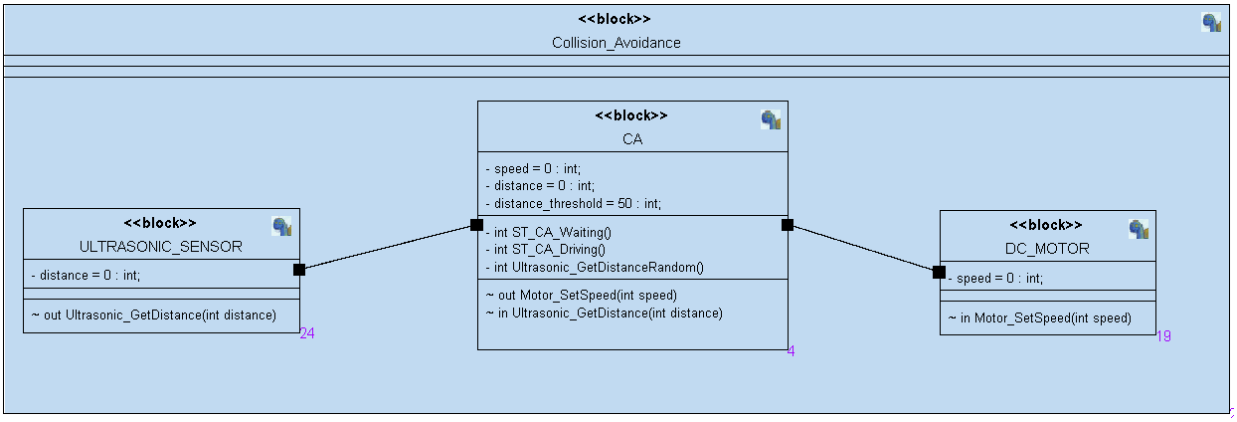
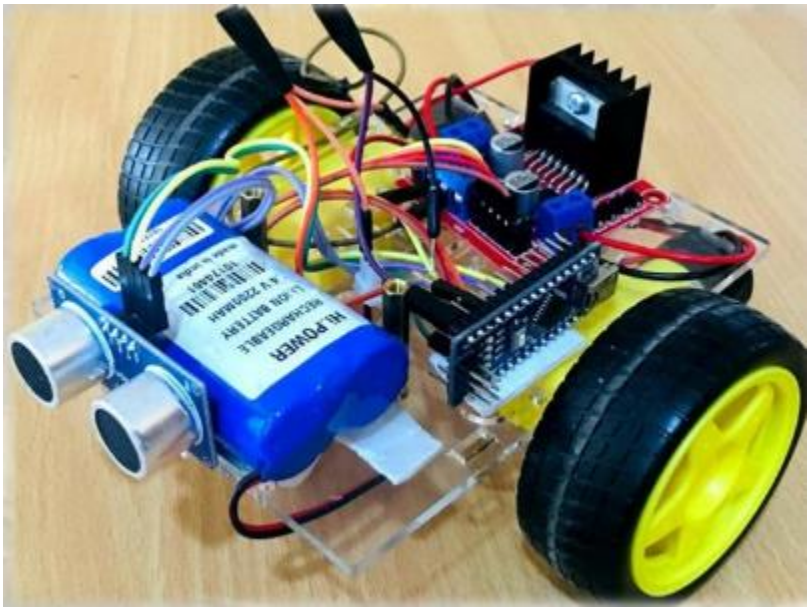
Collison Avoidance Block diagram





Requirements

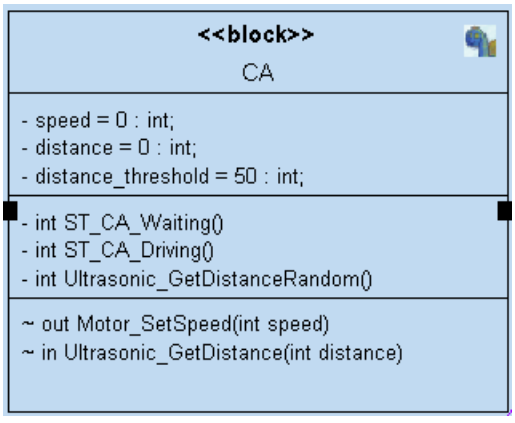
The project is about car system which can be represented by a simple finite state machine of two states.

