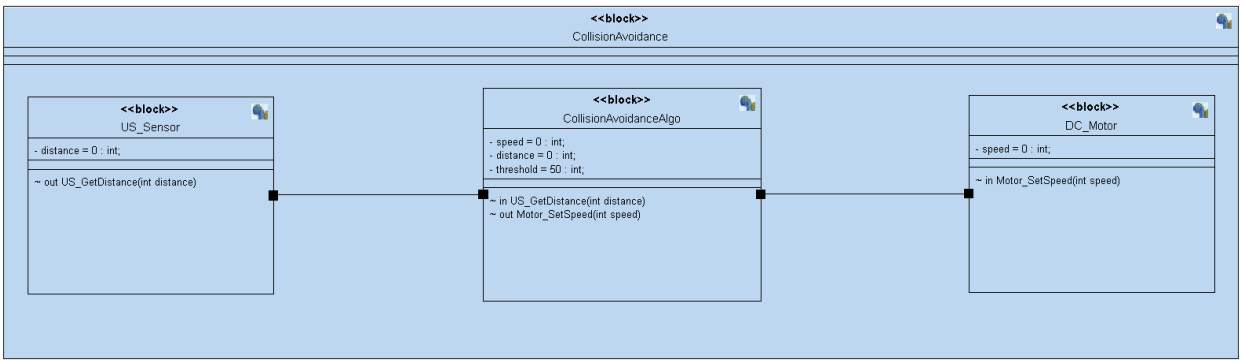
ULTRASONIC OBSTACLE-AVOIDING ROBOT

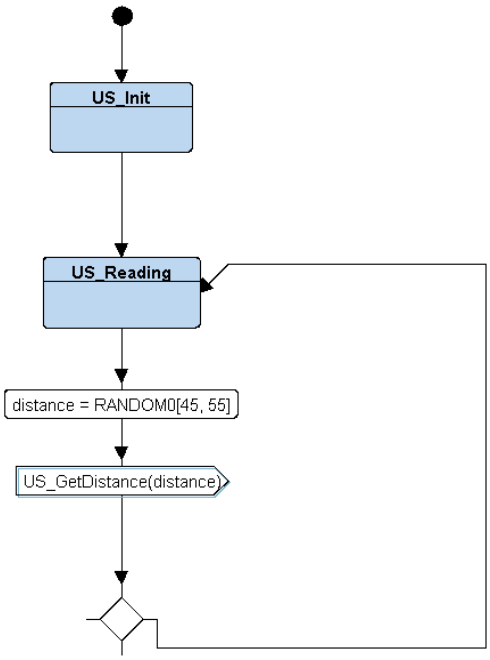
Implement a Simple state machine in C using multiple Modules

We have three modules. One for Collison Avoidance, and one for Ultrasonic, one for DC Motor.

