a Pressure Controlling System

Case Study :

1. Assumptions :

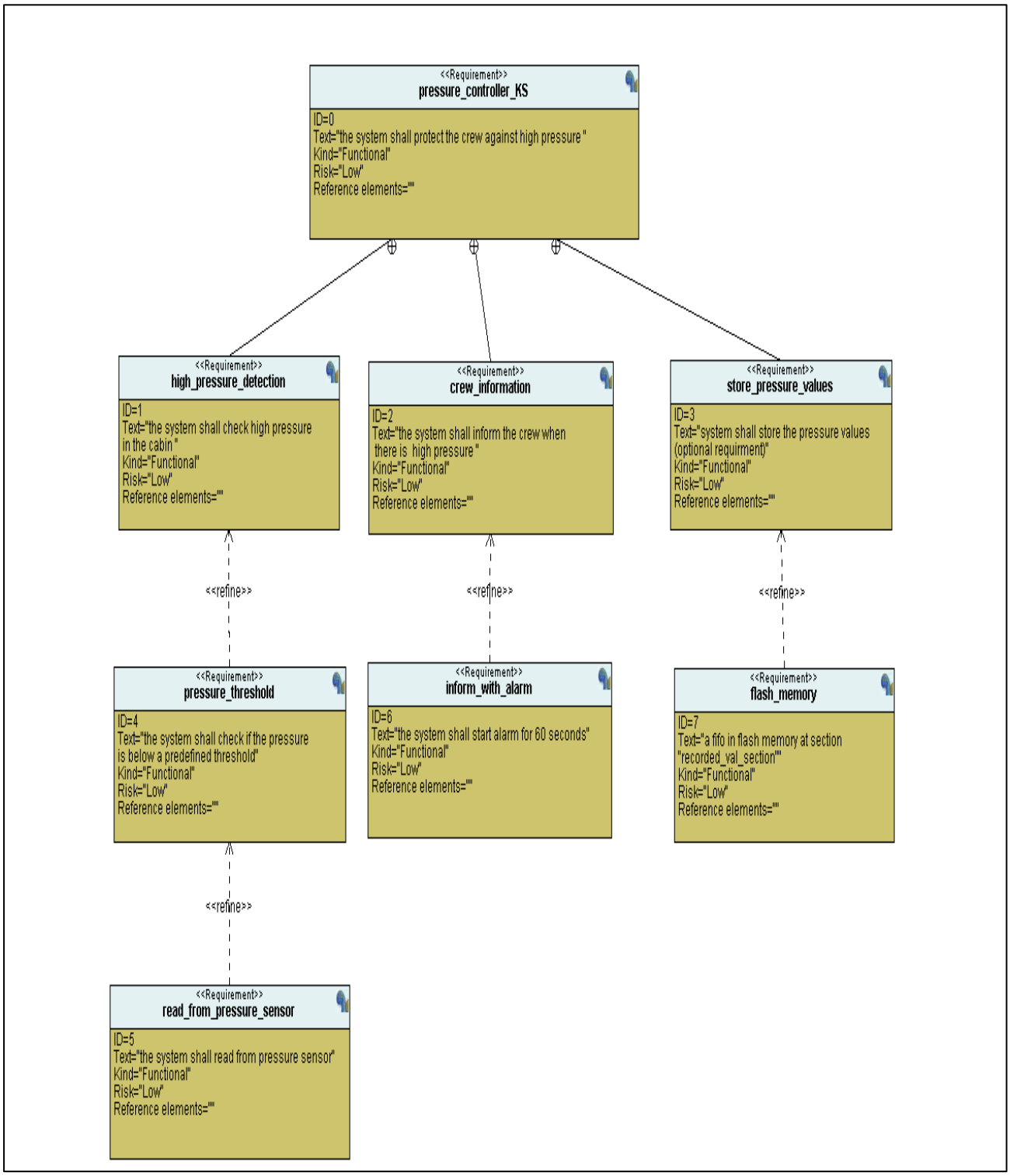
- The controller set up and shutdown procedures are not modeled
- The controller maintenance is not modeled
- The pressure sensor never fails
- The alarm never fails
- The controller never faces power cut

2. Versioning :

- keep track of measured value option is not modeled in the first version of the design