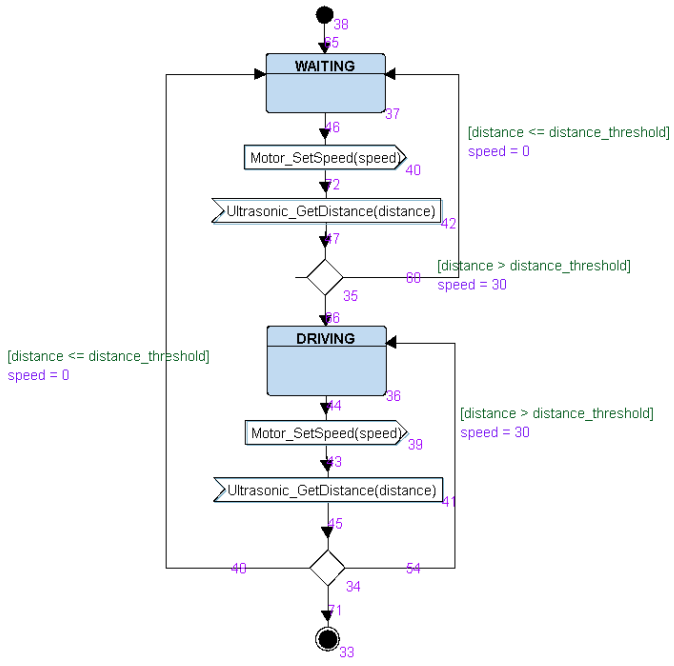
The system elements or blocks are DC motor, ultrasonic sensor and a microcontroller .

The ultrasonic sensor goes into a busy state in which it continuously reads the distance

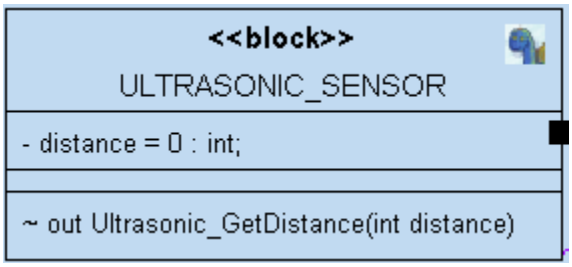
When the ultrasonic sensor reads a distance more than the threshold distance which equal to 50 units, The machine or the car goes into driving state in which The DC motor starts with a specific speed which equals to 30 units and when the distance is lower than the threshold the car goes into waiting state.

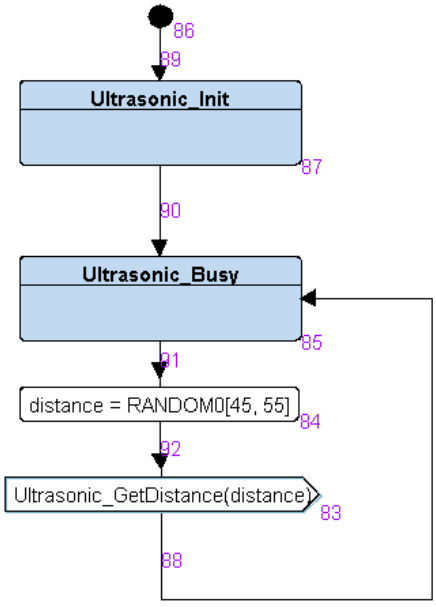
Collision Avoidance main Block



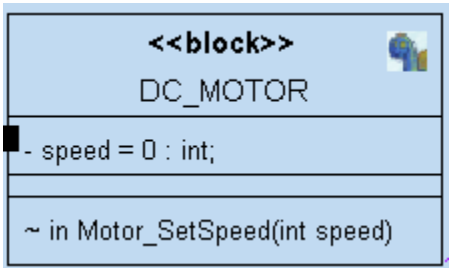


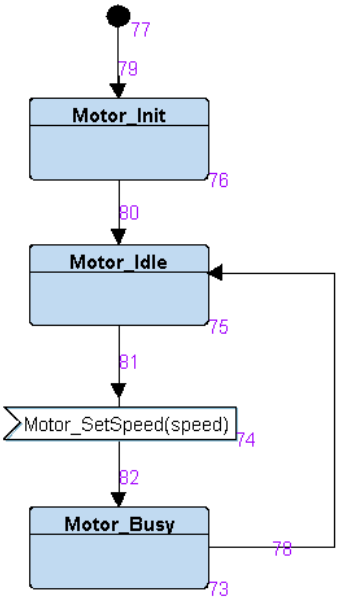
Ultrasonic sensor Block



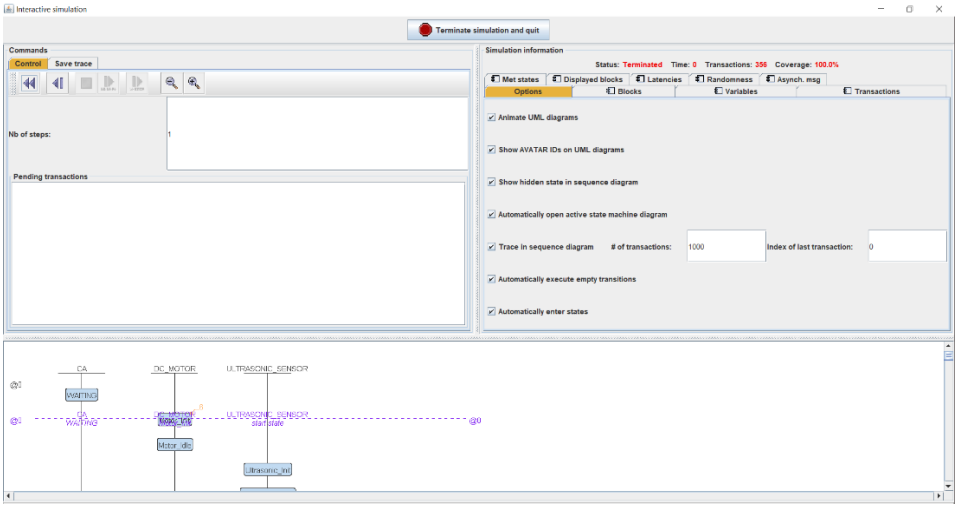


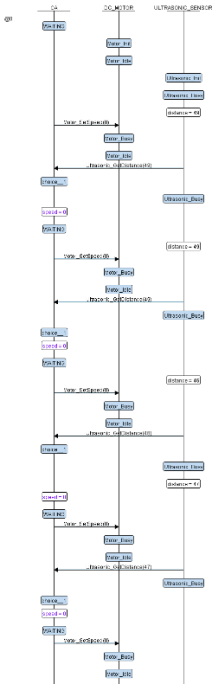
DC Motor Block





Activity & Simulation





```
Ultrasonic Init
Motor Init
-----"WAITING"-----
Ultrasonic ---> Distance = 53
Motor Busy  ---> Speed = 0
-----"DRIVING"-----
Ultrasonic ---> Distance = 54
Motor Busy  ---> Speed = 30
-----"DRIVING"-----
Ultrasonic ---> Distance = 54
Motor Busy  ---> Speed = 30
-----"DRIVING"-----
Ultrasonic ---> Distance = 46
Motor Busy  ---> Speed = 30
-----"WAITING"-----
Ultrasonic ---> Distance = 52
Motor Busy  ---> Speed = 0
-----"DRIVING"-----
Ultrasonic ---> Distance = 50
Motor Busy  ---> Speed = 30
-----"WAITING"-----
Ultrasonic ---> Distance = 50
Motor Busy  ---> Speed = 0
-----"WAITING"-----
```