

Collision Avoidance Report
Mastering Embedded Systems diploma
Unit 4
Lesson 2's Assignment
Made by: Ahmed Sameh

Case Study:

Specification:

- Ultra sonic sensor is used to measure the distance between objects and the vehicle
- When the distance is below a threshold of 50 it sends a signal to the motor in order to stop the vehicle

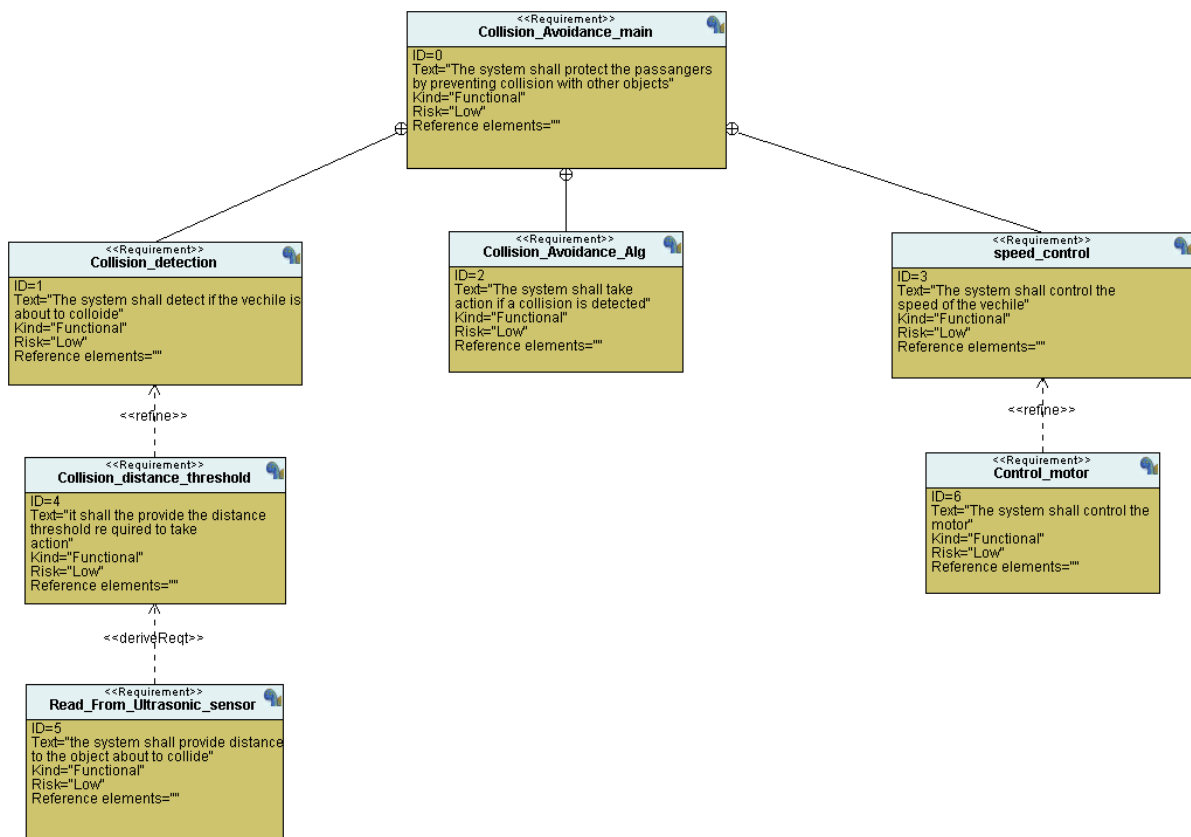
Assumptions:

- The sensor and motor set up and shut down procedures are not modeled
- Their maintenance is also not modeled
- The sensor and motor never fails
- They never face power cut

Method:

The method used is waterfall model

Requirement:

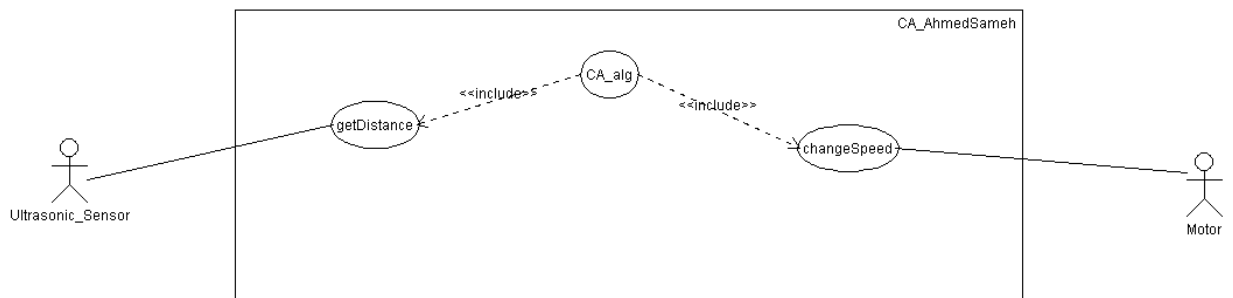


Space exploration:

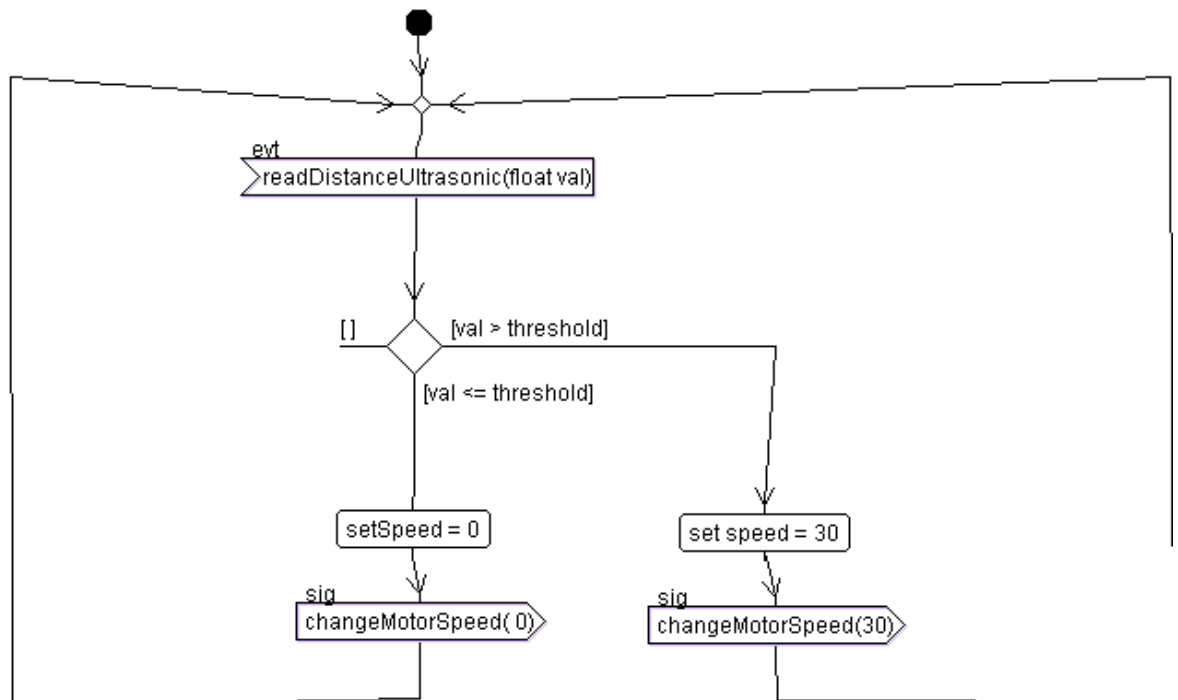
we will use any stm32 board

System Analysis:

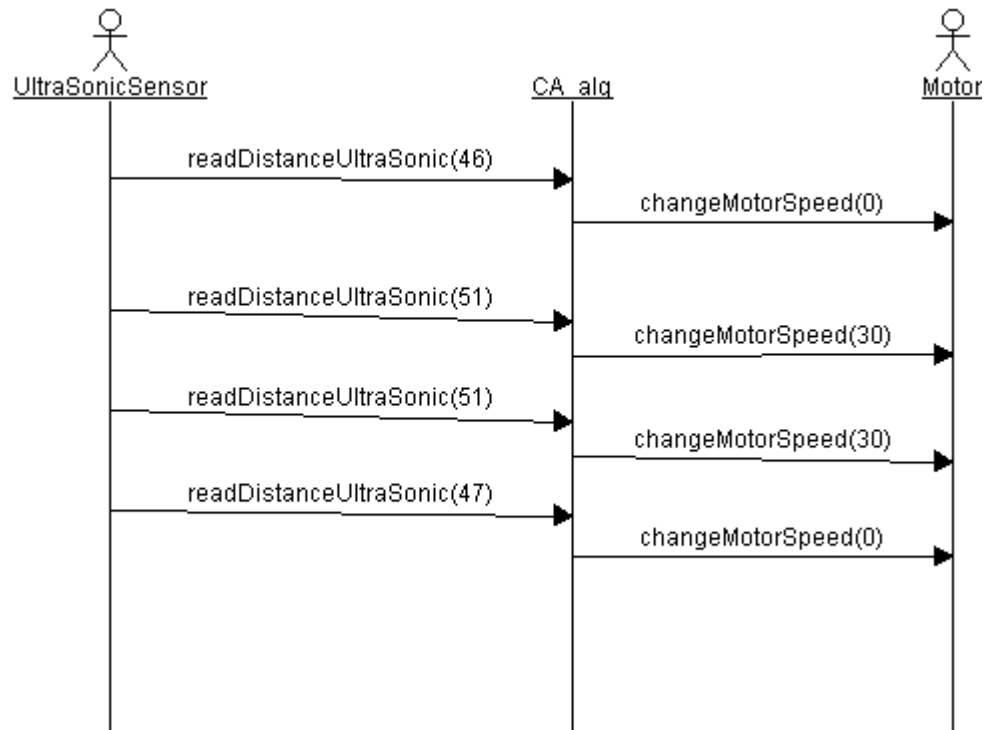
1. Use case diagram



2. Activity diagram

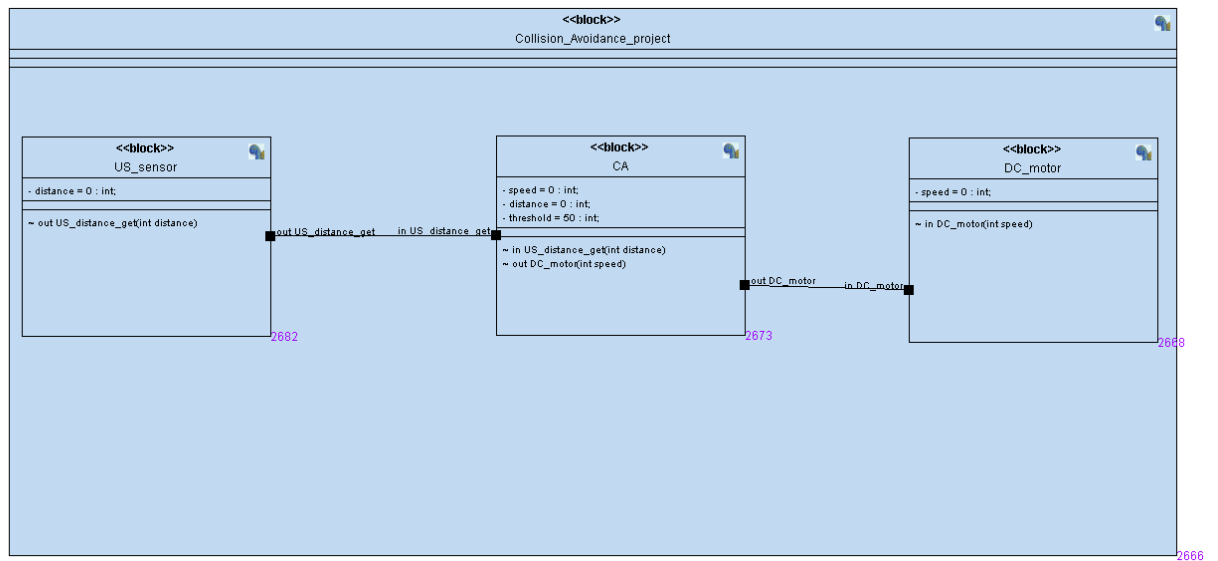


3. Sequence diagram