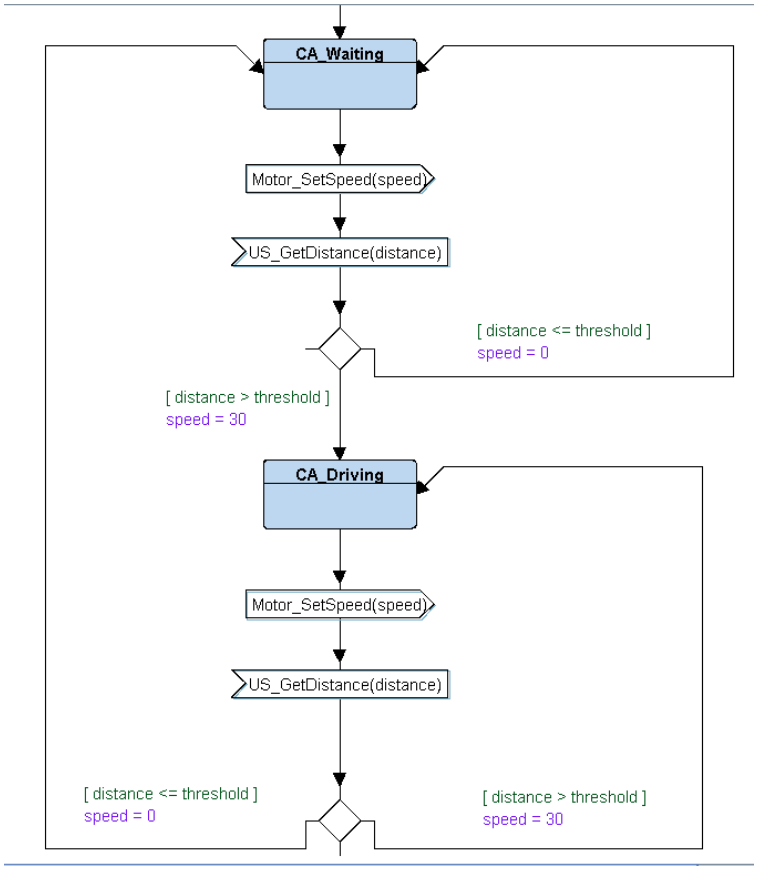
Modules level



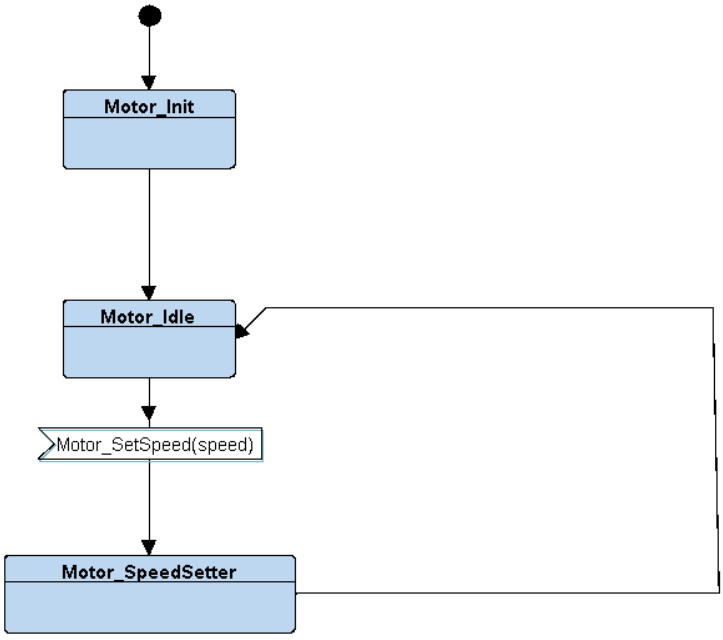
Logical design for each module



Ultrasonic Module

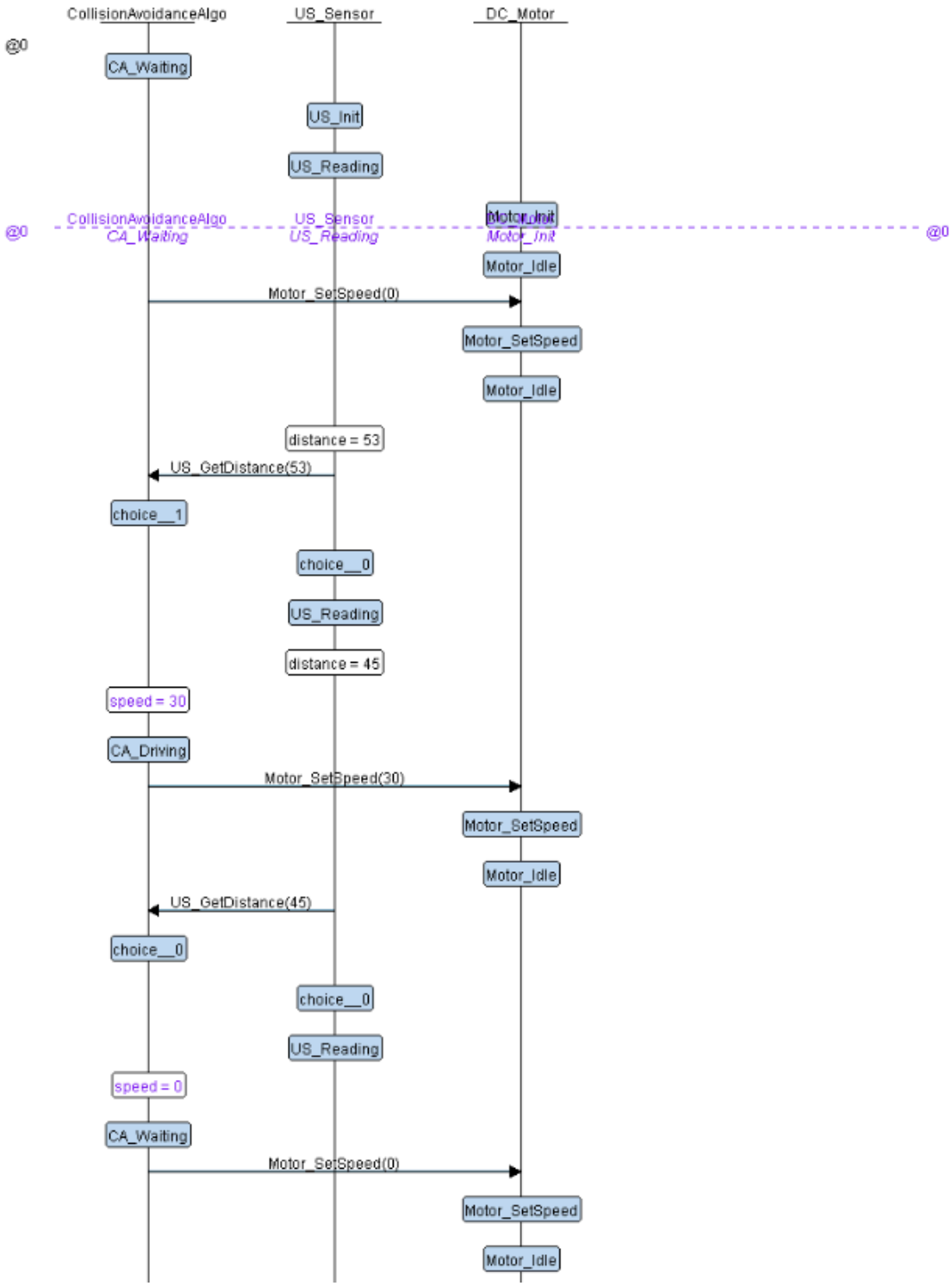


Collision Avoidance Module



DC Motor Module

SW Logical Verification



Eclipse Test Sample

```
Ultrasonic Initialization Done ....
DC Motor Initialization Done ....
US ------------ Distance = 53 -----------------> CA
US_Reading State: ======== distance = 53 ========
CA ------------ Speed = 30 -----------------> MOTOR
CA_Driving State: distance = 53 , Speed = 30
MOTOR_SpeedSetter State: ======== Speed = 30 ========
US ------------ Distance = 54 -----------------> CA
US_Reading State: ======== distance = 54 ========
CA ------------ Speed = 30 -----------------> MOTOR
CA_Driving State: distance = 54 , Speed = 30
MOTOR_SpeedSetter State: ======== Speed = 30 ========
US ------------ Distance = 54 -----------------> CA
US_Reading State: ======== distance = 54 ========
CA ------------ Speed = 30 -----------------> MOTOR
CA_Driving State: distance = 54 , Speed = 30
MOTOR_SpeedSetter State: ======== Speed = 30 ========
US ------------ Distance = 46 -----------------> CA
US_Reading State: ======== distance = 46 ========
CA ------------ Speed = 0 -----------------> MOTOR
CA_Waitng State: distance = 46 , Speed = 0
MOTOR_SpeedSetter State: ======== Speed = 0 ========
US ------------ Distance = 52 -----------------> CA
US_Reading State: ======== distance = 52 ========
CA ------------ Speed = 30 -----------------> MOTOR
CA_Driving State: distance = 52 , Speed = 30
MOTOR_SpeedSetter State: ======== Speed = 30 ========
US ------------ Distance = 50 -----------------> CA
US_Reading State: ======== distance = 50 ========
```