



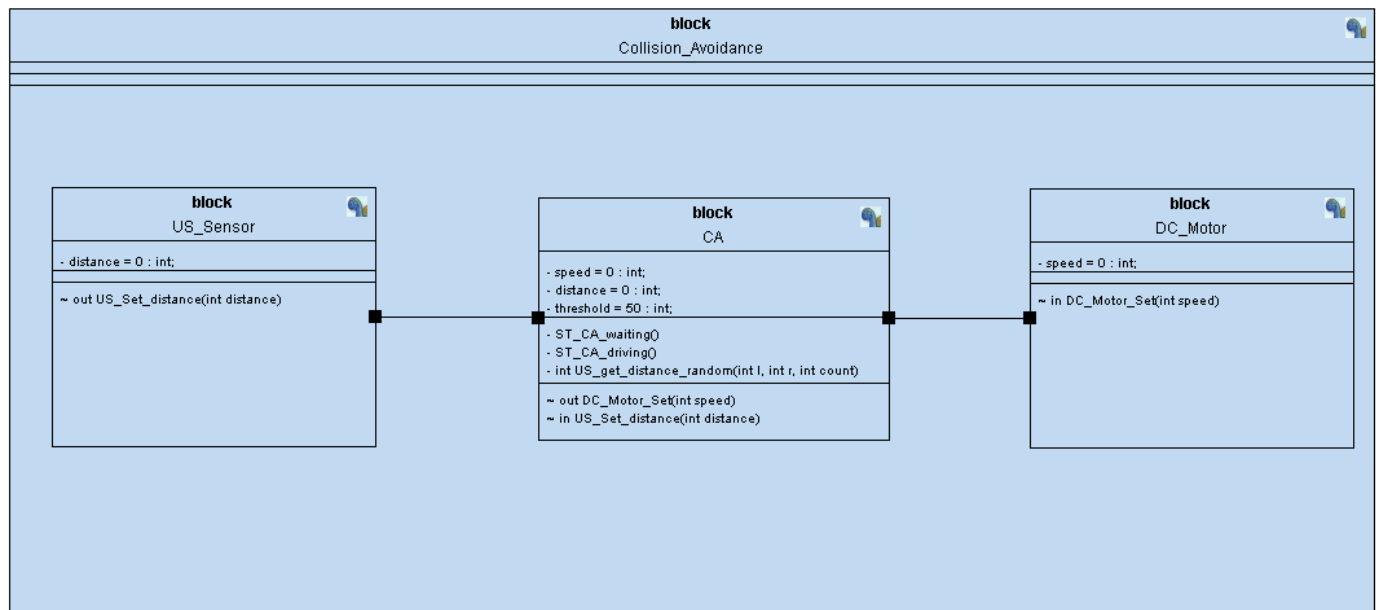
Unit 4 Lesson 2 Report

Name: Hisham Elsayed Morsy Youssef

Learn In Depth

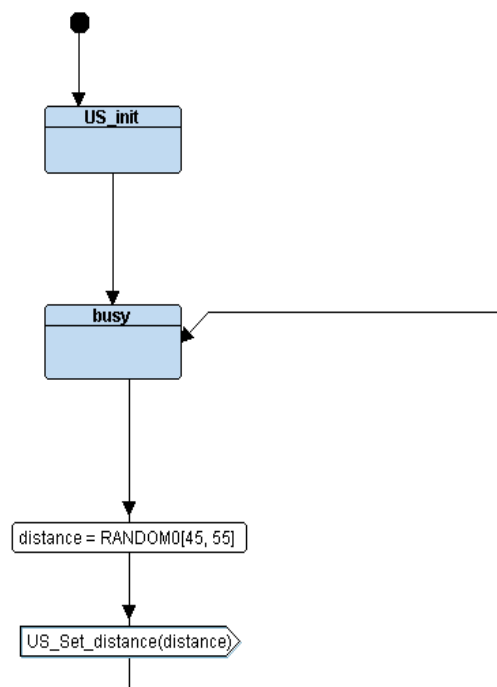
B e P r o f e s s i o n a l I n E m b e d d e d S y s t e m
E n g . K e r o l e s S h e n o u d a

Modules Level:

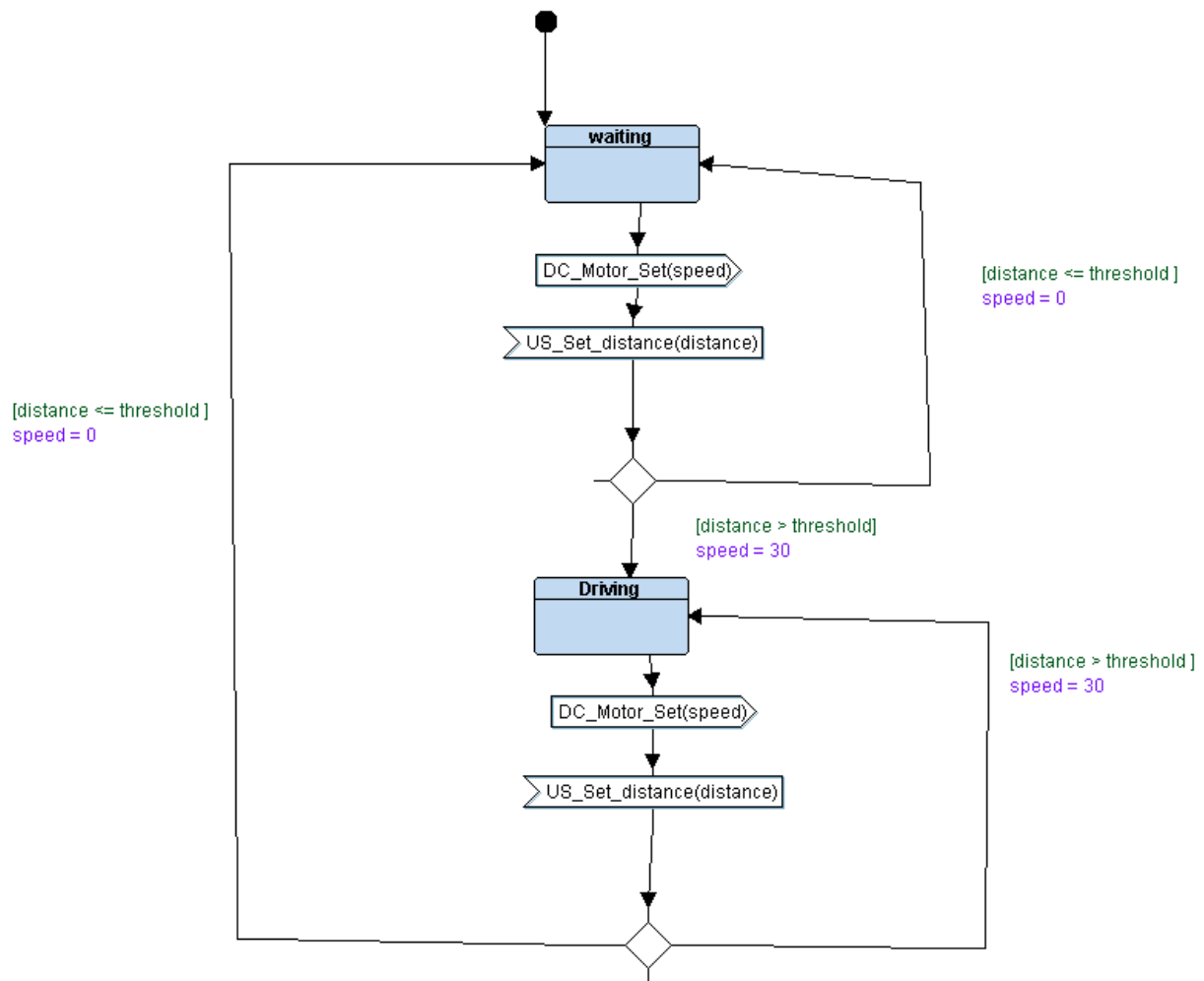


Logical Design

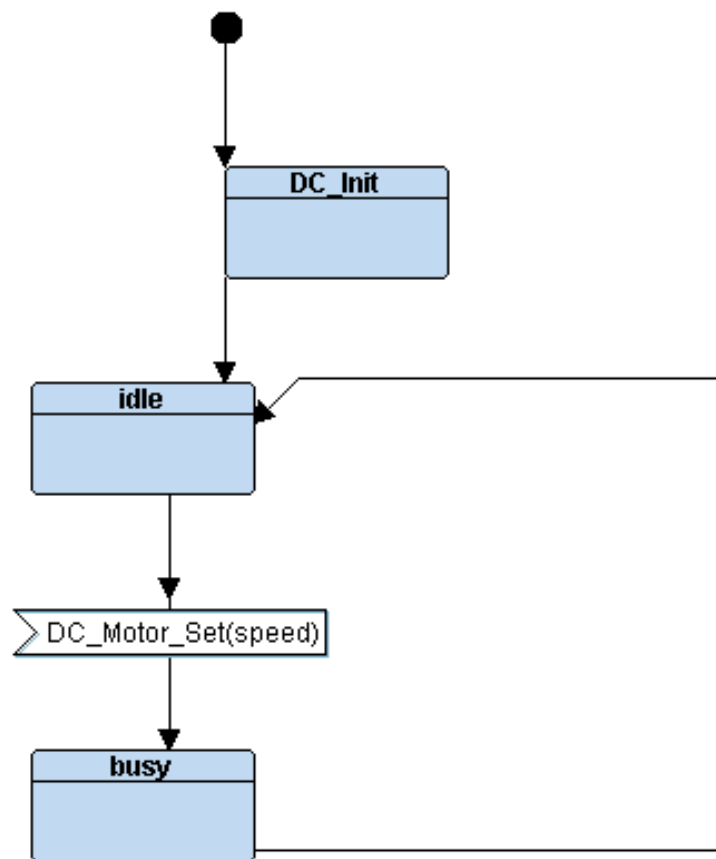
I. Ultrasonic Sensor



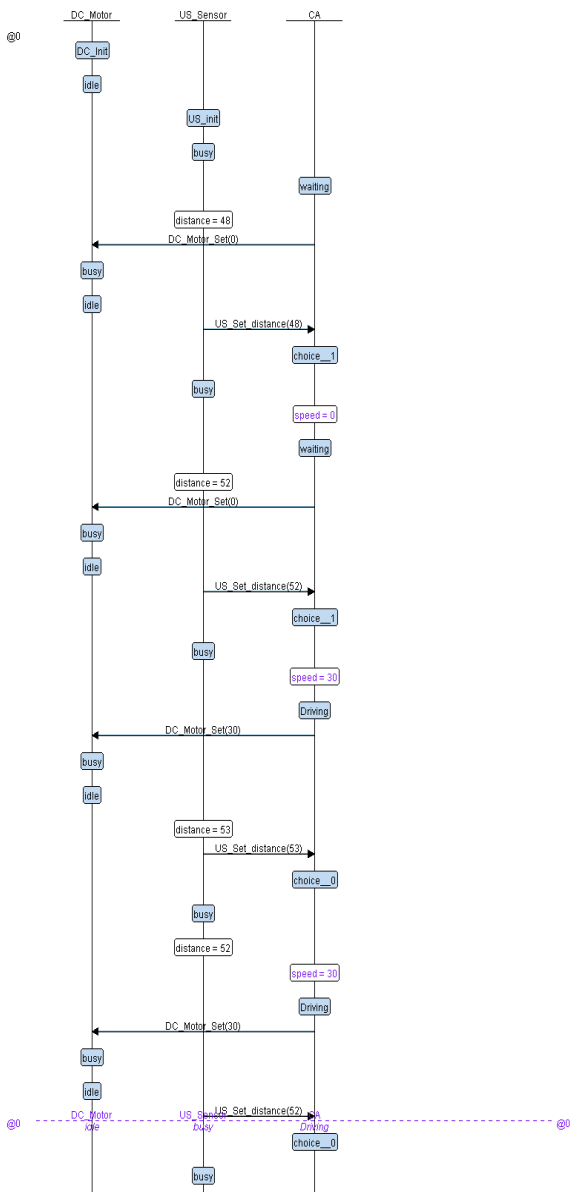
II. Collision Avoidance



III. DC Motor



SW Logical verification



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1  US_init
2  DC_init
3  US_waiting state: distance = 42
4  US -----distance=42-----> CA
5  CA_waiting state: distance = 42 , speed = 0
6  CA -----speed=0----->DC
7  DC_busy state: speed = 0
8  US_waiting state: distance = 43
9  US -----distance=43-----> CA
10 CA_waiting state: distance = 43 , speed = 0
11 CA -----speed=0----->DC
12 DC_busy state: speed = 0
13 US_waiting state: distance = 10
14 US -----distance=10-----> CA
15 CA_waiting state: distance = 10 , speed = 0
16 CA -----speed=0----->DC
17 DC_busy state: speed = 0
18 US_waiting state: distance = 46
19 US -----distance=46-----> CA
20 CA_waiting state: distance = 46 , speed = 0
21 CA -----speed=0----->DC
22 DC_busy state: speed = 0
23 US_waiting state: distance = 30
24 US -----distance=30-----> CA
25 CA_waiting state: distance = 30 , speed = 0
26 CA -----speed=0----->DC
27 DC_busy state: speed = 0
28 US_waiting state: distance = 50
29 US -----distance=50-----> CA
30 CA_waiting state: distance = 50 , speed = 0
31 CA -----speed=0----->DC
32 DC_busy state: speed = 0
33 US_waiting state: distance = 39

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```
US -----distance=53-----> CA
CA_driving state: distance = 53 , speed = 0
CA -----speed=30----->DC
DC_busy state: speed = 30
US_waiting state: distance = 7
US -----distance=7-----> CA
CA_waiting state: distance = 7 , speed = 30
CA -----speed=0----->DC
DC_busy state: speed = 0
US_waiting state: distance = 52
US -----distance=52-----> CA
CA_driving state: distance = 52 , speed = 0
CA -----speed=30----->DC
DC_busy state: speed = 30
US_waiting state: distance = 26
US -----distance=26-----> CA
CA_waiting state: distance = 26 , speed = 30
CA -----speed=0----->DC
```