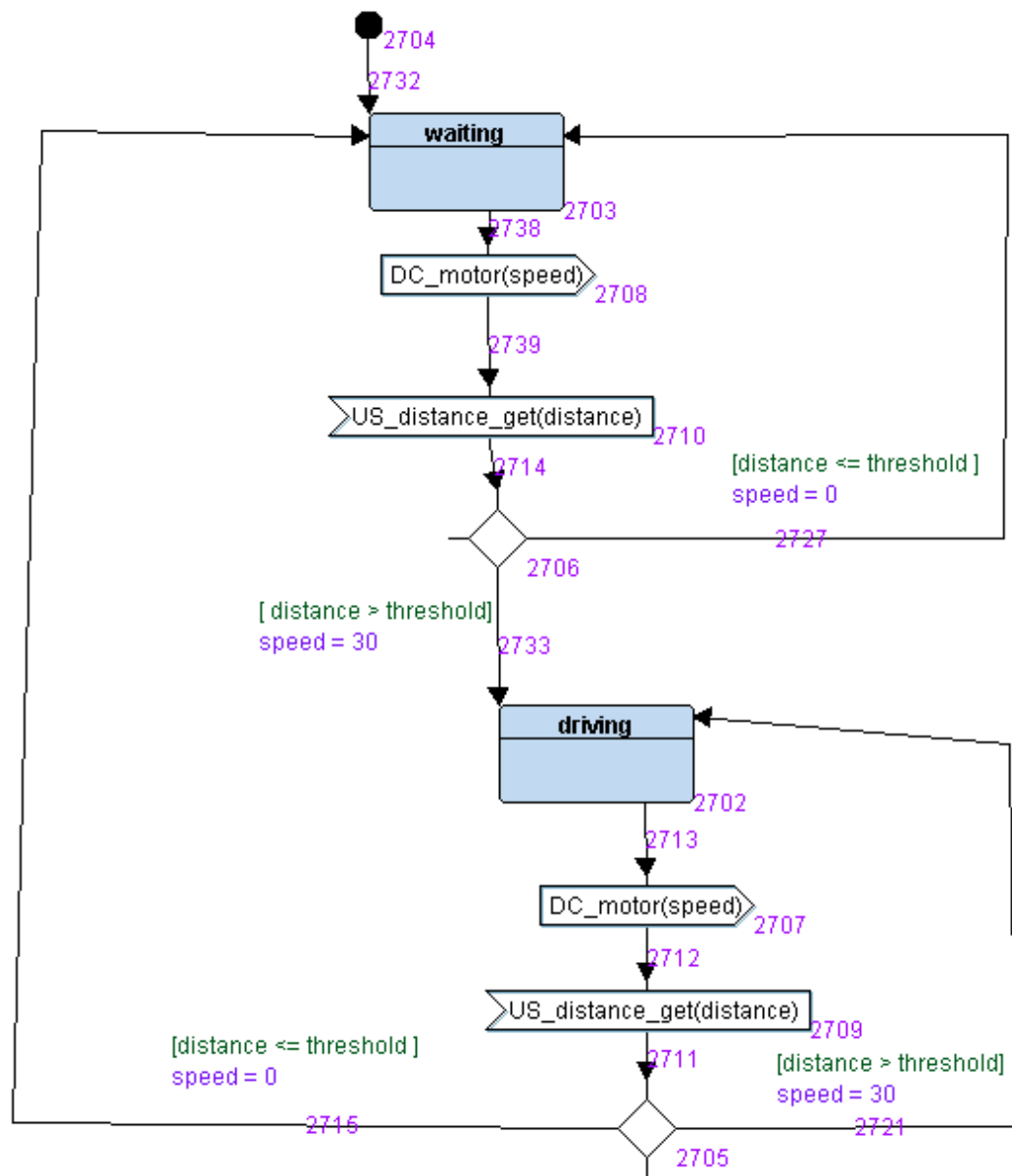


System Design:

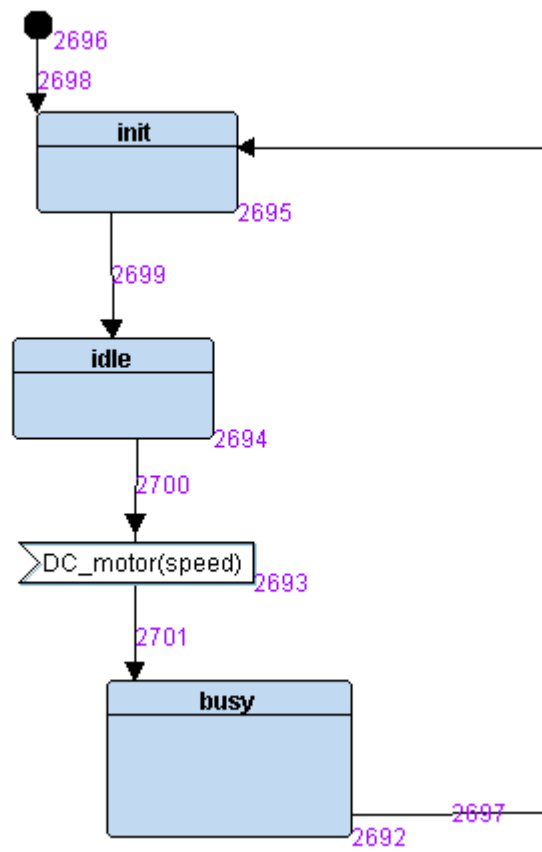
1. Block diagram



