

# **Mastering Embedded System Diploma**

## **Collision Avoidance Car System Design Report**



**by:**

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**Under the supervision of:**

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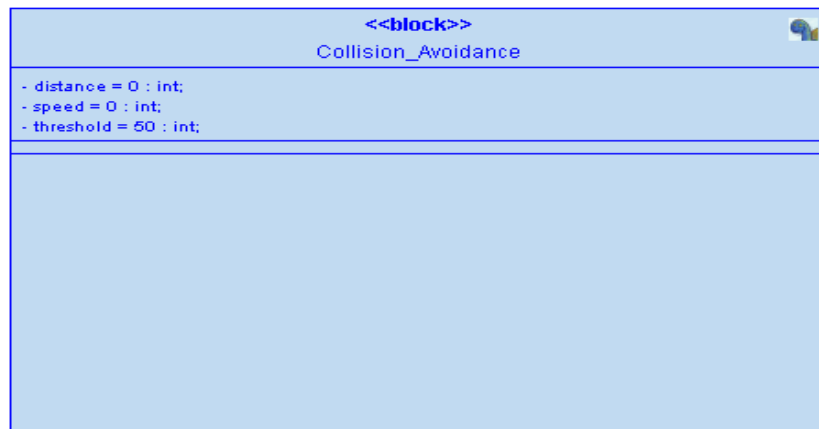
# Collision Avoidance Car System

## Description:

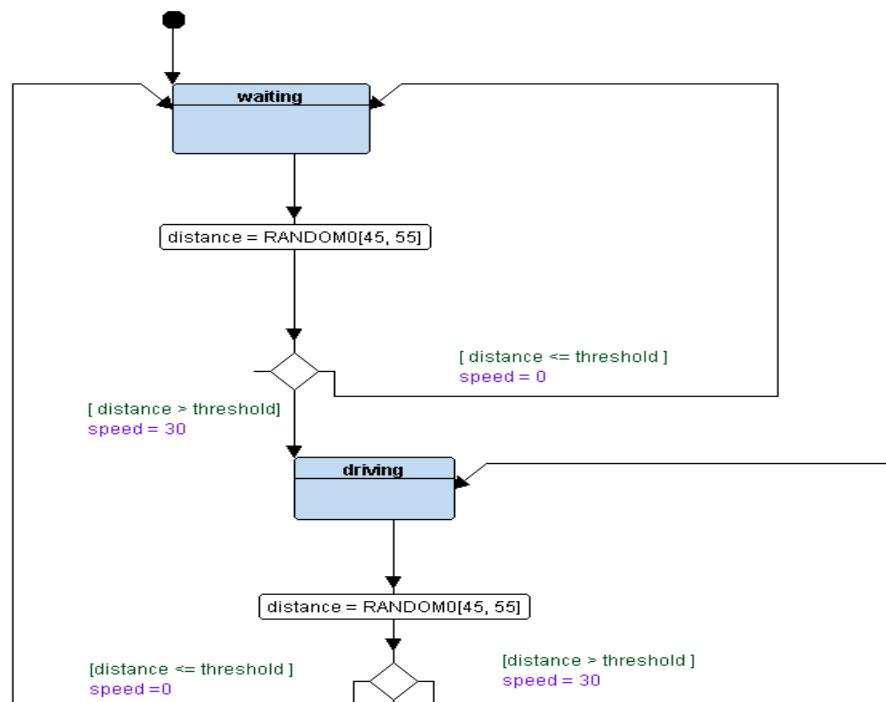
Implementation collision avoidance car system that detects objects, measures the distance between the car and object and decides which is go or stop according to the distance between the car and the object, if this distance is larger than 50 cm the car will keep forward if not the car will stop.

