## Mastering Embedded System Online Diploma

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First Term (Final Project 1)

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# SW analysis .map file & symbols table & Section tables

# Proteus Simulation

Pressure Controller

# Project Description:

### A pressure controller informs the crew of a cabin with an alarm when the pressure exceeds 20 bars in the cabin.

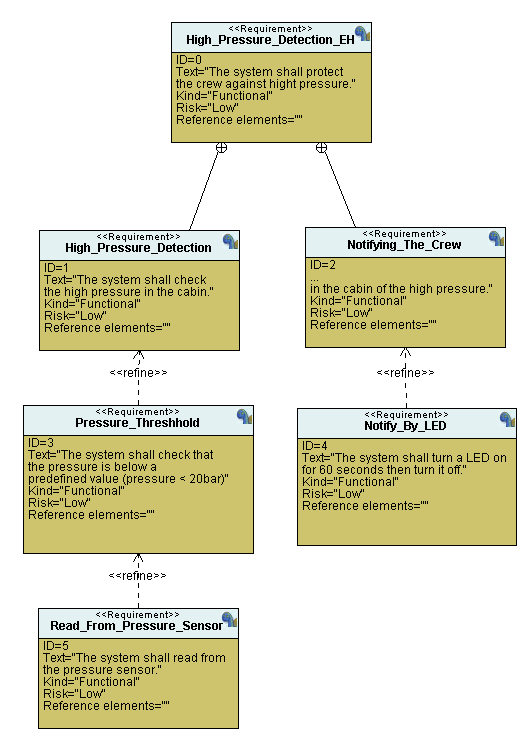
### The alarm duration equals 60 seconds.

Assumptions:

* The controller set up and shutdown procedures are not modeled
* The controller maintenance is not modeled
* The pressure sensor never fails
* The alarm never fails
* The controller never faces power cut



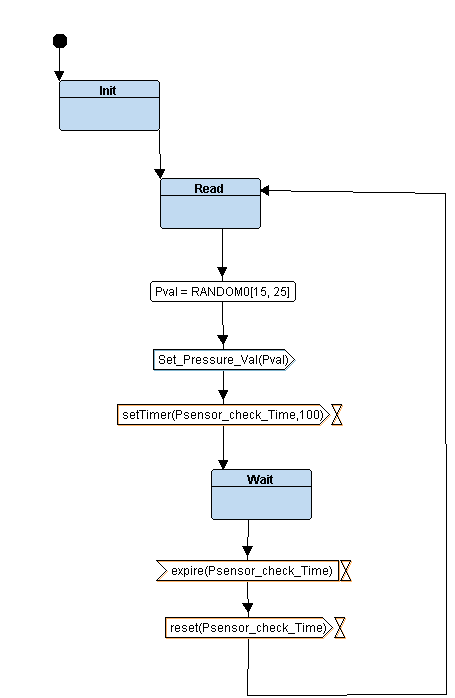
# Requirements Diagram:



# System Analysis: 1. Use Case Diagram E:\Downloads\Embedded Here We Go Again\Kerolos Shenoda's Diploma\Programs\TTool\TTool\figures\usecase.png

# 2. Activity Diagram E:\Downloads\Embedded Here We Go Again\Kerolos Shenoda's Diploma\Programs\TTool\TTool\figures\act.png 3. Sequence DiagramE:\Downloads\Embedded Here We Go Again\Kerolos Shenoda's Diploma\Programs\TTool\TTool\figures\seq.png System Design (Modules with its own state machines) E:\Downloads\Embedded Here We Go Again\Kerolos Shenoda's Diploma\Programs\TTool\TTool\figures\des.png

# 1-Pressure Sensor State Diagram:

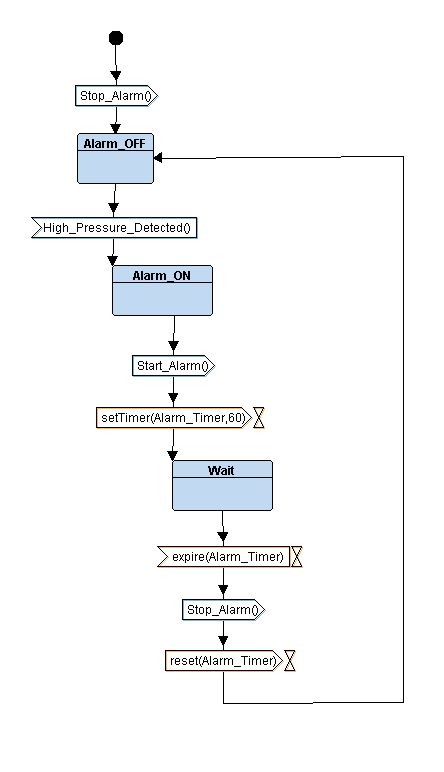


# 2-Main Algorithm State Diagram:E:\Downloads\Embedded Here We Go Again\Kerolos Shenoda's Diploma\Programs\TTool\TTool\figures\main.png

