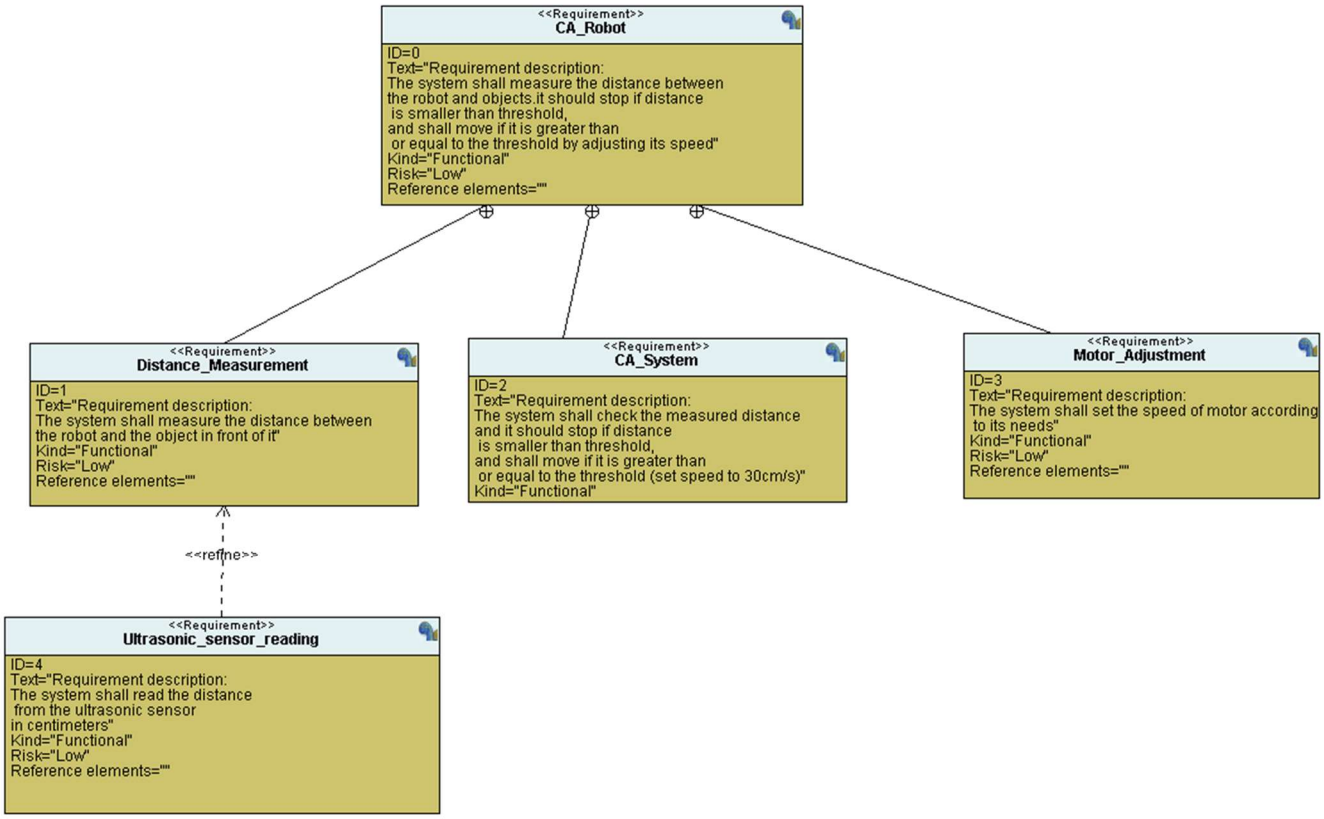
The waterfall model is the best method here, since the requirements are well defined.

