



Aperiodic Task Scheduling Using Polling Server

ECE 5550G Final Project
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Implementation

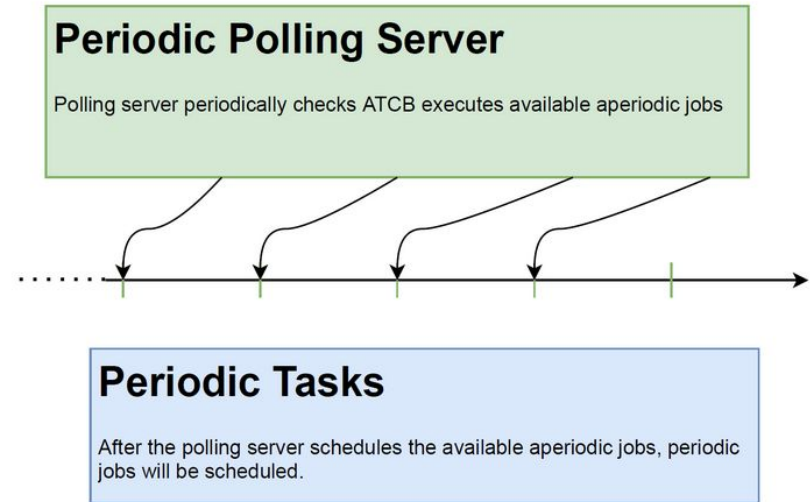


Aperiodic Tasks

- xAperiodicTaskControlBlock
 - xATCBQueue[]
 - uxAperiodicTaskCounter
-
- prvGetNextAperiodicTask()
 - prvFindEmptyElementIndexATCB()
 - vSchedulerAperiodicTaskCreate()

Polling Server

- prvPollingServerCreate()
- prvPollingServerFunction()
- Executes the task which was left behind on previous time slot.



Response Time Calculation

- Used `xTaskGetTickCount()` to get tick count
- Start time is recorded from `vSchedulerAperiodicTaskCreate()`
- End time is recorded from `prvPollingServerFunction()`