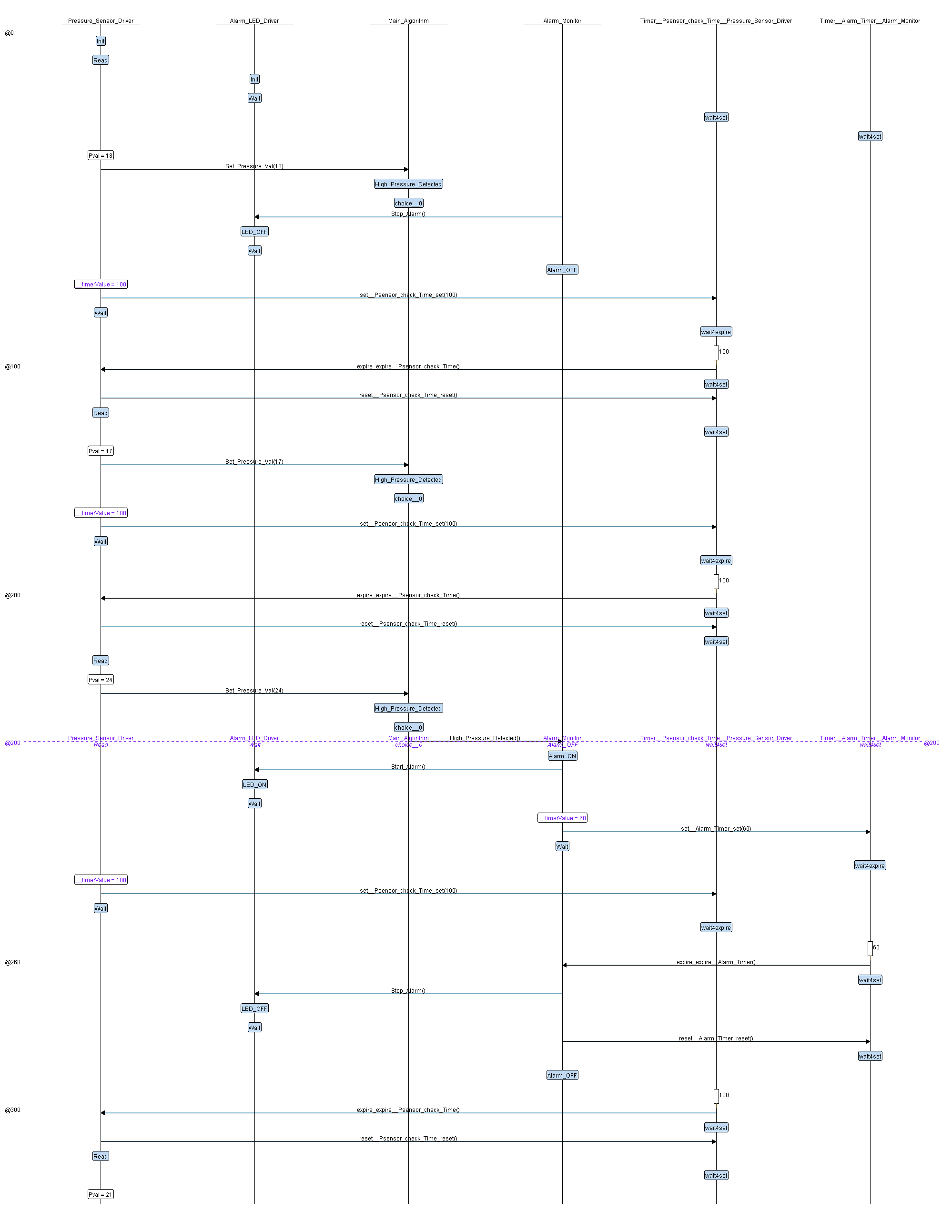
# 3-Alarm LED State Diagram:

# 

# 4- Alarm Monitor State Diagram:



# - System Design Simulation:



# Implementation of each module in C: (An Image for each file.c & file.h with the Corresponding state machine) main.c

# State.h Util.h

# GPIO\_Driver.h

# GPIO\_Driver.c

# Startup.c MakeFile

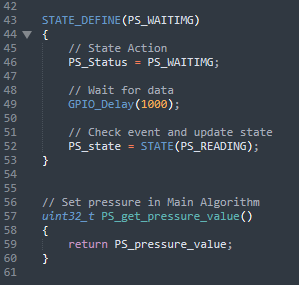
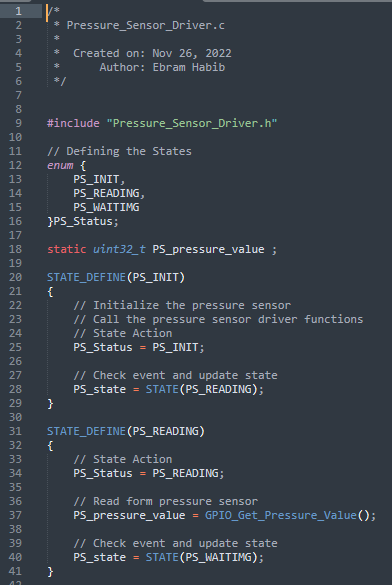
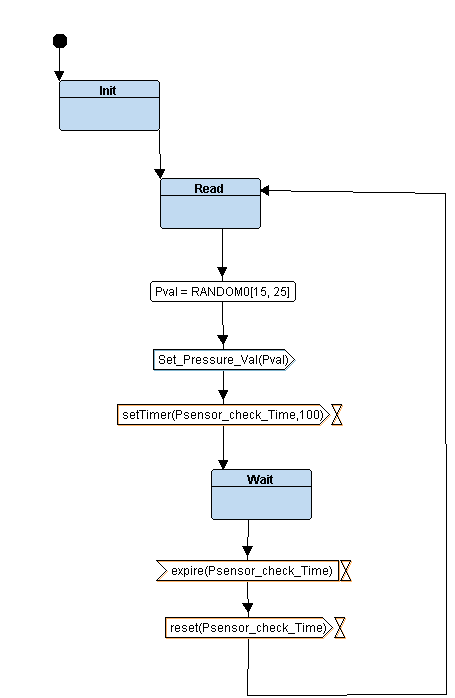
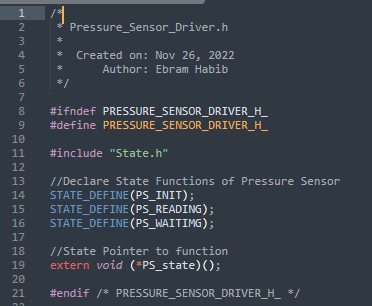
# 

# Linker\_Script.ld

# 

# 

# Pressure\_Sensor\_Driver



# Alarm\_LED\_Driver

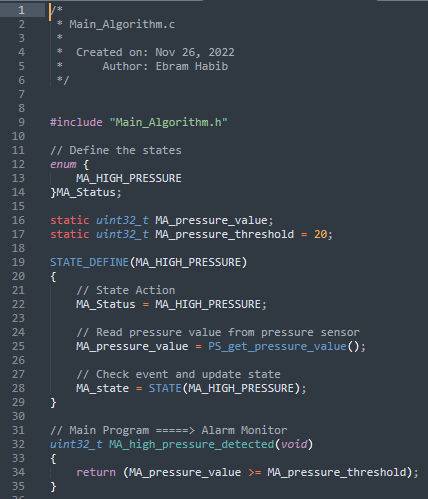
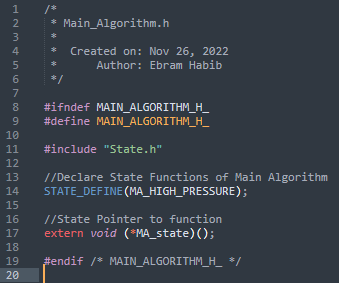
# 

# 

# Alarm\_Monitor E:\Downloads\Embedded Here We Go Again\Kerolos Shenoda's Diploma\Programs\TTool\TTool\figures\wat.png

# 

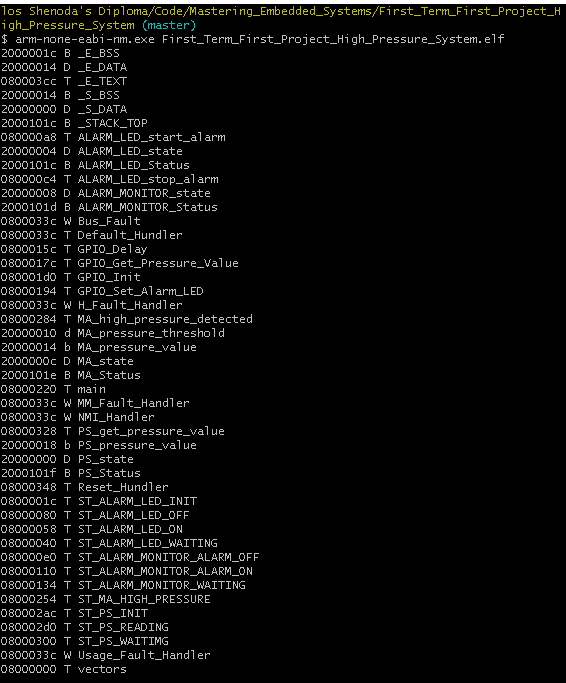
# Main\_Algorithm



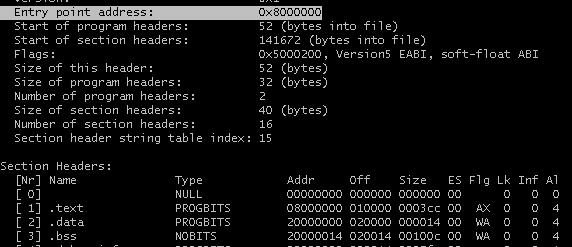
# SW analysis:

# 1- Map file

# 2- Symbols table



# 3- Section tables 4- Entry Point Address



# Proteus Simulation