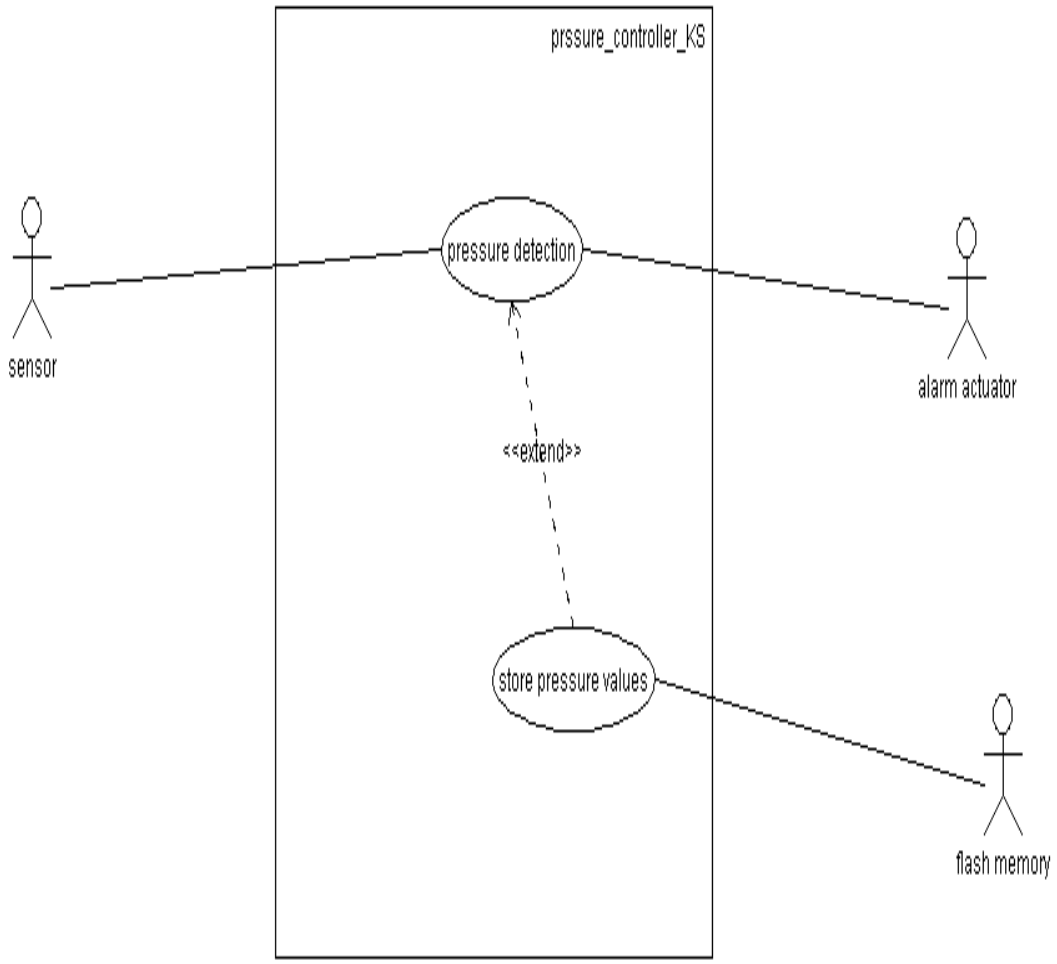
Method : Agile

Requirements :

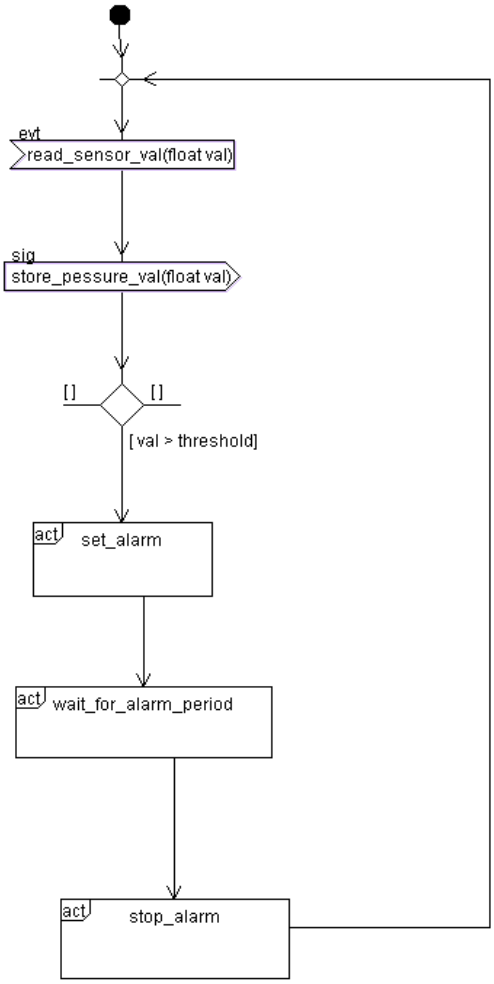


System analysis :

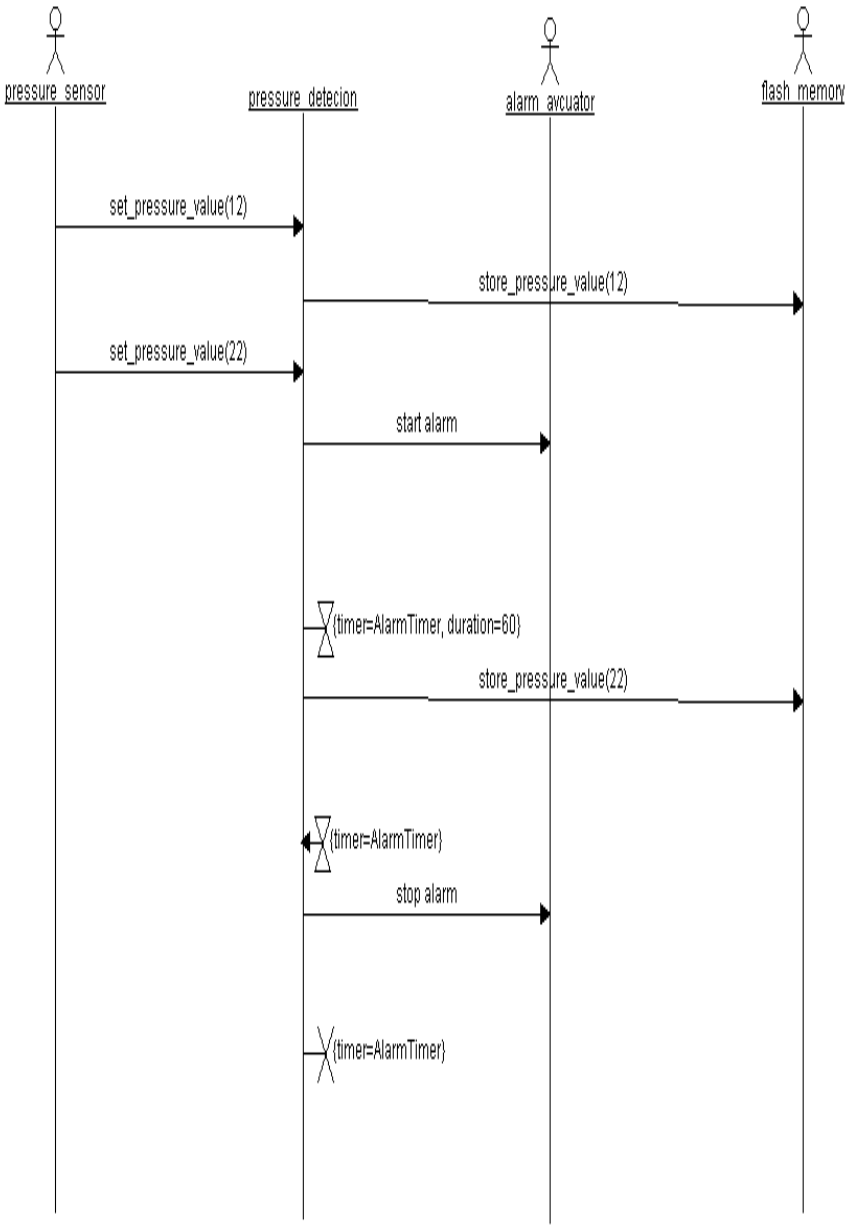
- Use case diagram :



- Activity diagram :

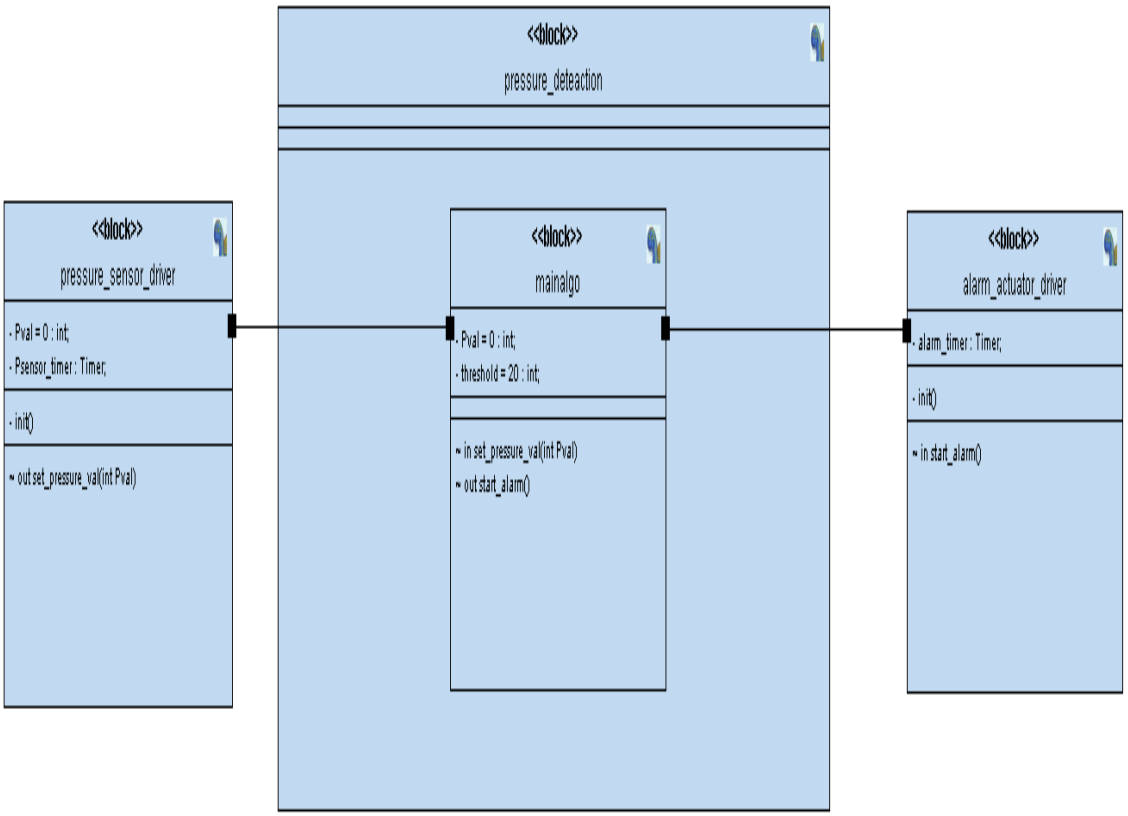


- Sequence diagram :