# 3.0 REQUIREMENTS

## 3.1 Agreed-upon Requirements

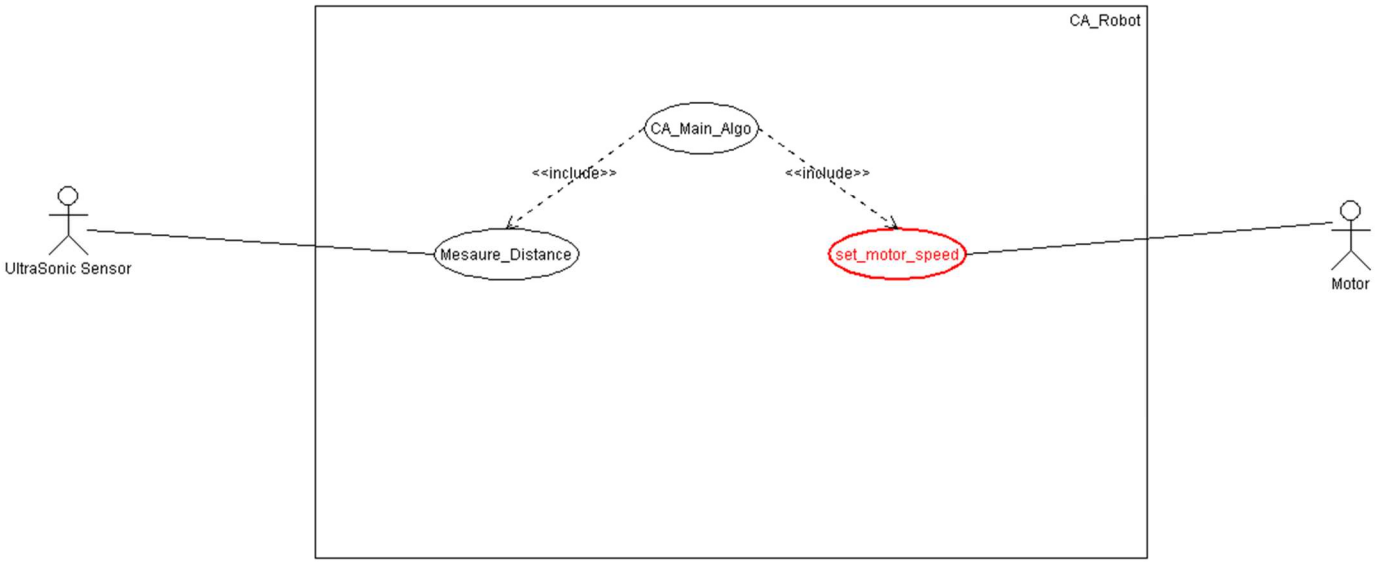
| Requirement | State |
|---|---|
| Detect distance between robot and object | To be Implemented |
| Stop the robot if distance less than threshold | To be Implemented |
| Move the robot if distance is more than threshold | To be Implemented |
| Make a buzzer sound if an object is near | Optional |

