

Scheduling analysis

RTOS TASK



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team 4

# Overview

A screenshot of a test

Description automatically generated

# Goals

* Calucalate the URM.
* Calculate the time-demand analysis.
* Model the task set using Simso.

|  |  |  |  |
| --- | --- | --- | --- |
| Task id | Periodicity | Deadline | Execution time |
| T1 | 5 | 5 | 2.5 |
| T2 | 15 | 15 | 4.5 |
| T3 | 20 | 20 | 3.5 |

# Tasks in system

The following table 1 is shown the tasks with each (Periodicity, Deadline, Execution time)

The task with Higher number has higher priority.

# Hyperperiod

Hyperperiod = LCM (tasks periodicity) =LCM (20,5,15) = 60

# URM

|  |  |  |  |
| --- | --- | --- | --- |
| Task id | Periodicity(ms) | Execution Time(ms) | U |
| T1 | 2.5 | 5 | 2.5/5 = 0.5 |
| T2 | 4.5 | 15 | 4.5/15 = 0.3 |
| T3 | 3.5 | 20 | 3.5/20=0.175 |
| TOTAL | | | 0.975 |

URM = N(2^(1/N) – 1 )

**= 3\*(2^(1/3) -1) = 0.799**

**:- U > URM, the system need test**

1. Time required for T1 is W1(5) = 2.5 + 0 = 2.5ms

• **2.5 < 5 (T1 is schedulable)**2. Time required for T2 is W2(15) = 4.5 + (2.5\*3) = 12ms

• **12.5 <15 (T2 is schedulable)**3. Time required for T3 is W3(20) = 3.5 + (4.5\*2) + (2.5\*4) = 22.5ms

• **22.5 > 20 (T3 is not schedulable)**

# Simso

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