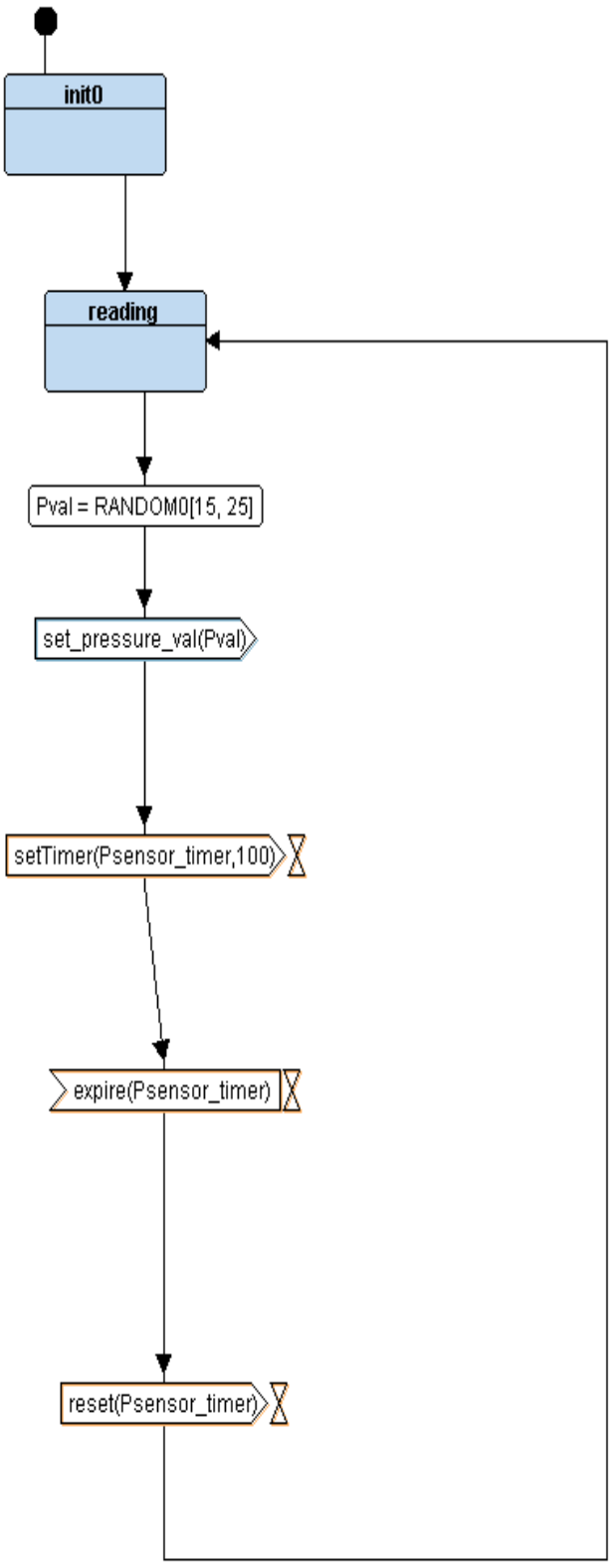


System design :

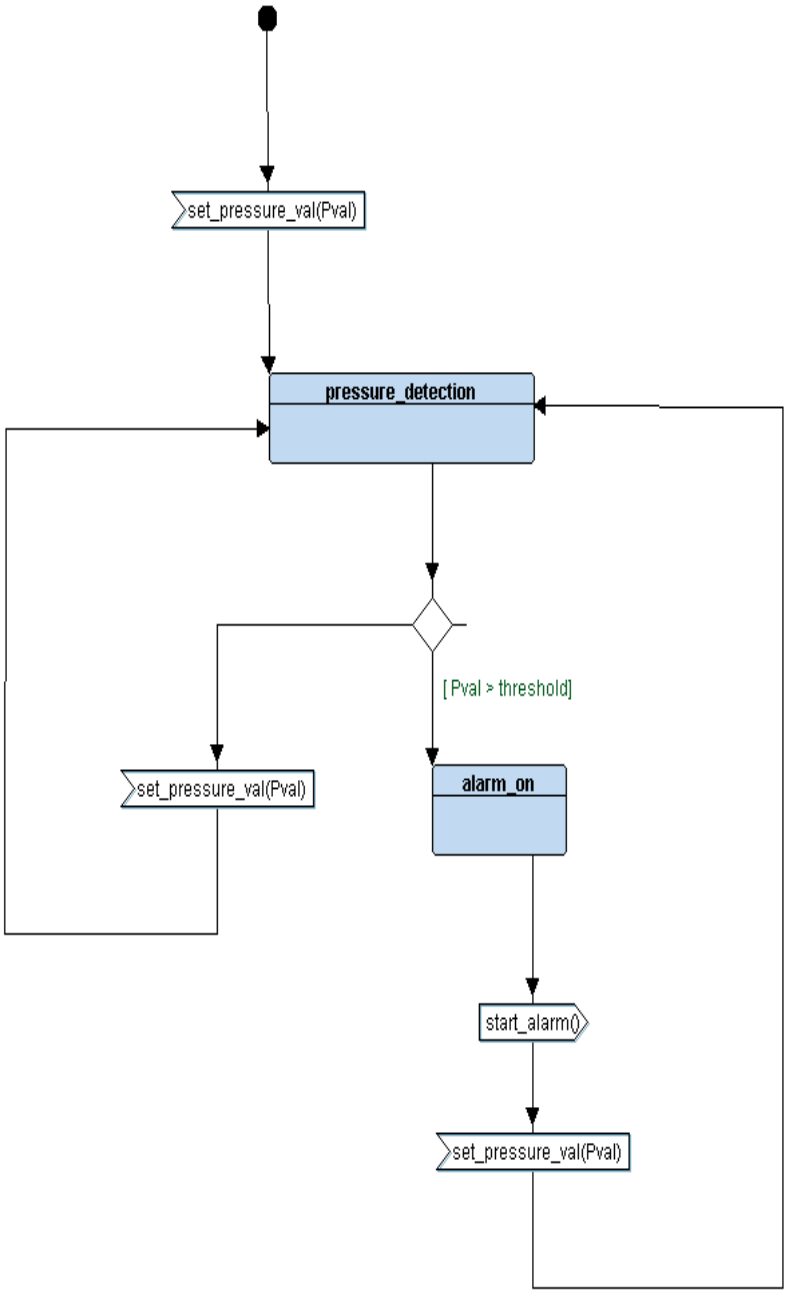
- Block diagram :



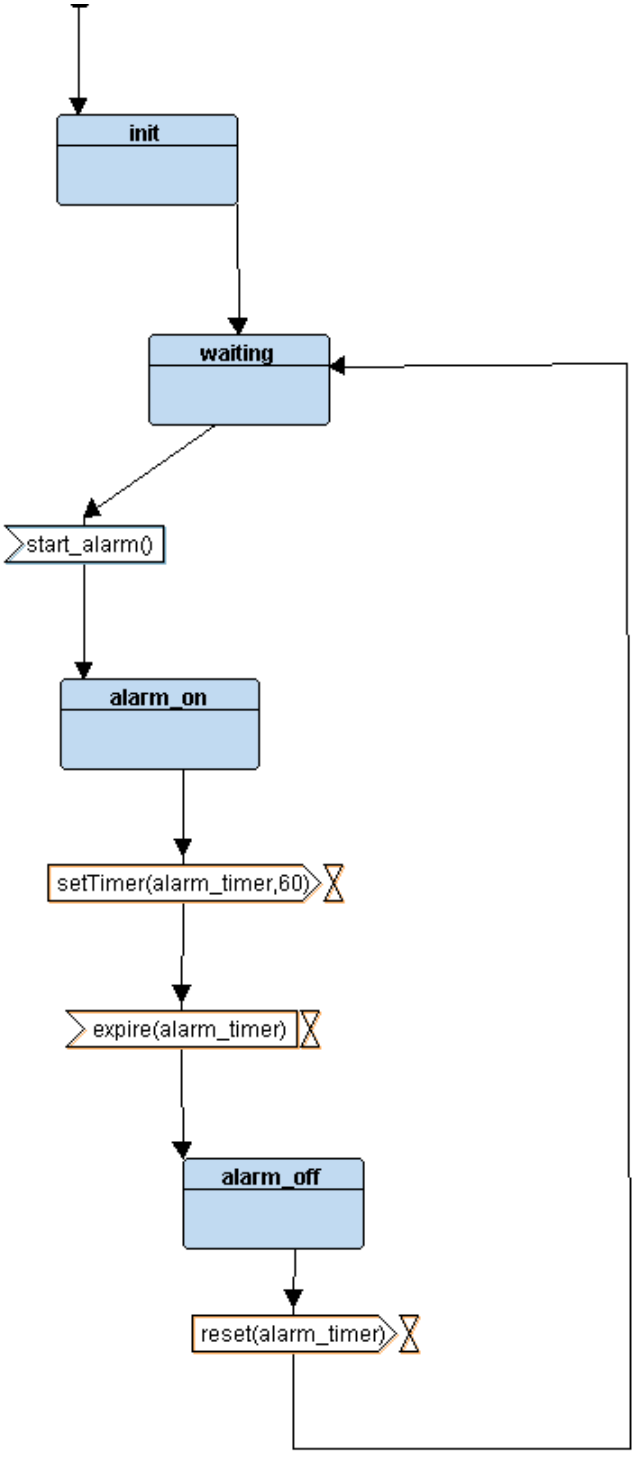
1. Pressure sensor driver :



