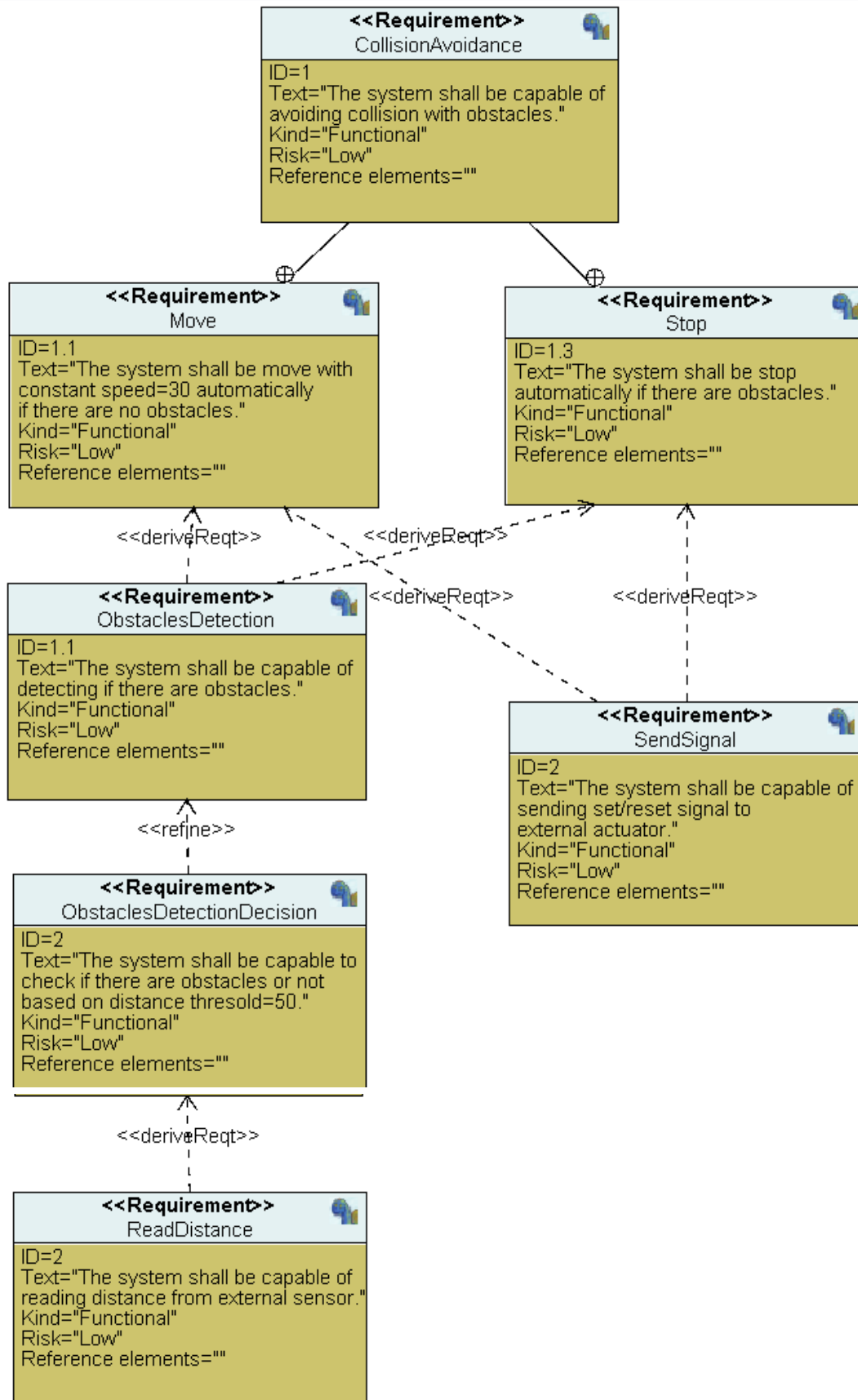
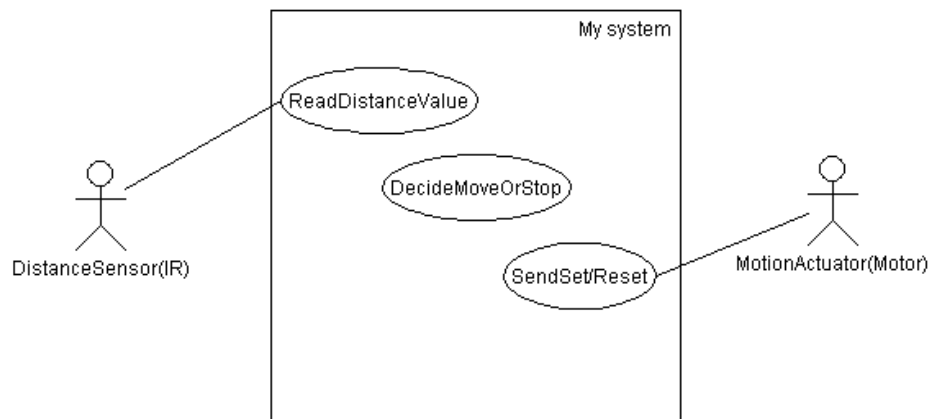


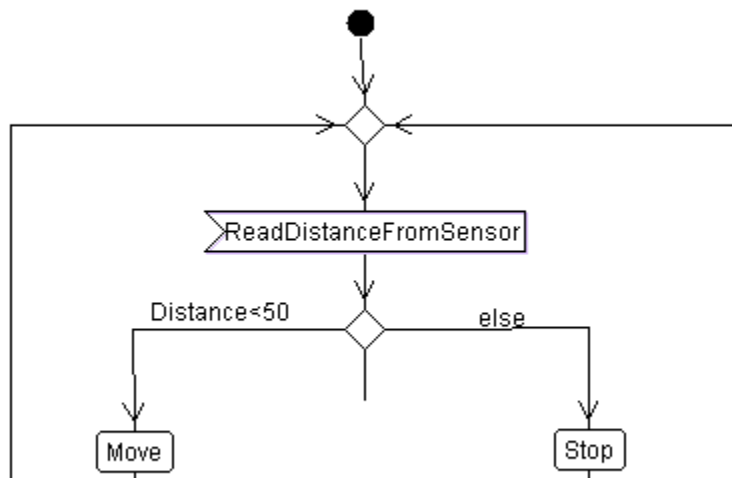
# Requirements Diagram



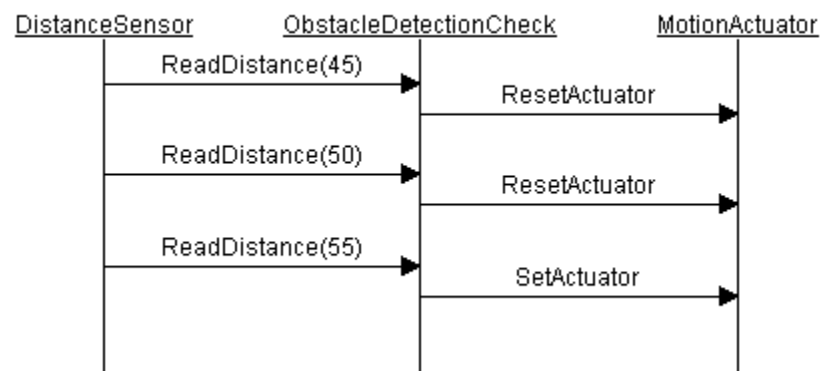
## Use Case Diagram



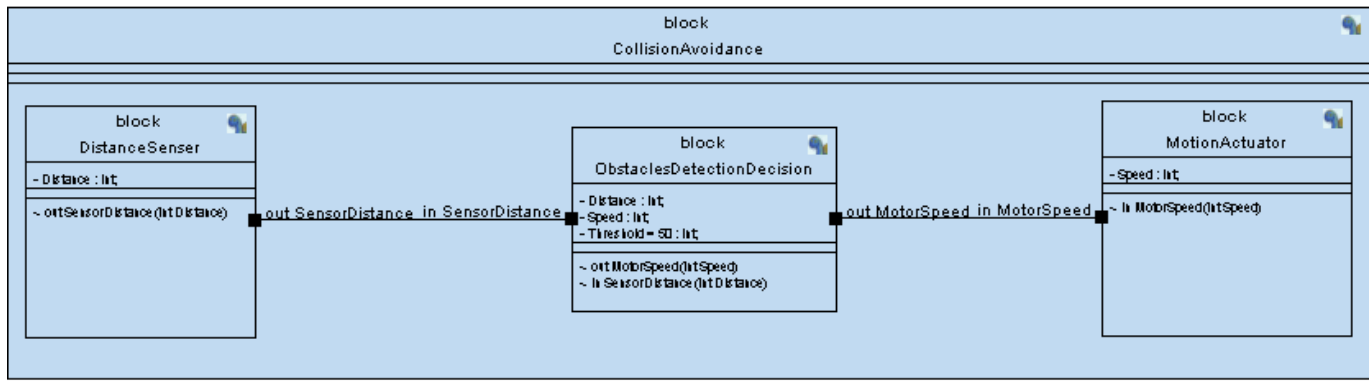
## Activity Diagram



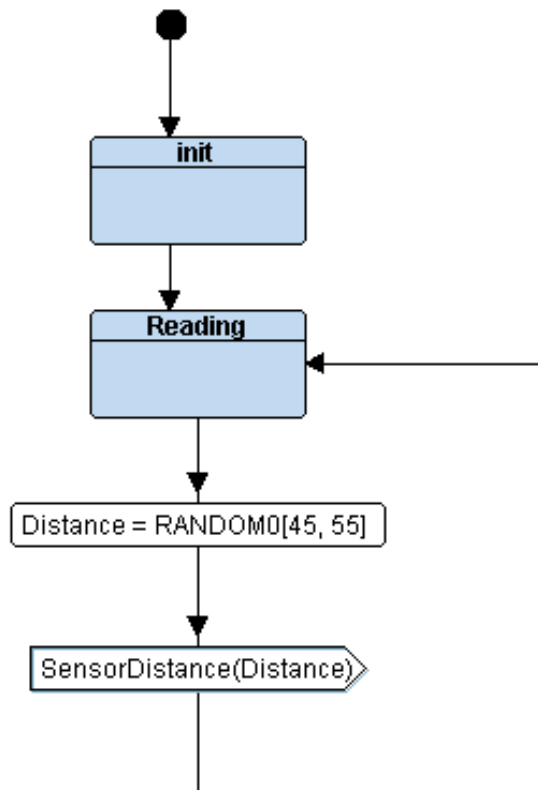
## Sequence Diagram



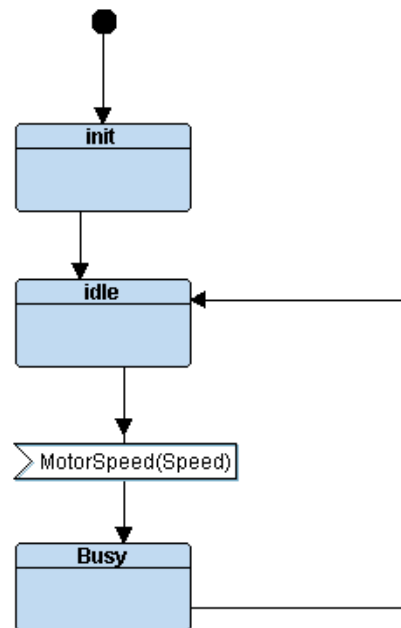
# Block Diagram



## Sensor State machine

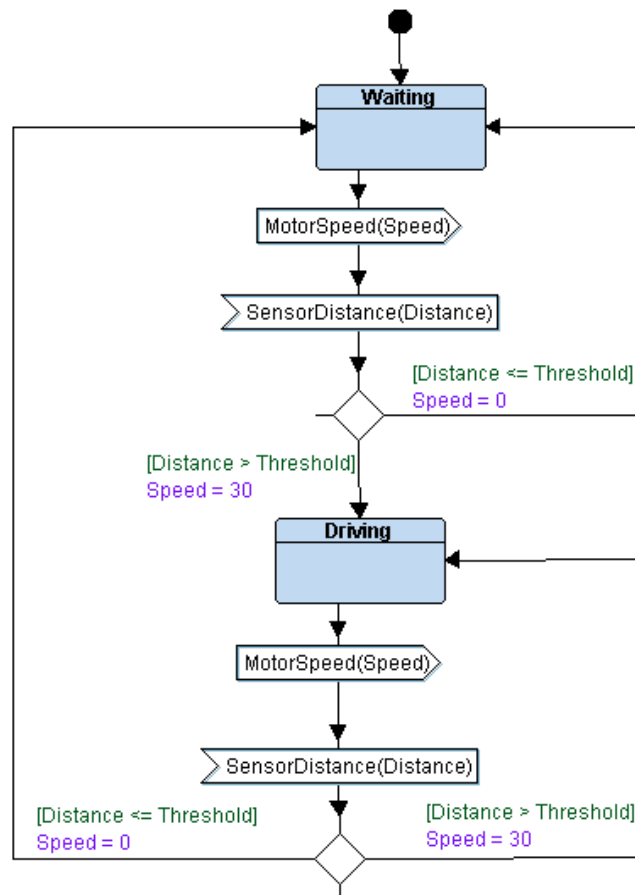


## Actuator State machine

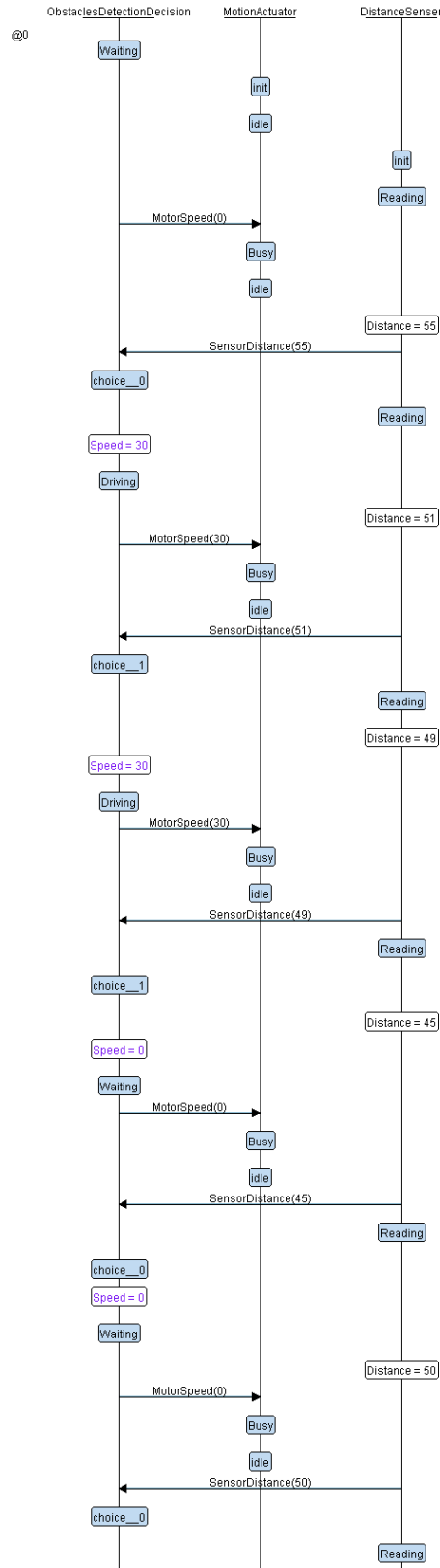


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## Obstacles Detection state machine



# Simulation Trace



## Terminal Messages

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```
Sensor initialization
Actuator initialization
Sensor Reading State: Distance = 53
Sensor -----> ObstaclesDetection: SensorDistanceSignal(53)
Driving State - No Obstacles Detected: Distance = 53
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(30)
Actuator Busy State: Speed = 30
Sensor Reading State: Distance = 54
Sensor -----> ObstaclesDetection: SensorDistanceSignal(54)
Driving State - No Obstacles Detected: Distance = 54
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(30)
Actuator Busy State: Speed = 30
Sensor Reading State: Distance = 54
Sensor -----> ObstaclesDetection: SensorDistanceSignal(54)
Driving State - No Obstacles Detected: Distance = 54
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(30)
Actuator Busy State: Speed = 30
Sensor Reading State: Distance = 46
Sensor -----> ObstaclesDetection: SensorDistanceSignal(46)
Waiting State - Obstacles Detected: Distance = 46
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(0)
Actuator Busy State: Speed = 0
Sensor Reading State: Distance = 52
Sensor -----> ObstaclesDetection: SensorDistanceSignal(52)
Driving State - No Obstacles Detected: Distance = 52
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(30)
Actuator Busy State: Speed = 30
Sensor Reading State: Distance = 50
Sensor -----> ObstaclesDetection: SensorDistanceSignal(50)
Waiting State - Obstacles Detected: Distance = 50
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(0)
Actuator Busy State: Speed = 0
Sensor Reading State: Distance = 50
Sensor -----> ObstaclesDetection: SensorDistanceSignal(50)
Waiting State - Obstacles Detected: Distance = 50
ObstaclesDetection -----> MotionActuator: MotorSpeedSignal(0)
Actuator Busy State: Speed = 0
```

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