Mastering Embedded Systems Online Diploma

www.learn-in-depth.com

first term

project 1

pressure controller

Eng:Manal Fathy

https://www.learn-in-depth.com/online-diploma/manal.ibrahim.4817%40gmail.com

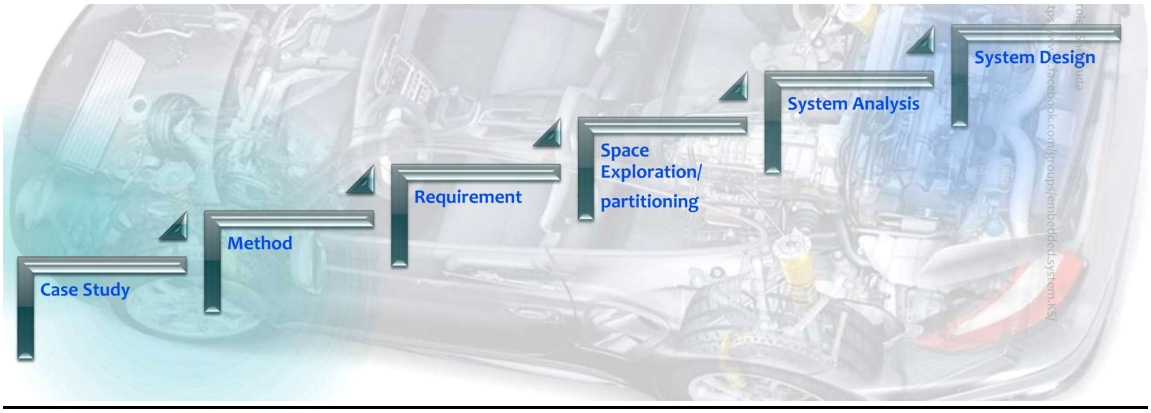
Project Specification:

- A pressure Controller informs the cabin crew with an alarm when the pressure exceeds 20 bars .

-The alarm duration equals 60 seconds

-Keep track of the measured value.

The system architecting and Design sequence:



1- Case Study:

- Pressure Control Assumptions :

- Setup and shutdown procedures are not modeled
- Pressure sensor will never fail
- Alarm will never fail.
- The controller never faces power cut.

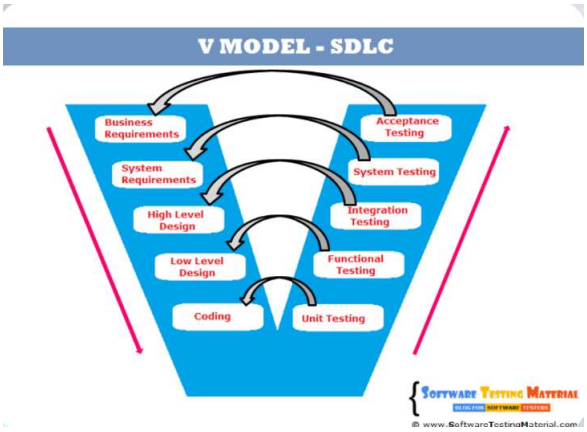
- No display of the tracked values.

- Versioning :

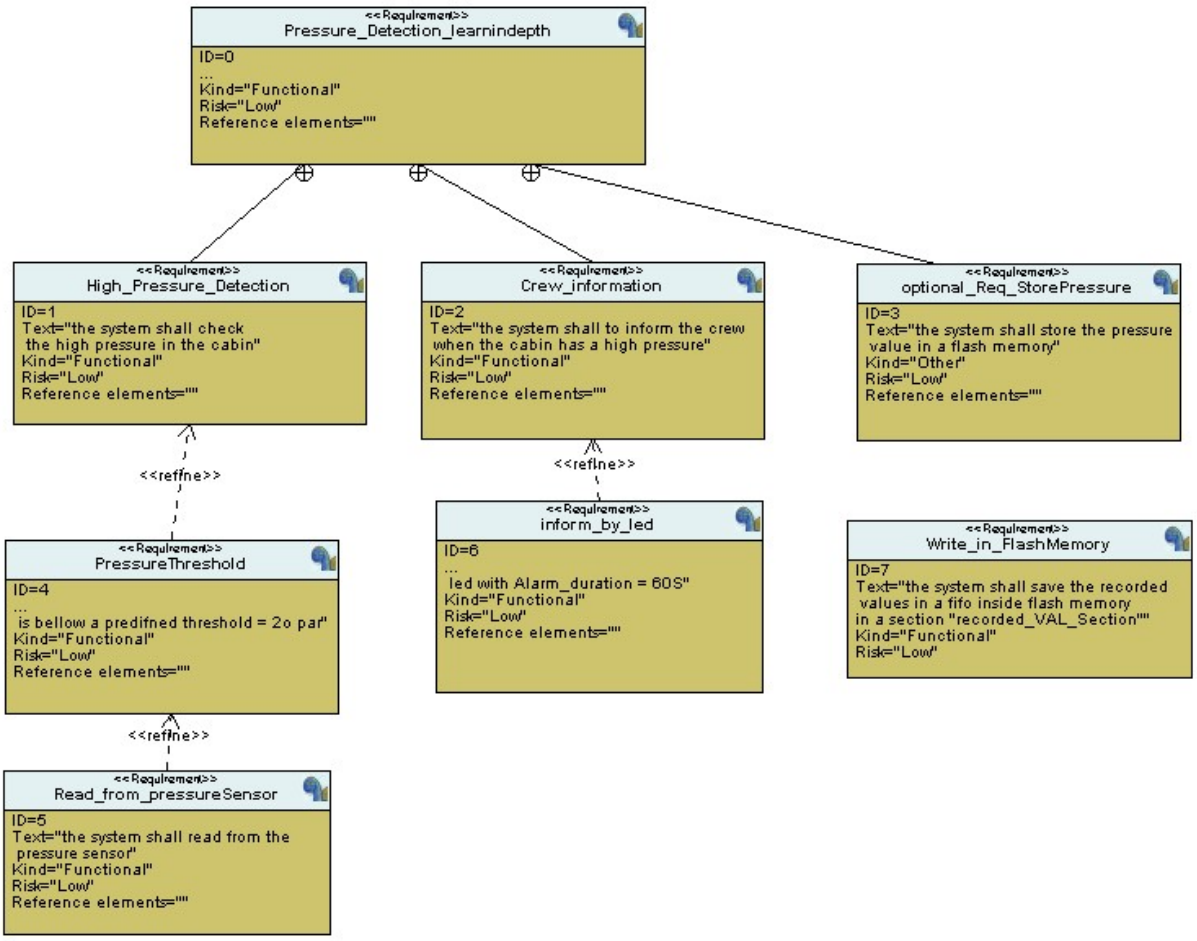
the “ keep track of measured value “ option will not be modeled in the first version.

2-Method:

V-model SDLC will be used in this project.



3- System Requirements:



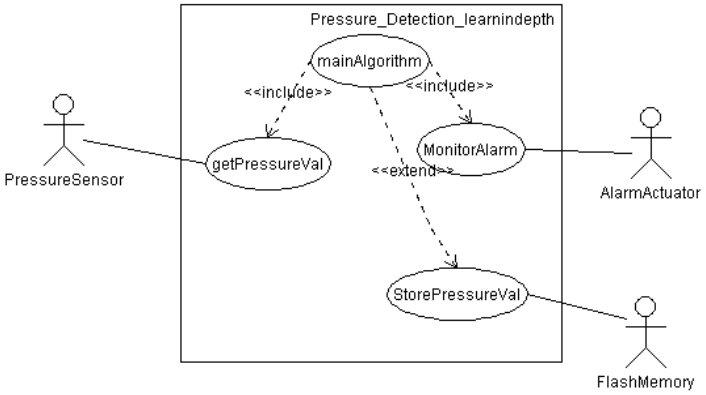
4-Space Exploration and partitioning:

Stm32 will be used.

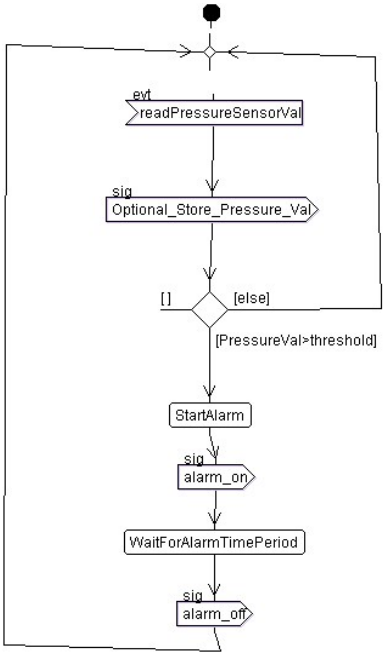
5- System Analysis.

There will be 3 diagrams :

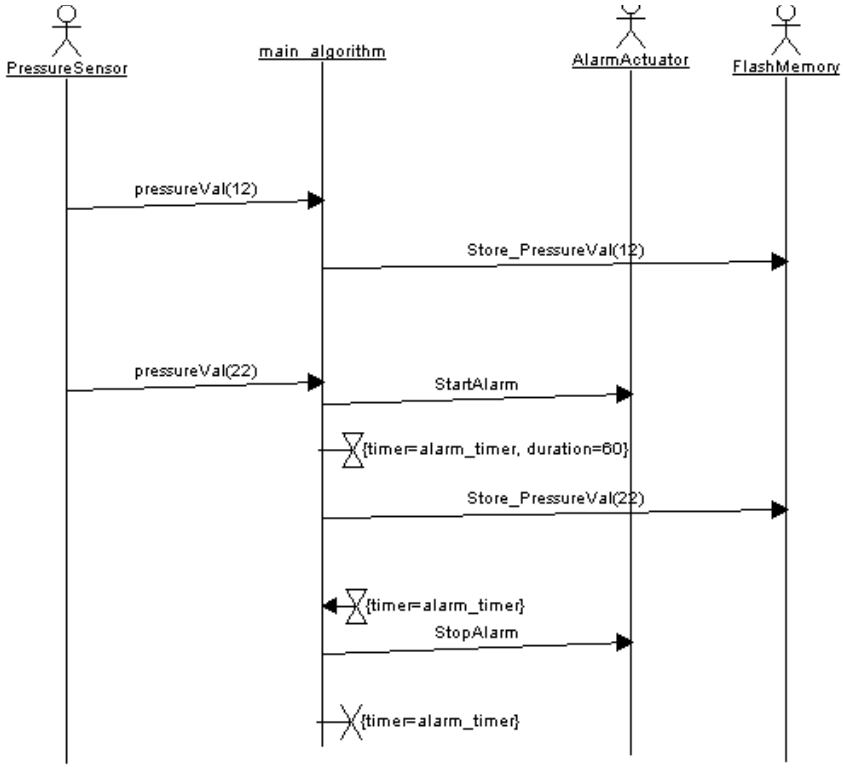
1-Use Case Diagram :



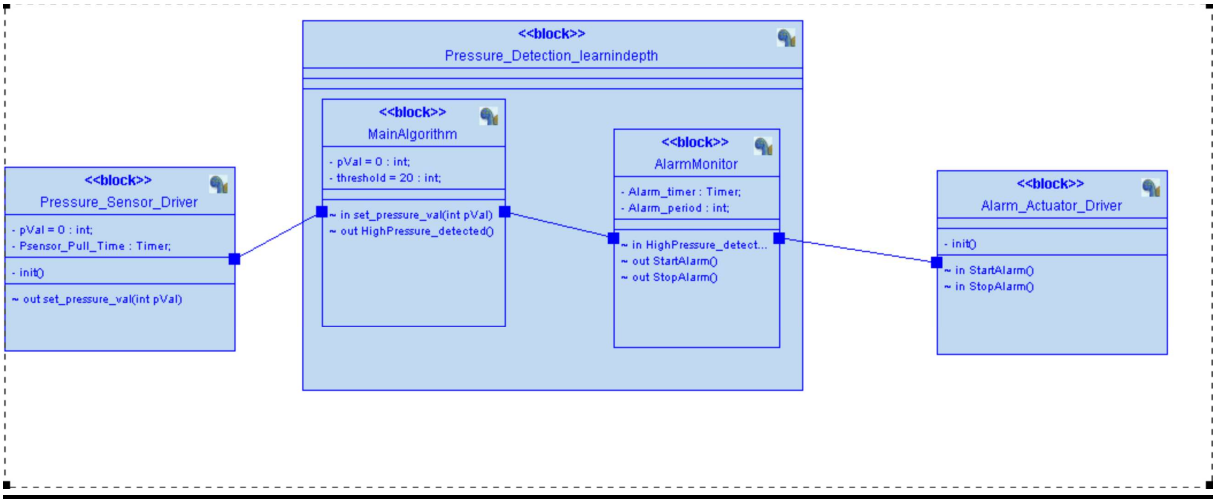
2-Activity Diagram :



3- Sequence Diagram :

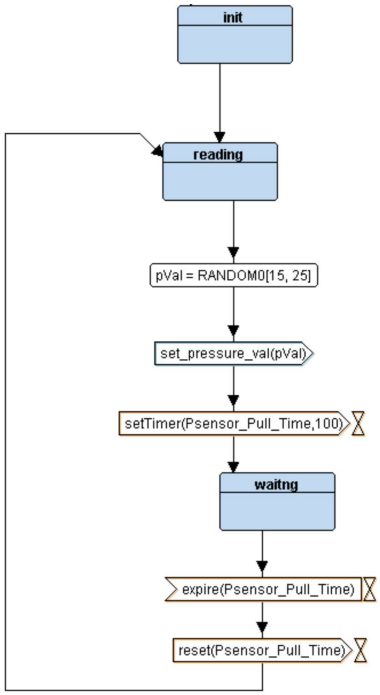


6-System Design:

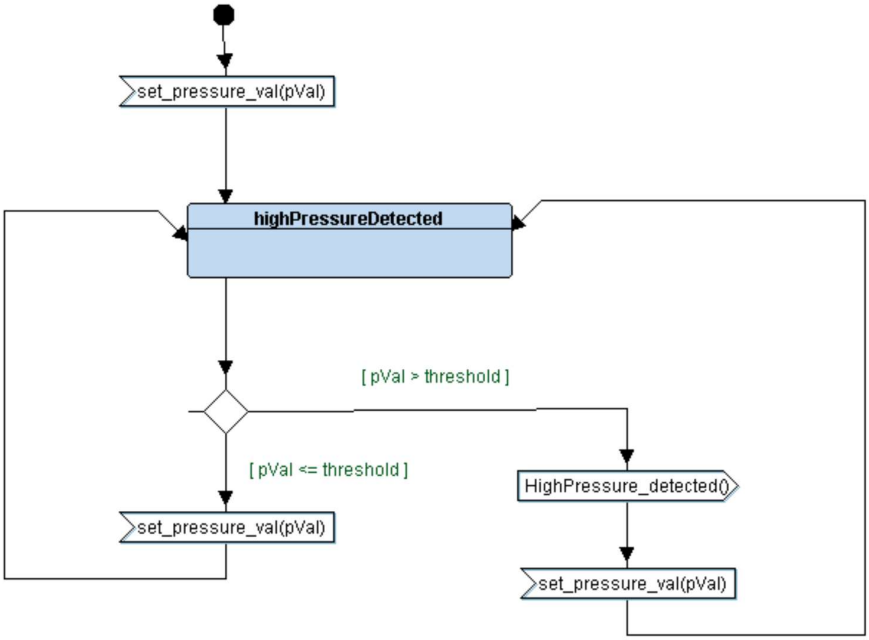


the project is consist of 4modules :

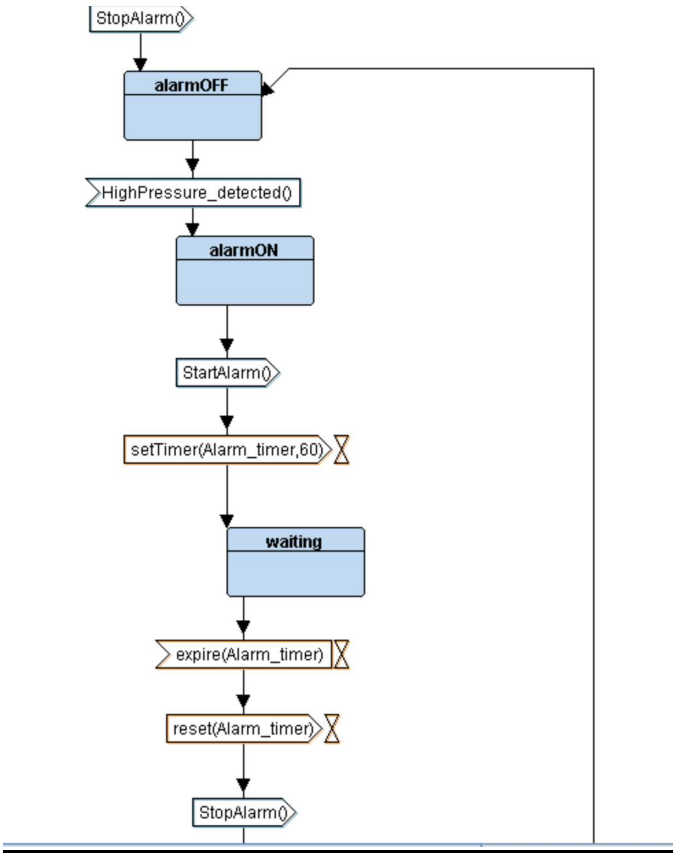
1-pressure sensor driver



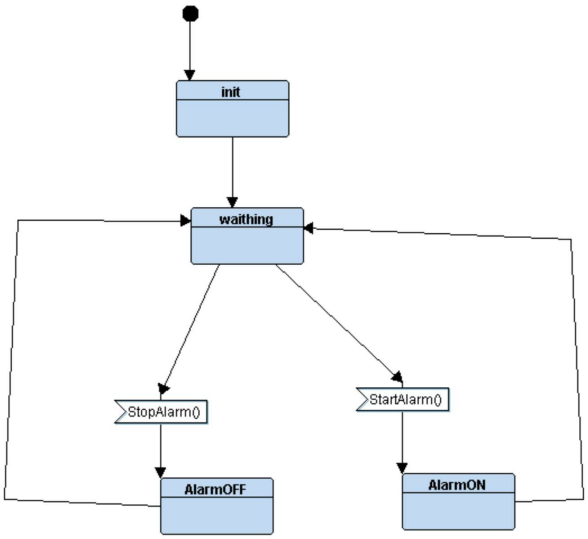
2- the main algorithm



3-the alarm monitor

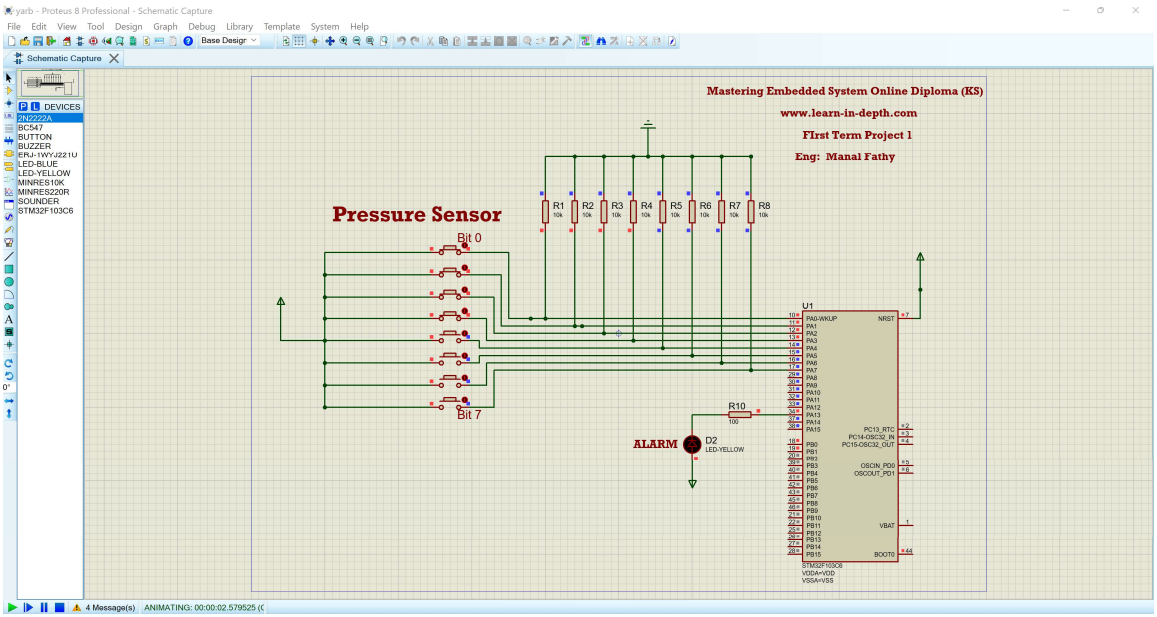


4- the alarm actuator



,and after run it on protues :

1- when the input is 15 there is no alarm .



2- when the input is 25 the alarm led will be turned on .