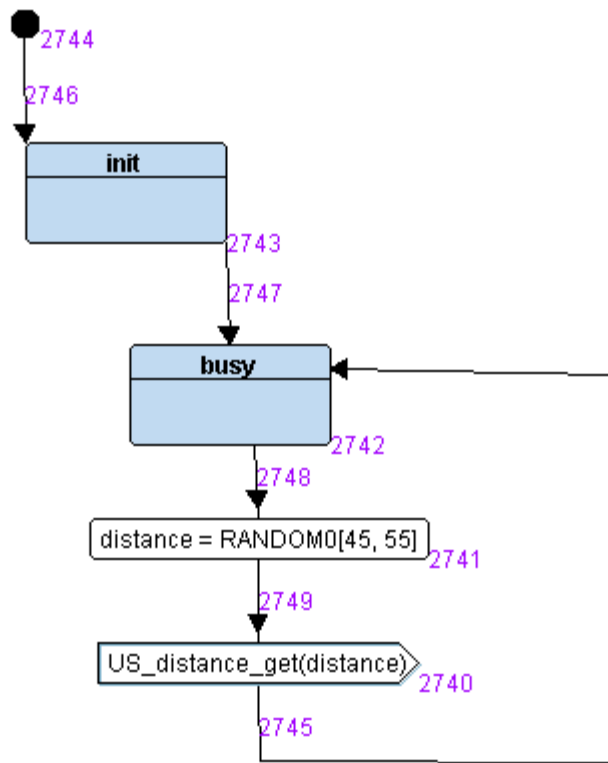
2. State Diagrams



1 CA_state_diagram



2 Motor_state_diagram



3 ultrasonic_sensor_state_diagram

Simulation: