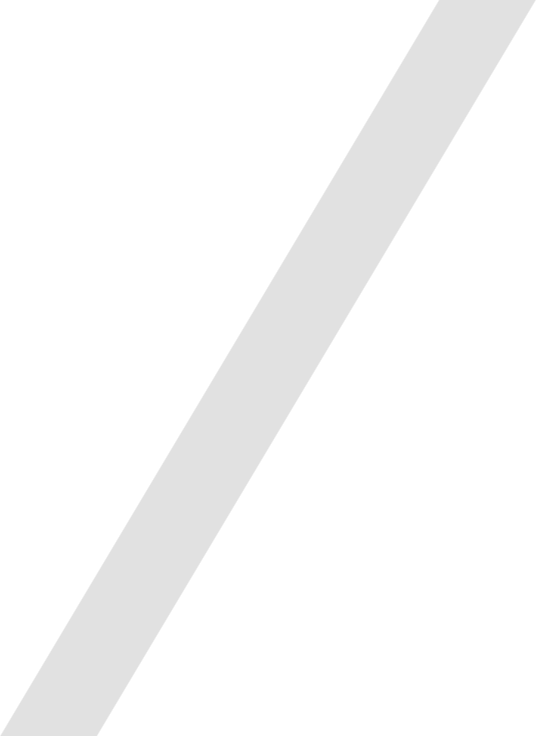
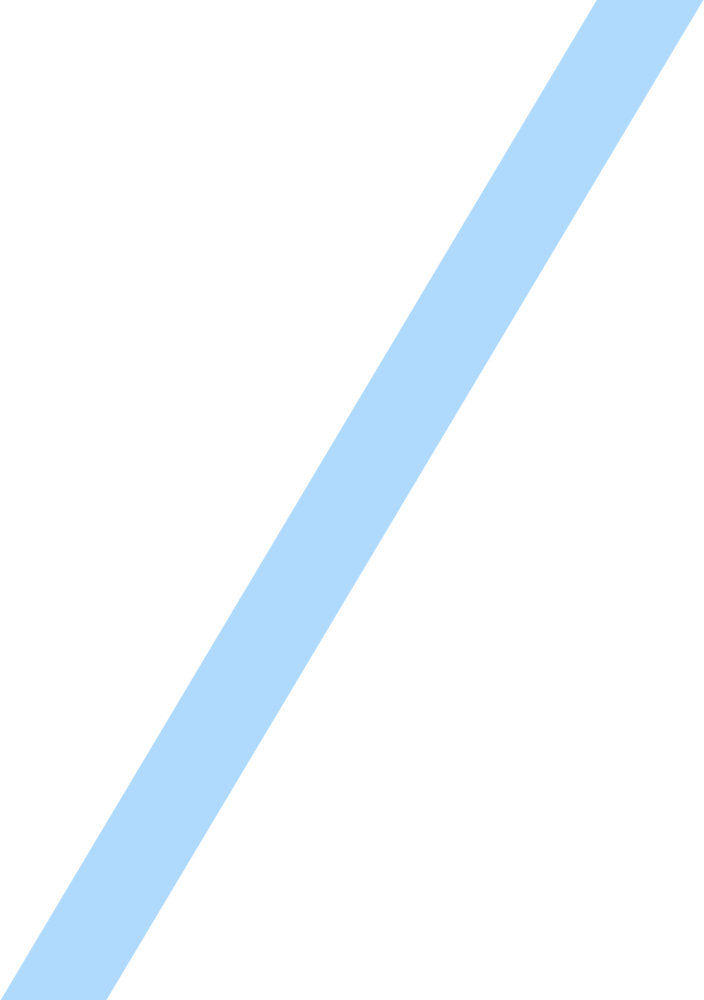
|  |
| --- |
| Rate-monotonic  Scheduling |

|  |
| --- |
| RTOS – Design |

|  |  |
| --- | --- |
| Hossam Elwahsh  hossam.e.elwahsh@gmail.com |  |



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| --- |
| Rate-monotonic analysis |

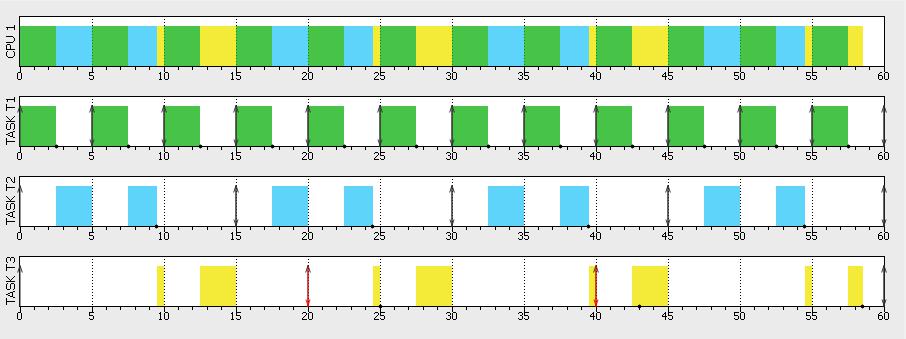
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Requirements Schedule the following task set using rate-monotonic:   |  |  |  |  | | --- | --- | --- | --- | | Task | Periodicity (ms) | Execution Time (ms) | Deadline (ms) | | T1 | 5 | 2.5 | 5 | | T2 | 15 | 4.5 | 15 | | T3 | 20 | 3.5 | 20 |  Calculating Urm ∴  ***System needs more tests to verify schedulability as Urm result is false.*** |
| **Hyperperiod** Calculations |

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Deadline (Tp) | Time needed (Wi) | Schedulable? (Tn <= deadline) |
| T1 | 5 | 2.5 | ✅ |
| T2 | 15 | 12 | ✅ |
| T3 | 20 | 22.5 | ❌ |

## Task 3 is not schedulable

|  |
| --- |
| Time demand analysis |

**SimSo Results**



|  |
| --- |
| SimSo Model |

|  |  |
| --- | --- |
| CPU Load | Logs |
|  |  |

*We can clearly notice that task 3 keeps missing its deadline.  
SimSo RM Scheduler model complies with our Urm and Time demand calculations.*