## 3.2 Requirement Diagram

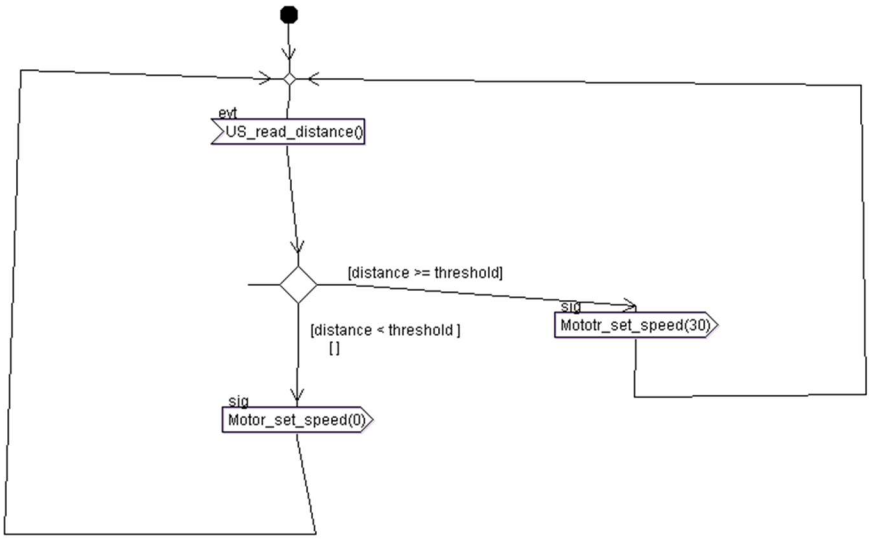


# 4.0 SYSTEM ANALYSIS

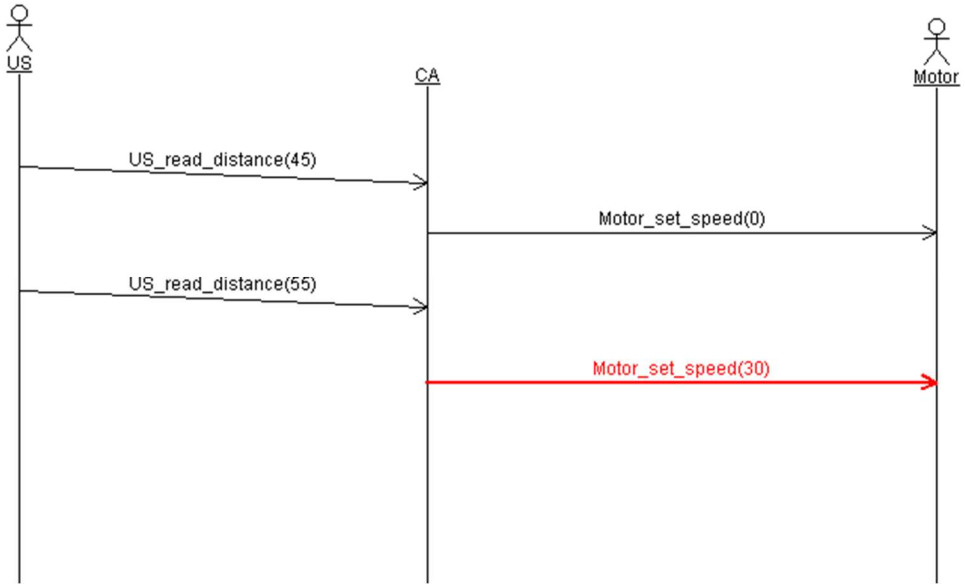
## 4.1 Use Case Diagram




## 4.2 Activity Diagram

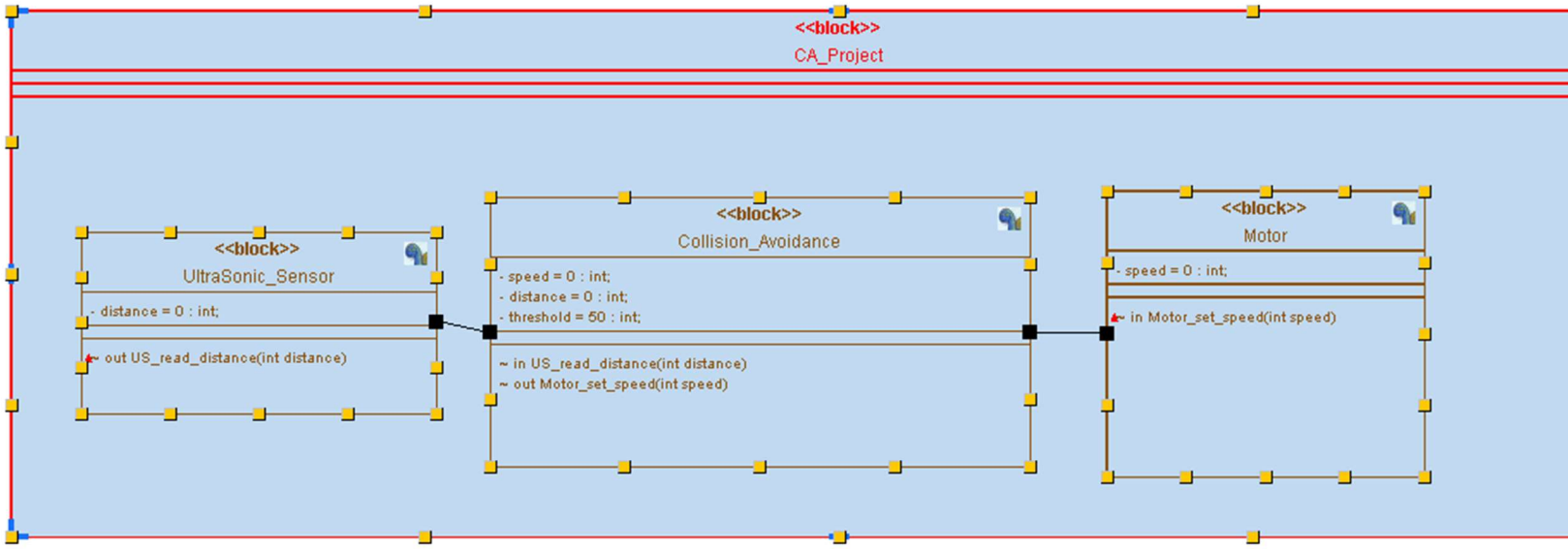


## 4.3 Sequence Diagram



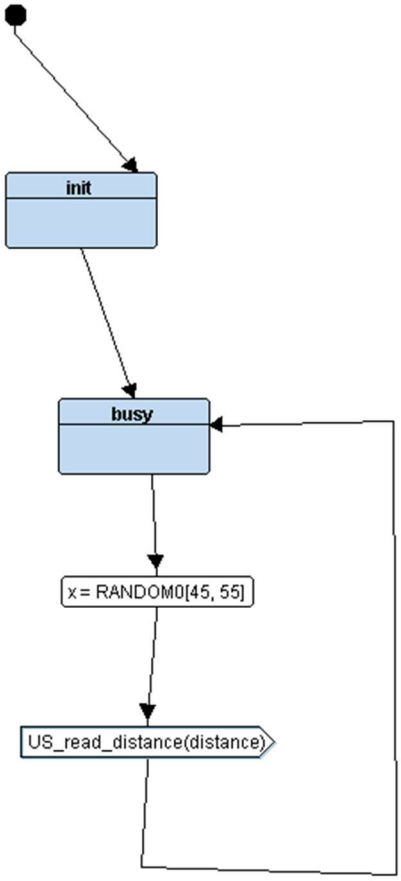
