

- Tasks needed:
5 Tasks

LCD	P: 20ms E: 2ms
Blood Pressure	P: 25ms E: 3ms
Heart beat	P: 100ms E: 1.5ms
Temp	P: 10ms E: 2.5ms
Siren	P: 10ms E: 1ms
- The deadline for all tasks is its periodicity
- System Tick Rate > total execution time for all tasks
 $\text{Systick} > 10\text{ms} = 20\text{ms}$
- Hyper period = 100 ms
- CPU Load = busy time / (busy time + idle time)
 $= \{(2*5)+(3*4)+1.5+(2.5*10)+(1*10)\}/100$
 $= 58.5/100 = 58.5\%$
- Schedulability: the system is schedulable because no task has exceeded its deadline
- Manual solution

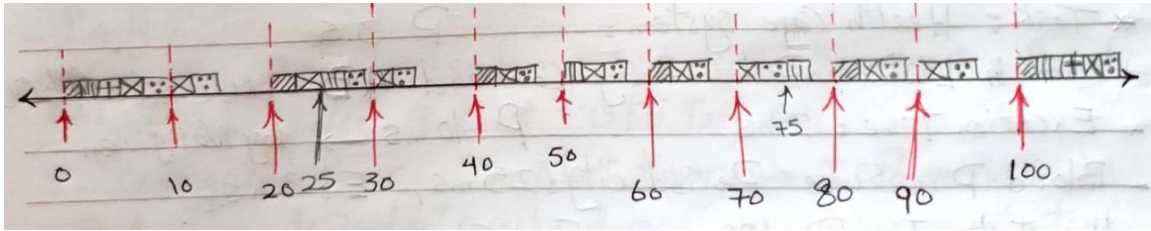
Tasks calculations:

5 Tasks:		
- LCD	P=20ms	E=2ms
- Blood Pressure	P=25ms	E=3ms
- Heart beat	P=100ms	E=1.5ms
- Temp	P=10ms	E=2.5ms
- Siren	P=10ms	E=1ms

Hyper period & CPU load:

* Hyper Period = 100ms
 * CPU load = $\frac{2 \times 5 + 3 \times 4 + 1.5 + 2.5 + 10}{100} = \frac{58.5}{100} = 58.5\%$
 * Systick = 20ms. all E = 10ms

Timeline :



- Simso model:

Tasks

Qt Model data										
General Scheduler Processors Tasks										
id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by	priority
1	LCD	Periodic	<input type="checkbox"/> No		0	20.0	-	20.0	2.0	0
2	Blood	Periodic	<input type="checkbox"/> No		0	25.0	-	25.0	3.0	0
3	Heart	Periodic	<input type="checkbox"/> No		0	100.0	-	100.0	1.5	0
4	temp	Periodic	<input type="checkbox"/> No		0	10	-	10	2.5	0
5	siren	Periodic	<input type="checkbox"/> No		0	10	-	10	1.0	0

Edit data fields...

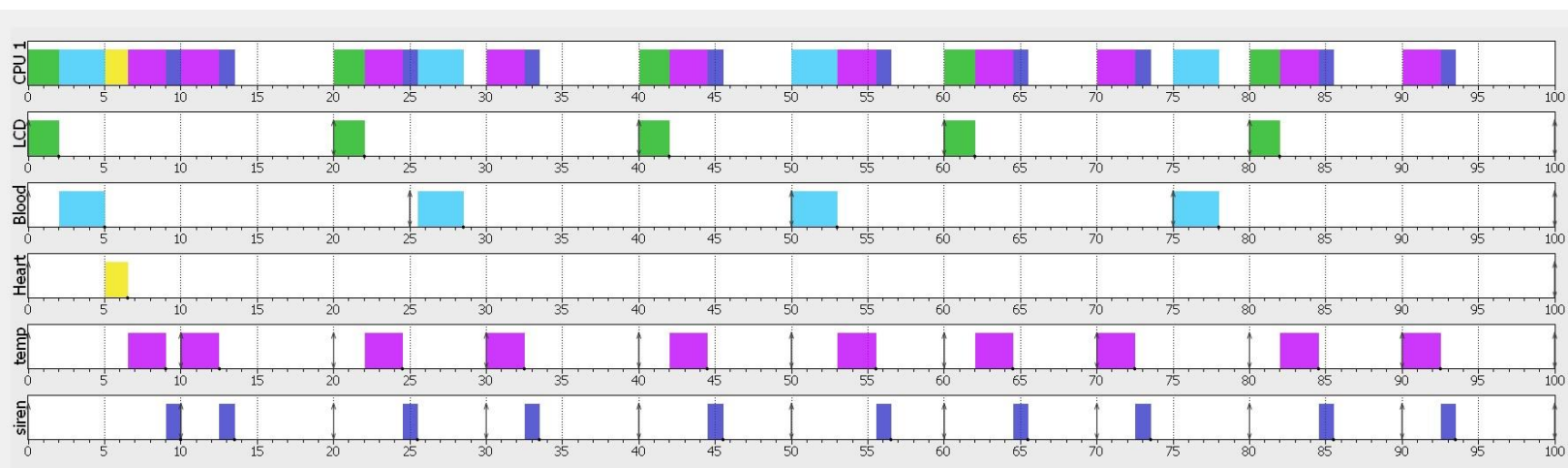
Remove selected task(s) Add task Generate Task Set

CPU Load:

The same CPU Load as calculated manually

Timeline

Qt Results			
General Logs Tasks Scheduler Proct			
Observation Window:			
from 0.00 to 100.00 ms			
Configure...			
	Total load	Payload	System load
CPU 1	0.5850	0.5850	0.0000
Average	0.5850	0.5850	0.0000



The system is schedulable as all tasks execute before their deadline