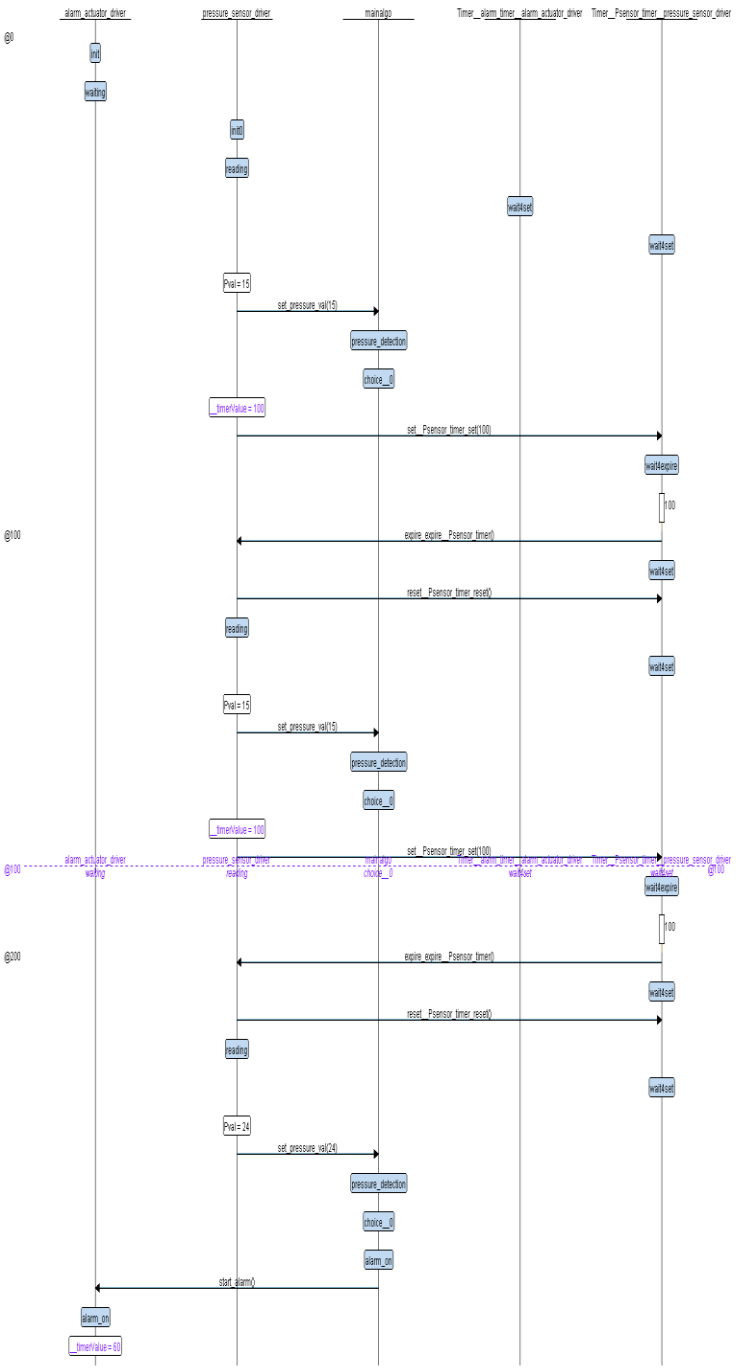
2. Main algorithm:



3. Alarm Actuator:



Simulation :


alarm_actuator_driver
pressure_sensor_driver
mainalgo
Timer_alarm_timer_alarm_actuator_driver
Timer_Psensor_timer_pressure_sensor_driver
@0
init
waiting
init
reading
wait4set
wait4set
Pval = 15
set_pressure_val(15)
pressure_detection
choice_0
_timerValue = 100
set_Psensor_timer_set(100)
wait4expire
100
@100
expire_expire_Psensor_timer()
wait4set
reset_Psensor_timer_reset()
reading
wait4set
Pval = 15
set_pressure_val(15)
pressure_detection
choice_0
_timerValue = 100
set_Psensor_timer_set(100)
@100
waiting
reading
choice_0
wait4set
wait4expire
100
@200
expire_expire_Psensor_timer()
wait4set
reset_Psensor_timer_reset()
reading
wait4set
Pval = 24
set_pressure_val(24)
pressure_detection
choice_0
alarm_on
start_alarm()
alarm_on
_timerValue = 60