# 5.0 SYSTEM DESIGN

## 5.1 Block Diagram

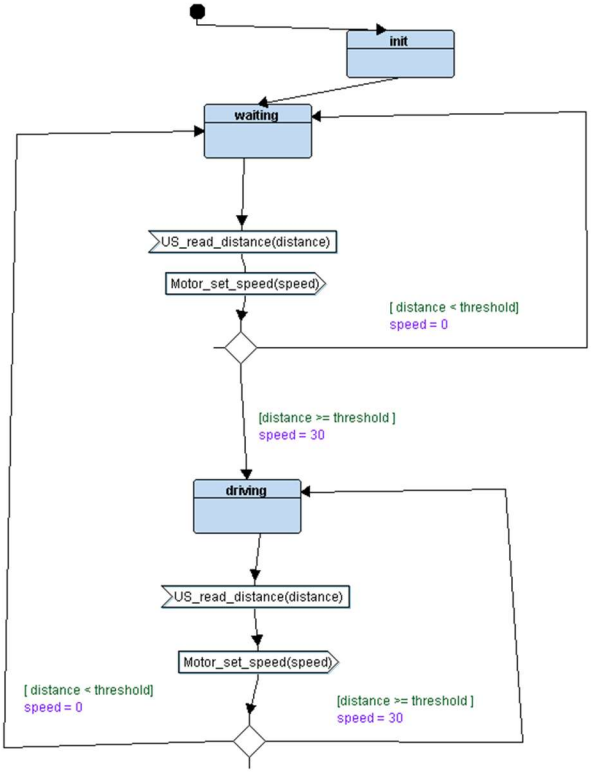


## 5.2 State Diagrams

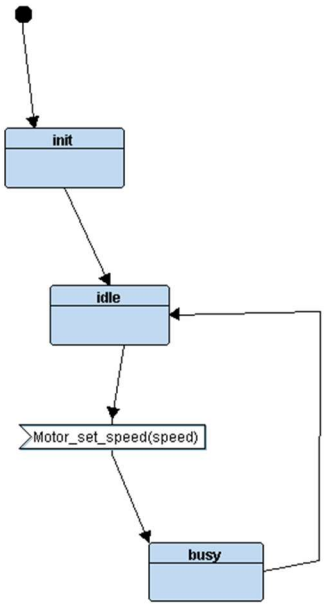
### 5.2.1 UltraSonic_Sensor



### 5.2.2 Collision_Avoidance




### 5.2.3 Motor



# 6.0 INTERACTIVE SIMULATION