

Mastering Embedded System Online Diploma  
First Term (Final project 1): Pressure Controller  
Eng:mahmoud abed  
My profile:

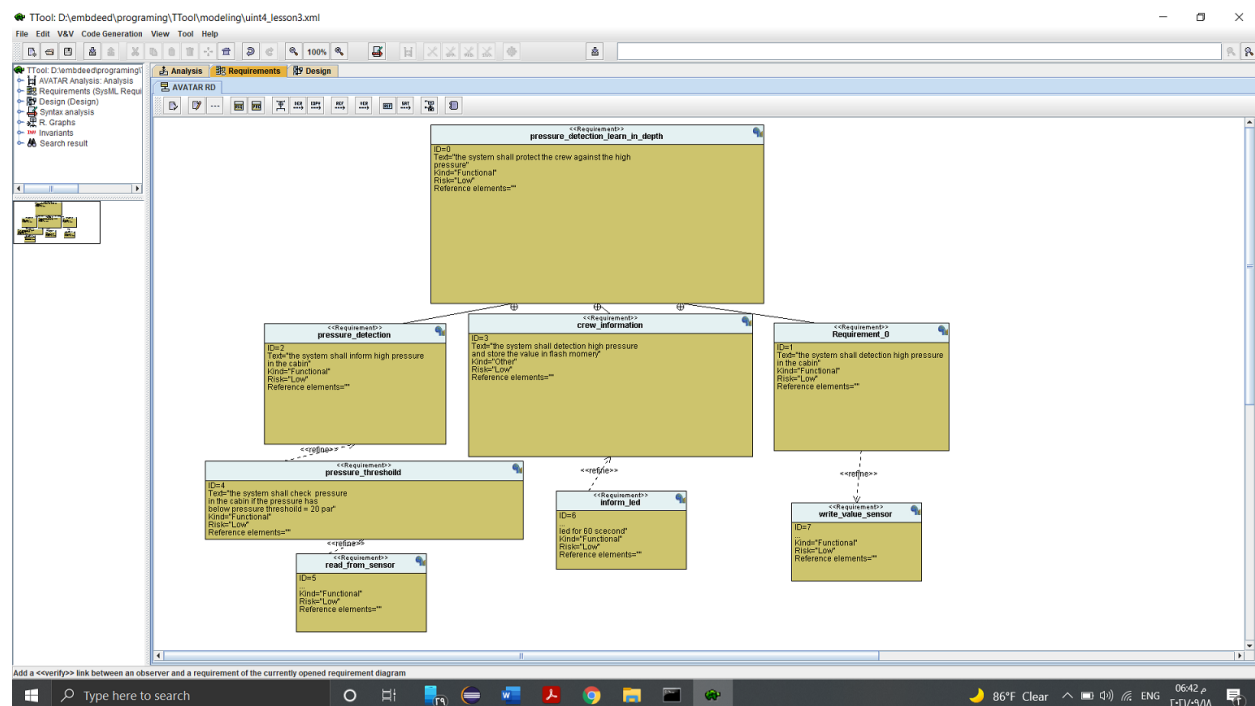
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Case Study:

Design a pressure controller system to inform the crew of a cabin with an alarm when the pressure exceeds 20 bars in the cabin.

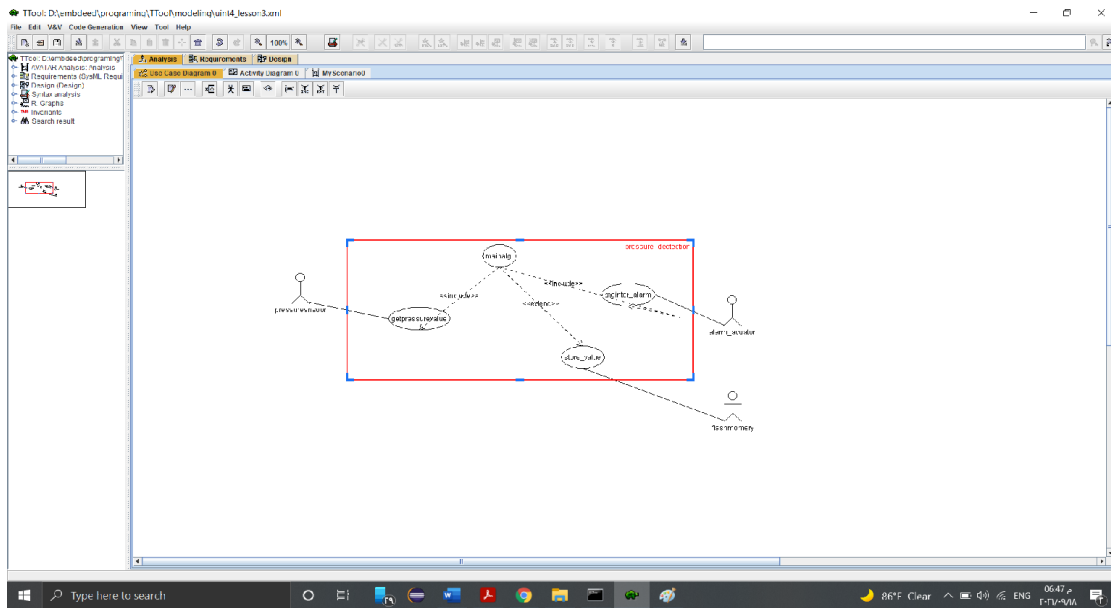
Alarm should last for 60 seconds.

Requirements:

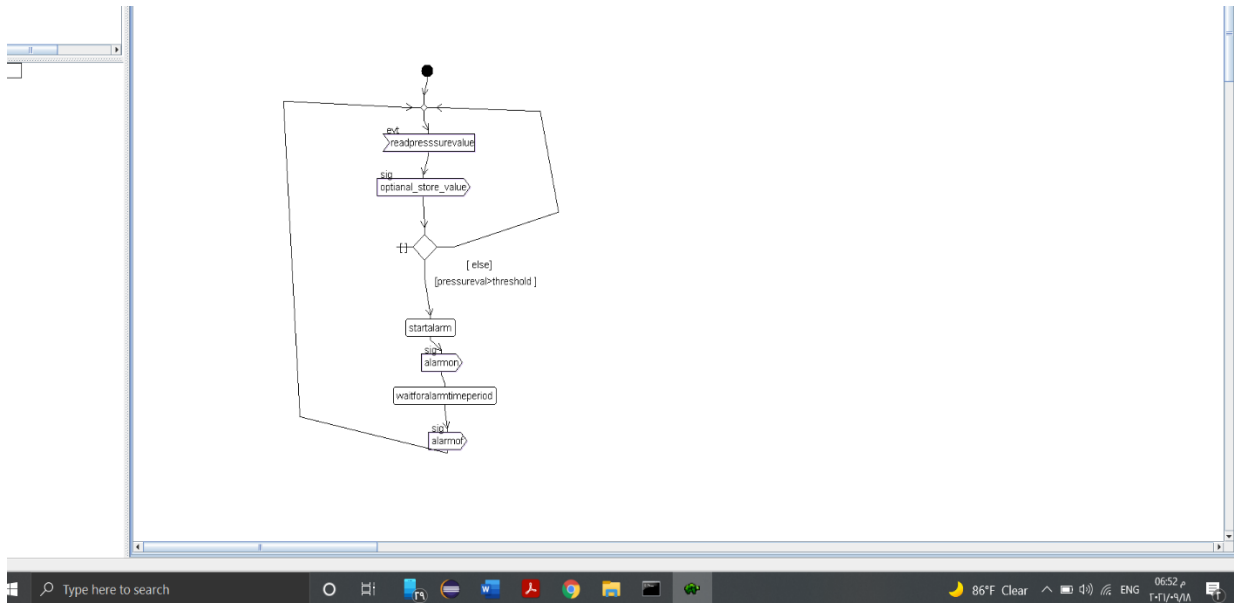


## System Analysis:

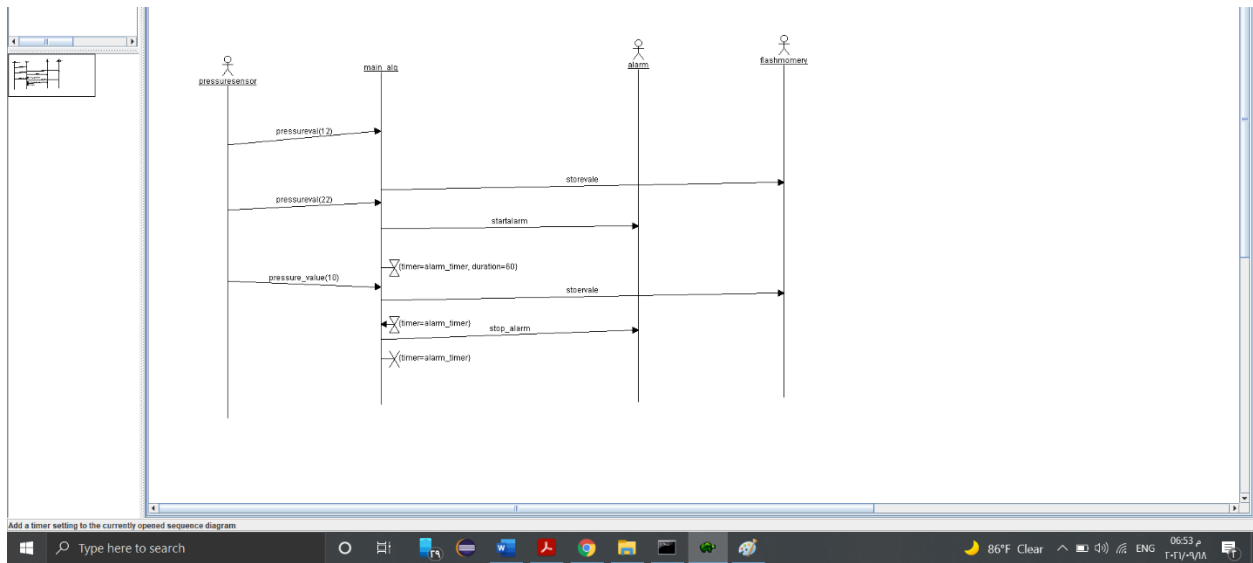
### - Use case diagram



## Activity Diagram:

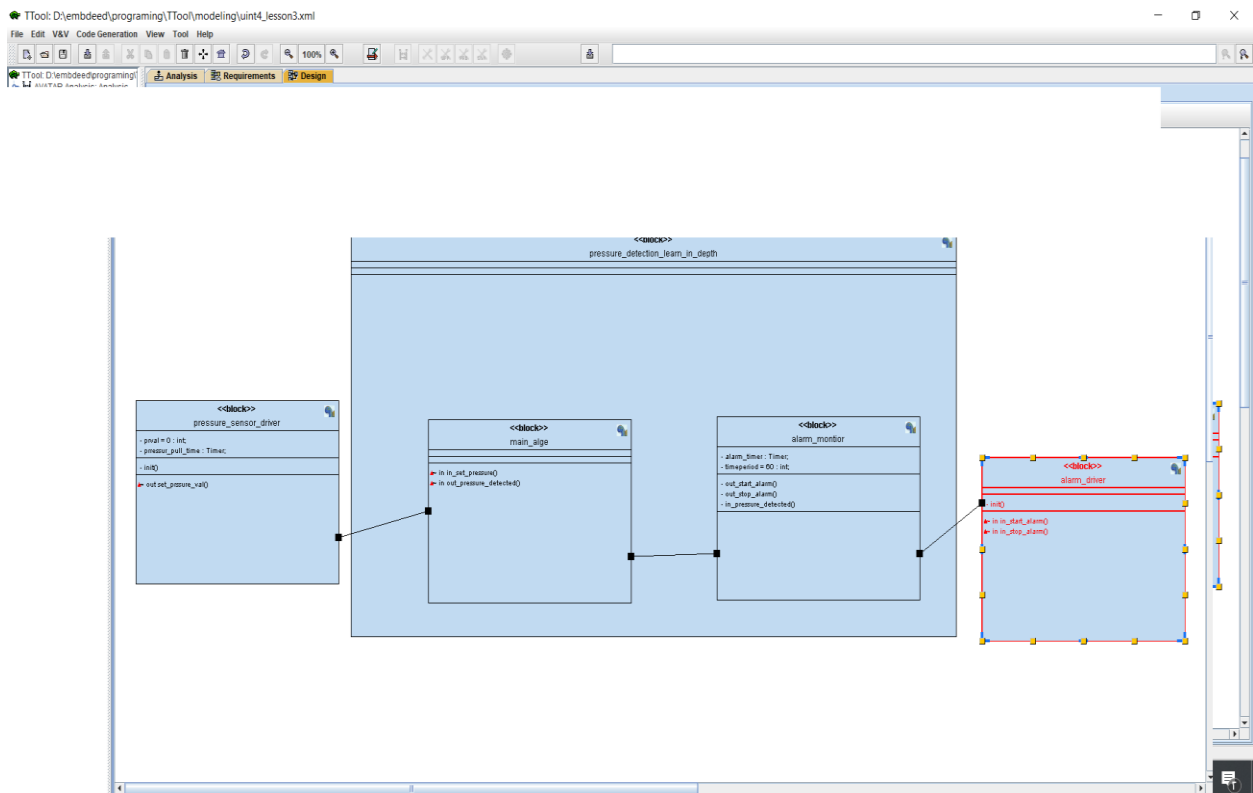


## Sequence Diagram

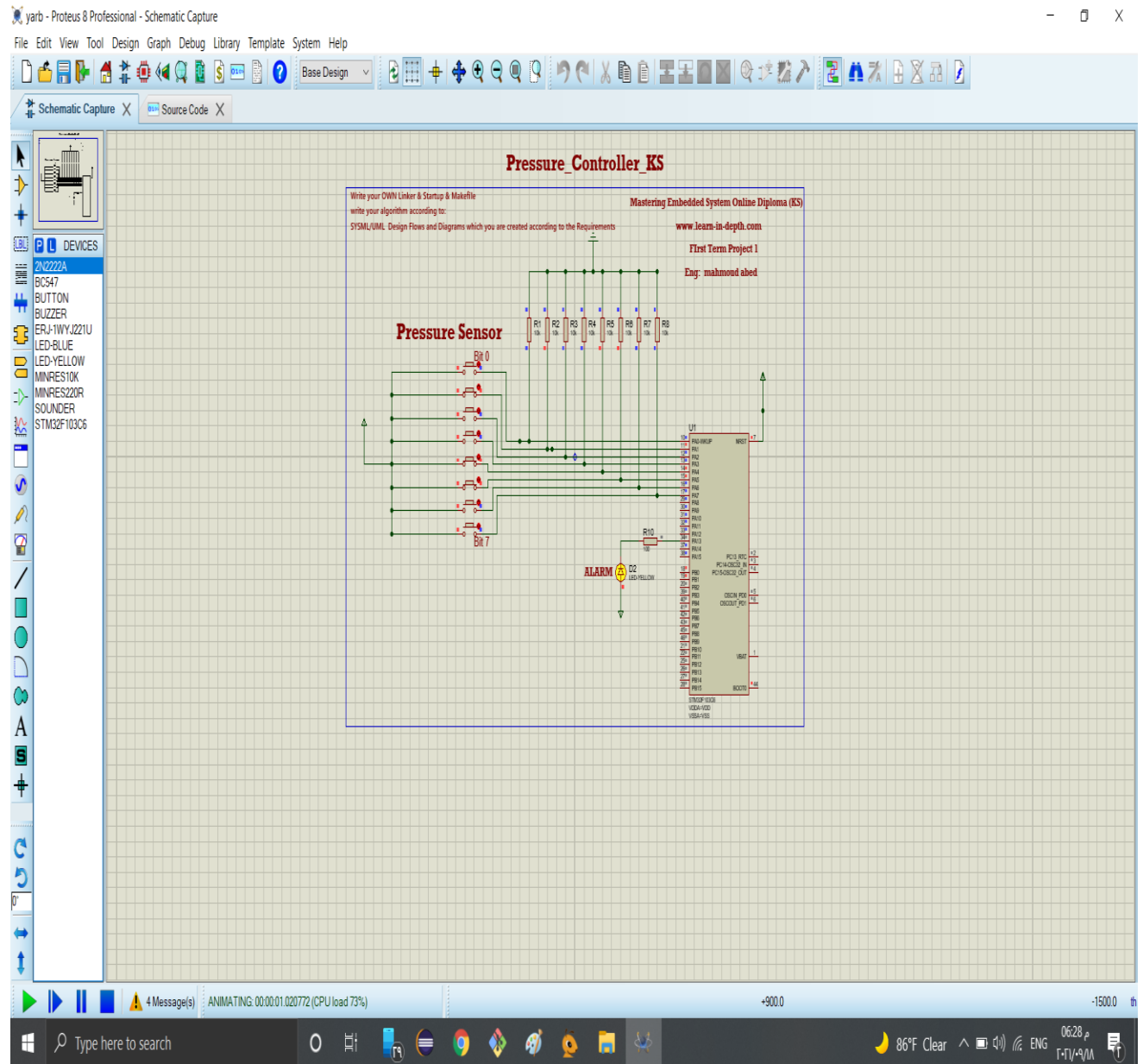


## System Design:

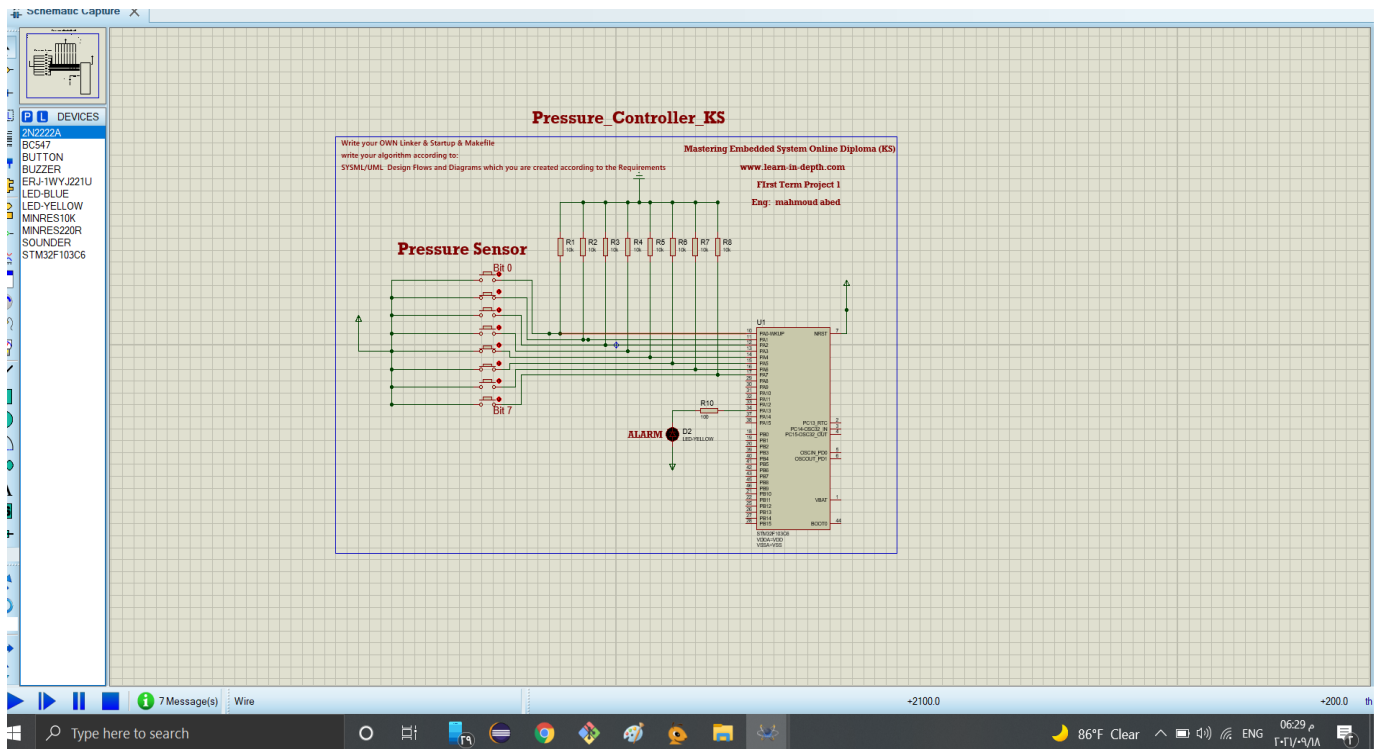
### -Block Diagram



## Alarm\_ON



## Alarm\_OFF



## Memory sections:

```
3abed@LAPTOP-824V5FML MINGW32 /d/embdeed/first_project
$ arm-none-eabi-objdump.exe -h pressure_senseor.elf

pressure_senseor.elf:      file format elf32-littlearm

Sections:
Idx Name          Size      VMA       LMA       File off  Algn
 0 .text          000001a4  08000000  08000000  00008000  2**2
   CONTENTS, ALLOC, LOAD, READONLY, CODE
 1 .rodata         00000008  080001a4  080001a4  000081a4  2**2
   CONTENTS, ALLOC, LOAD, READONLY, DATA
 2 .debug_info     000003e3  00000000  00000000  000081ac  2**0
   CONTENTS, READONLY, DEBUGGING
 3 .debug_abbrev   000001f5  00000000  00000000  0000858f  2**0
   CONTENTS, READONLY, DEBUGGING
 4 .debug_loc      00000158  00000000  00000000  00008784  2**0
   CONTENTS, READONLY, DEBUGGING
 5 .debug_aranges  000000c0  00000000  00000000  000088e0  2**3
   CONTENTS, READONLY, DEBUGGING
 6 .debug_line     00000252  00000000  00000000  000089a0  2**0
   CONTENTS, READONLY, DEBUGGING
 7 .debug_str      0000013f  00000000  00000000  00008bf2  2**0
   CONTENTS, READONLY, DEBUGGING
 8 .comment        00000011  00000000  00000000  00008d31  2**0
   CONTENTS, READONLY
 9 .ARM.attributes 00000031  00000000  00000000  00008d42  2**0
   CONTENTS, READONLY
10 .debug_frame    00000110  00000000  00000000  00008d74  2**2
   CONTENTS, READONLY, DEBUGGING

3abed@LAPTOP-824V5FML MINGW32 /d/embdeed/first_project
$
```

Symbol Table:

```
MINGW32:/d/embdeed/first_project

3abed@LAPTOP-824V5FML MINGW32 /d/embdeed/first_project
$ arm-none-eabi-nm.exe pressure_senseor.elf
0800019c t _reset
08000090 T Alarm_OFF
08000068 T Alarm_ON
080000a0 T Delay
080001a8 R delay_time
08000184 T getPressureVal
080000c4 T GPIO_INITIALIZATION
08000144 T main
080001a4 R pressure_threshold
08000018 T Set_Alarm_actuator
080001a2 t Vector_handler

3abed@LAPTOP-824V5FML MINGW32 /d/embdeed/first_project
$ |
```