## 1) Singel Module Project (V1.0)

Block diagram of the system:



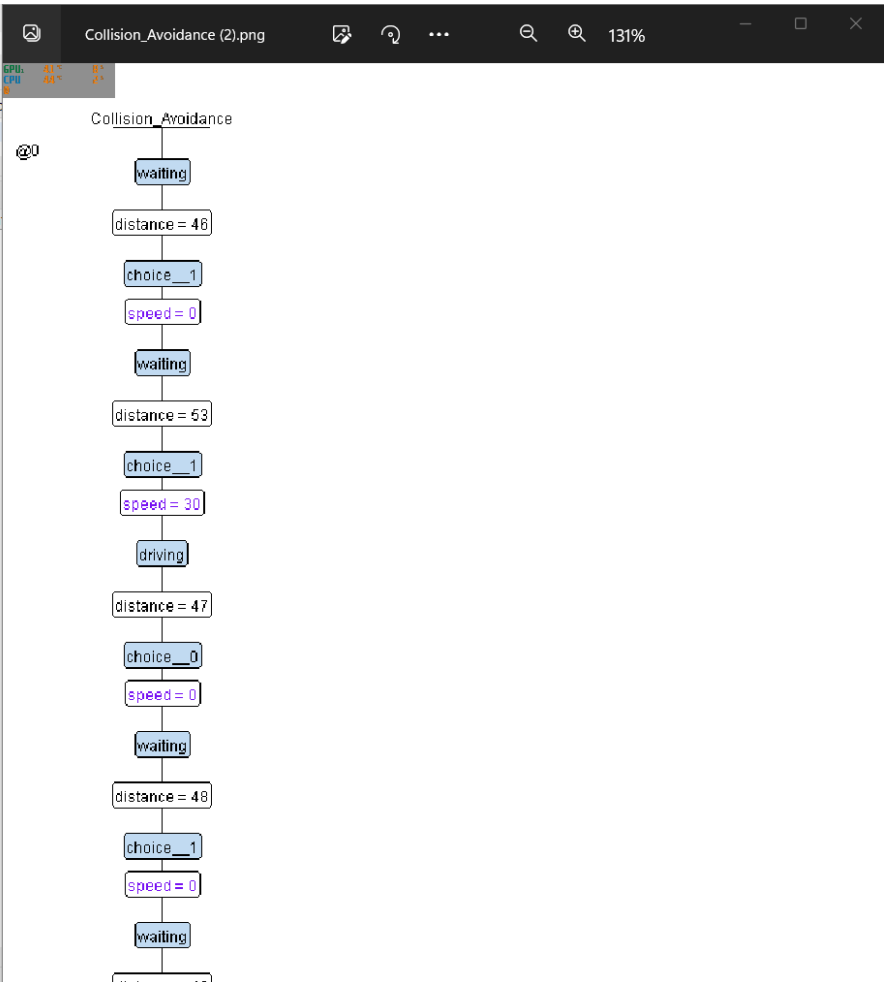
State Machine:



## The output of system:

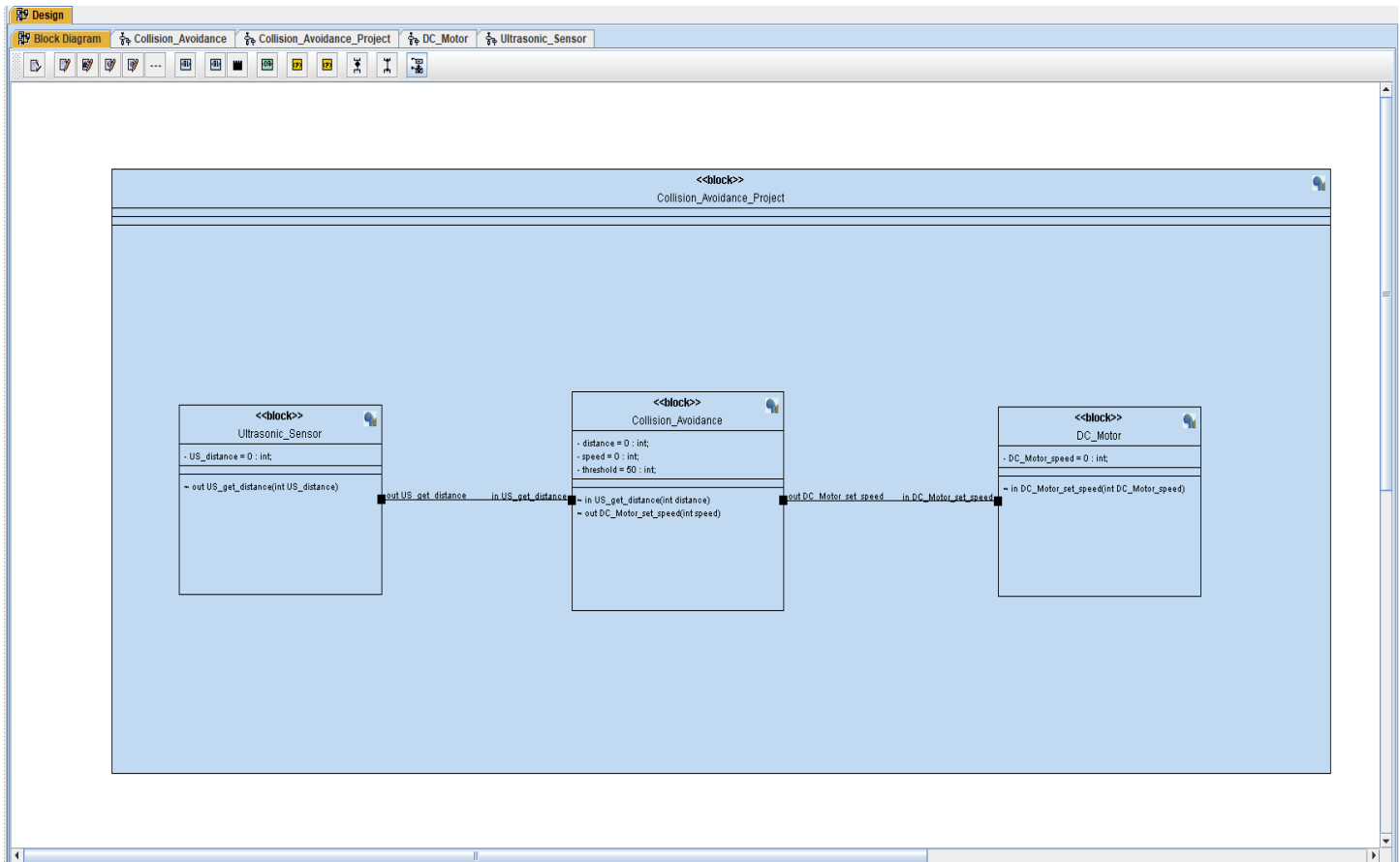
```
AVR Run Window Help
e.exe
collision_avoidance.h state.h collision_avoidance.c Platform
14 //Initialization all modules
15 }

Console Problems Executables Debugger Console
<terminated> (exit value: 1, -VF, V8, 01-) Collision_Avoidance.exe [C/C++ Applica
*****
CA_waiting
*****
>> Set speed = 0
>> Read distance = 53
>> Check Event
*****
CA_driving
*****
>> Set speed = 30
>> Read distance = 54
>> Check Event
*****
CA_driving
*****
>> Set speed = 30
>> Read distance = 54
>> Check Event
*****
CA_driving
*****
>> Set speed = 30
>> Read distance = 46
>> Check Event
*****
CA_waiting
*****
>> Set speed = 0
>> Read distance = 52
>> Check Event
*****
CA_driving
*****
>> Set speed = 30
>> Read distance = 50
>> Check Event
*****
```



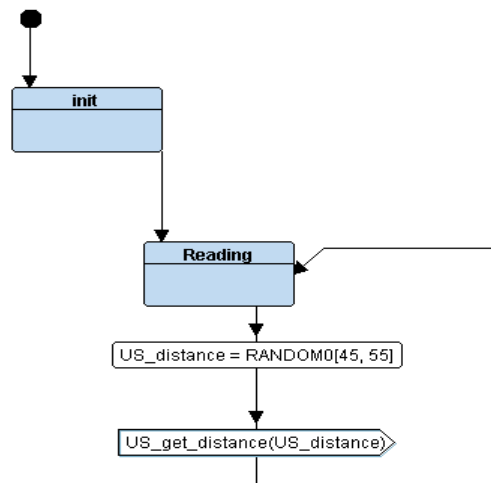
# 1) Multiple Modules Project (V2.0)

Block diagram of the system:

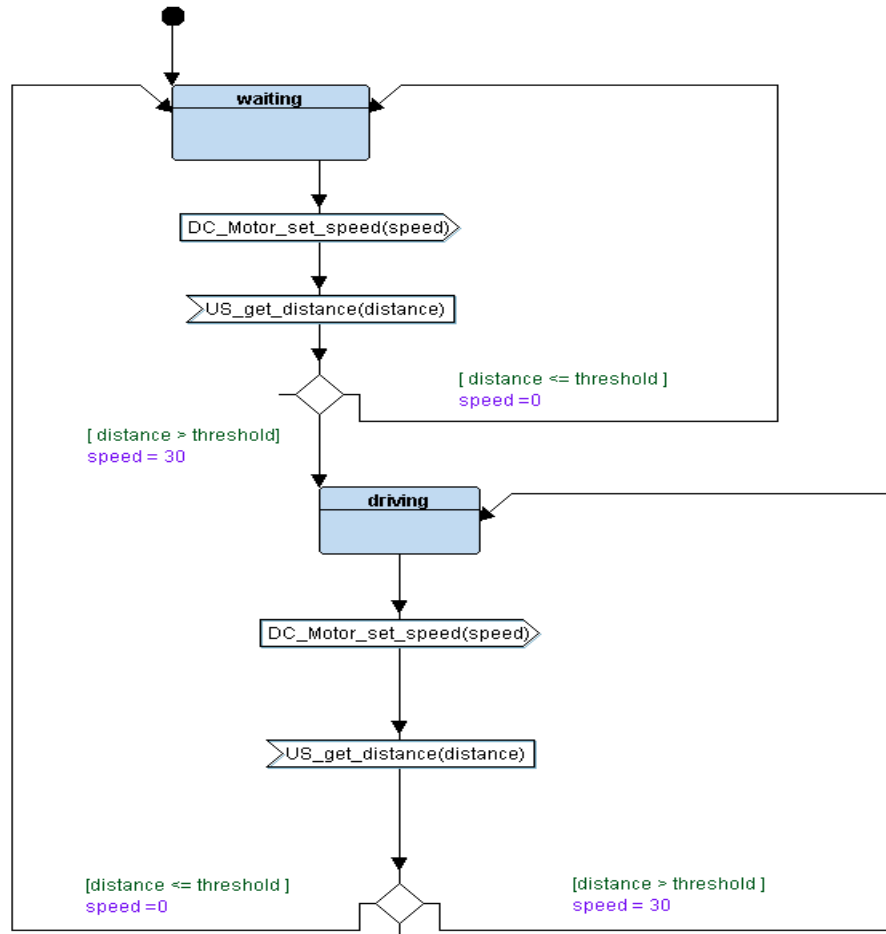


State Machine:

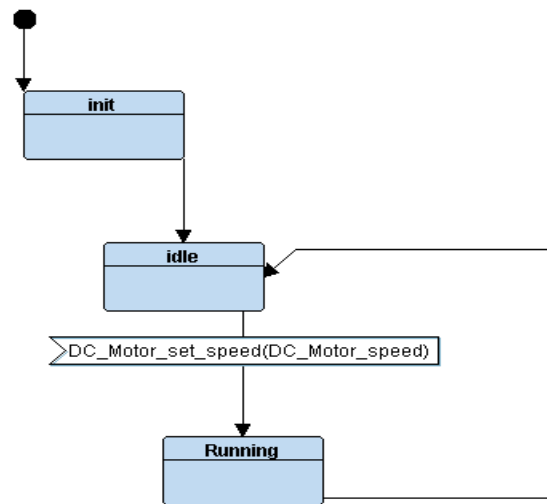
a) Ultrasonic Sensor



## b) Collision avoidance



## c) DC Motor



# The output of system:

