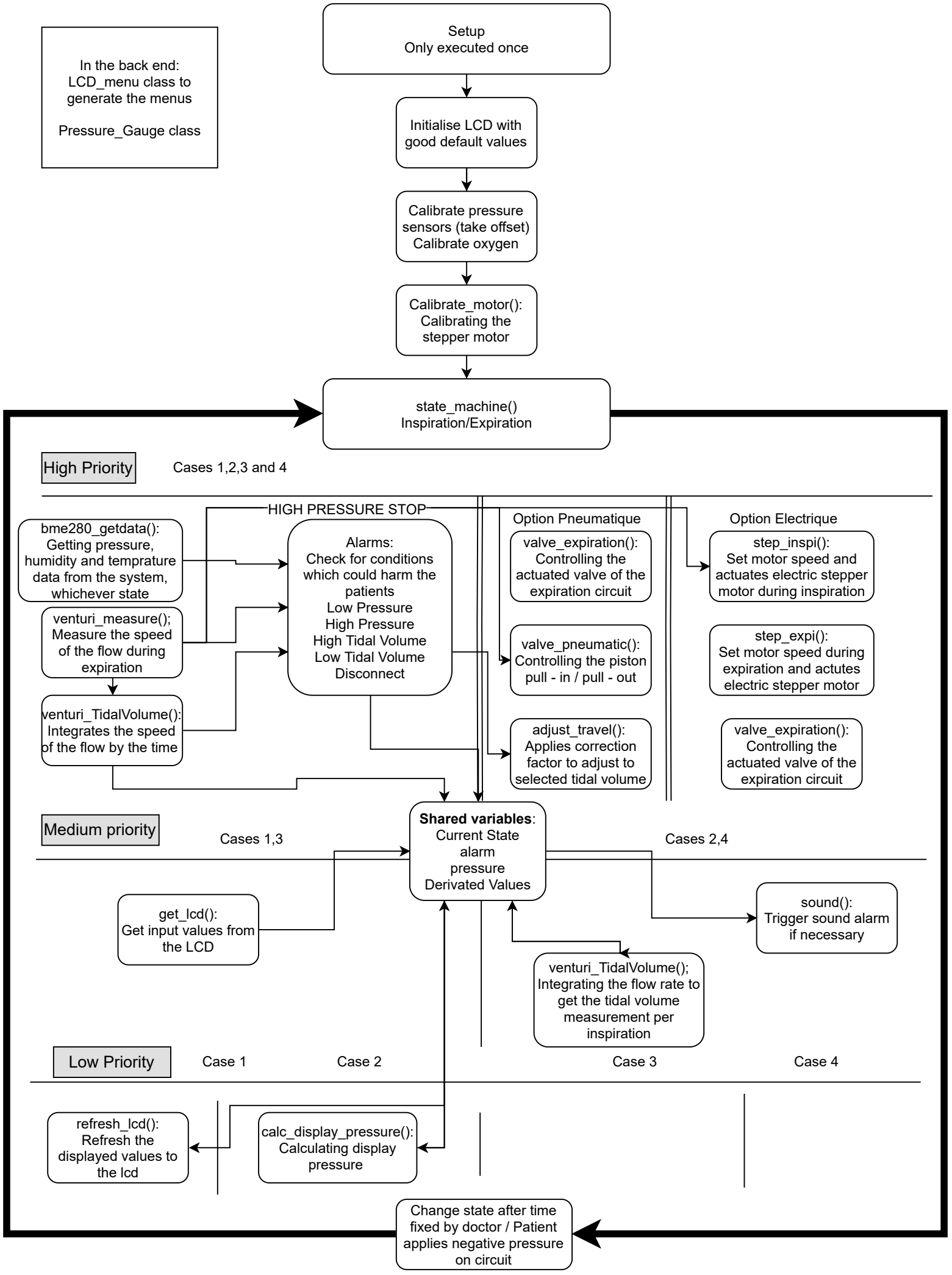
In the back end:
LCD_menu class to generate the menus
Pressure_Gauge class
Setup
Only executed once
Initialise LCD with good default values
Calibrate pressure sensors (take offset)
Calibrate oxygen
Calibrate_motor():
Calibrating the stepper motor
state_machine()
Inspiration/Expiration
High Priority
Cases 1,2,3 and 4
HIGH PRESSURE STOP
bme280_getdata():
Getting pressure, humidity and temprature data from the system, whichever state
venturi_measure();
Measure the speed of the flow during expiration
venturi_TidalVolume():
Integrates the speed of the flow by the time
Alarms:
Check for conditions which could harm the patients
Low Pressure
High Pressure
High Tidal Volume
Low Tidal Volume
Disconnect
Option Pneumatique
valve_expiration():
Controlling the actuated valve of the expiration circuit
valve_pneumatic():
Controlling the piston pull - in / pull - out
adjust_travel():
Applies correction factor to adjust to selected tidal volume
Option Electrique
step_inspi():
Set motor speed and actuates electric stepper motor during inspiration
step_expi():
Set motor speed during expiration and actutes electric stepper motor
valve_expiration():
Controlling the actuated valve of the expiration circuit
Medium priority
Cases 1,3
Shared variables:
Current State
alarm
pressure
Derivated Values
Cases 2,4
get_lcd():
Get input values from the LCD
sound():
Trigger sound alarm if necessary
venturi_TidalVolume();
Integrating the flow rate to get the tidal volume measurement per inspiration
Low Priority
Case 1
Case 2
Case 3
Case 4
refresh_lcd():
Refresh the displayed values to the lcd
calc_display_pressure():
Calculating display pressure
Change state after time fixed by doctor / Patient applies negative pressure on circuit