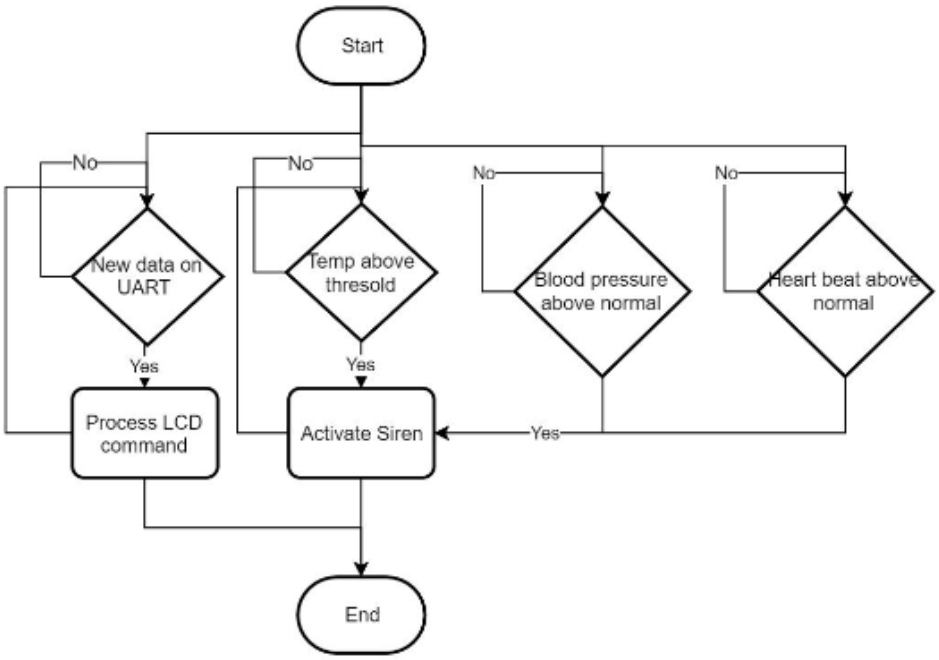
RTOS Design Report



•Tasks needed :

We can implement this design using 6 tasks:

LCD_Task	[P:100 , E:2 , D:100 , Pri: 1]
Blood_Sensor_Task	[P:25 , E:3 , D:25 , Pri: 3]
Heart_Detector_Task	[P:100 , E:1.5 , D:100 , Pri: 2]
Temp_Sensor_Task	[P:10 , E:2.5 , D:10 , Pri: 5]
Alert_Siren_Task	[P:5 , E:1 , D:5 , Pri: 6]
UART_Task	[P:5 , E:1 , D:5 , Pri: 4]

•Where: P : Periodicity
E : Execution Time
D : Deadline
Pri: Priority

Priorities are given according to the Rate-Monotonic scheduling

Tick time = 5ms

Hyberperiod = 100ms (The LCM of all the tasks)

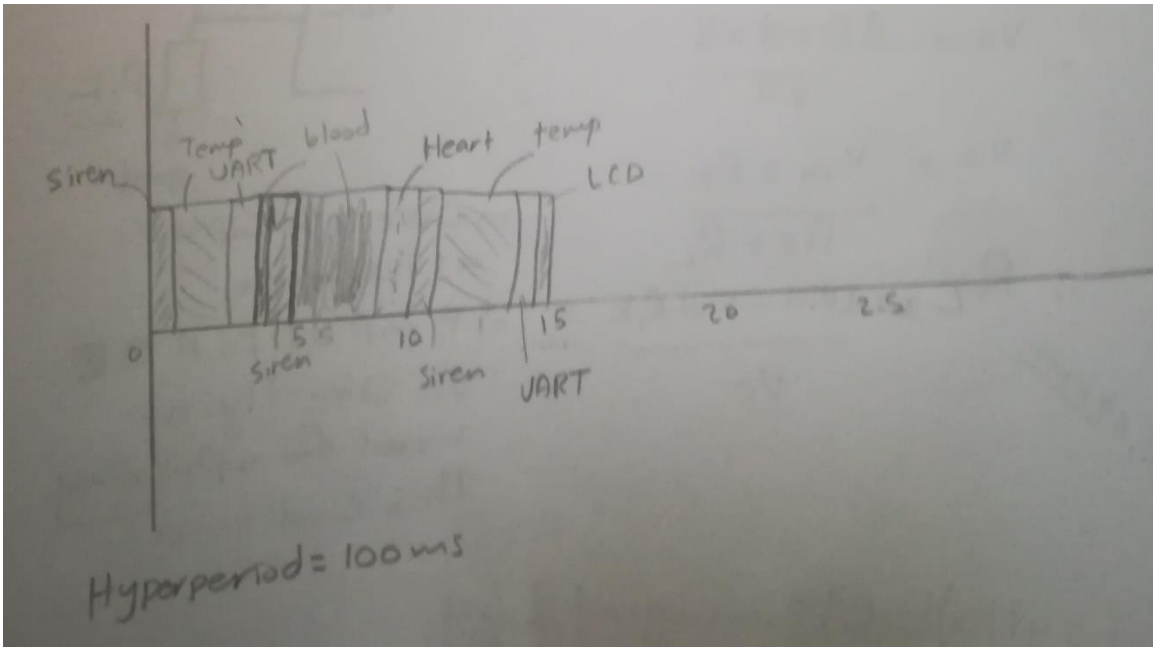
CPU load :

U=(E1+E2+E3+E4+E5+E6)/H

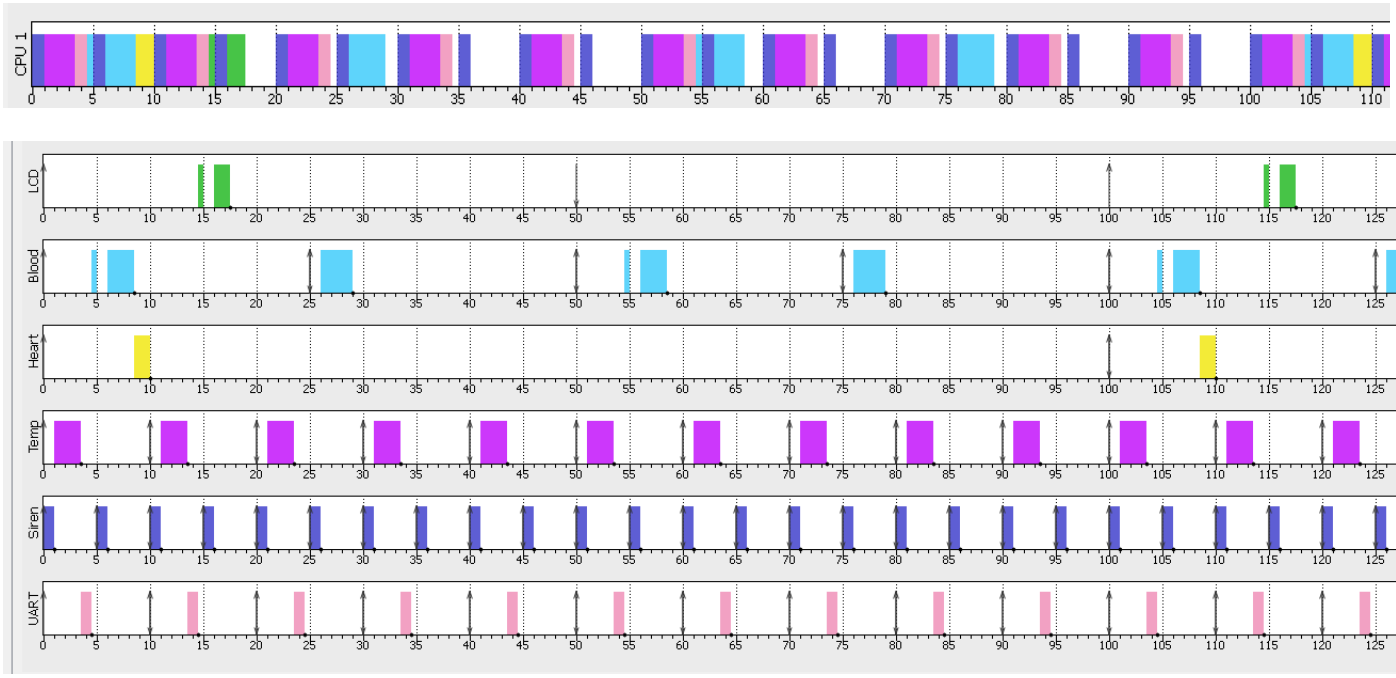
=((1*2)+(4*3)+(1*1.5)+(10*2.5)+(20*1)+(10*1))/100

= 0.705 (70.5 %)

Drawing the system manually :



SimSo's simulation



As we can see , the results are the same and no task miss its deadline