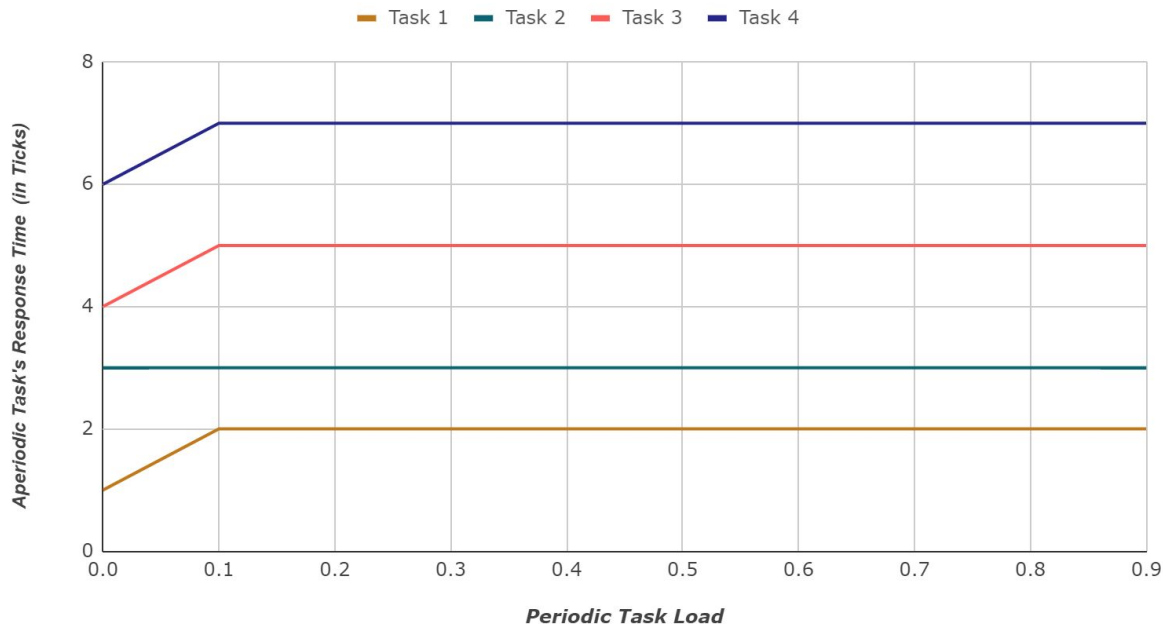


Results & Evaluation



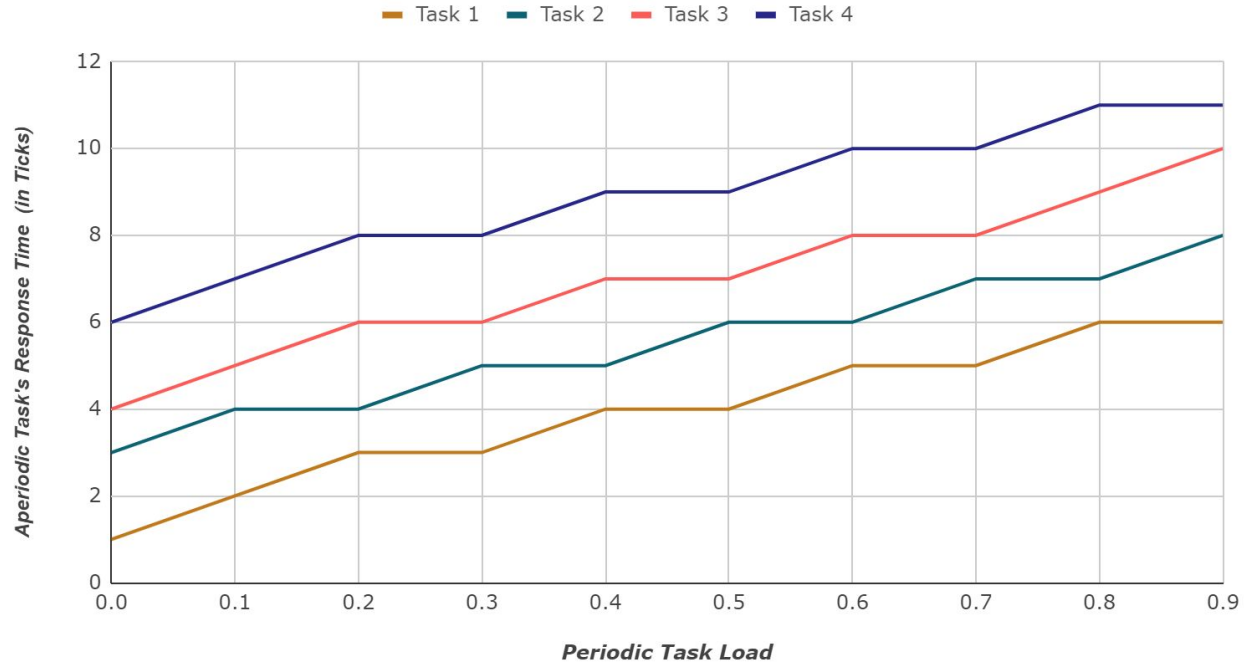
Results (Polling Server Period = 100 ms)

Response Time Vs Periodic load



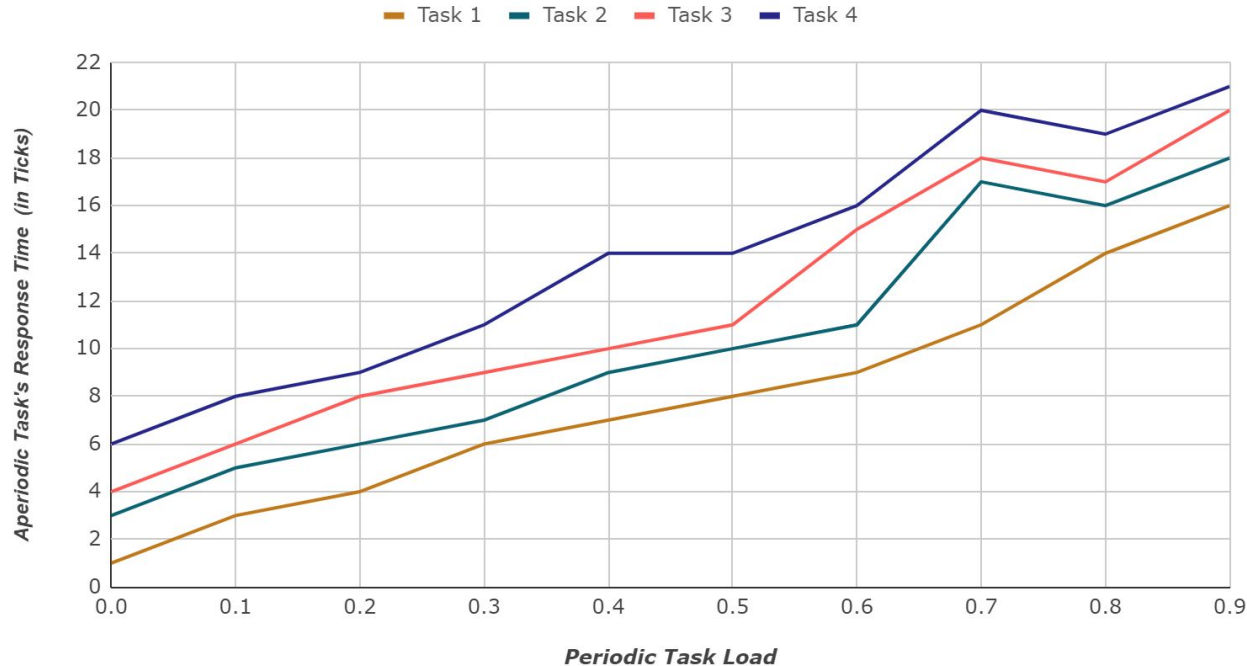
Results (Polling Server Period = 400 ms)

Response Time Vs Periodic load



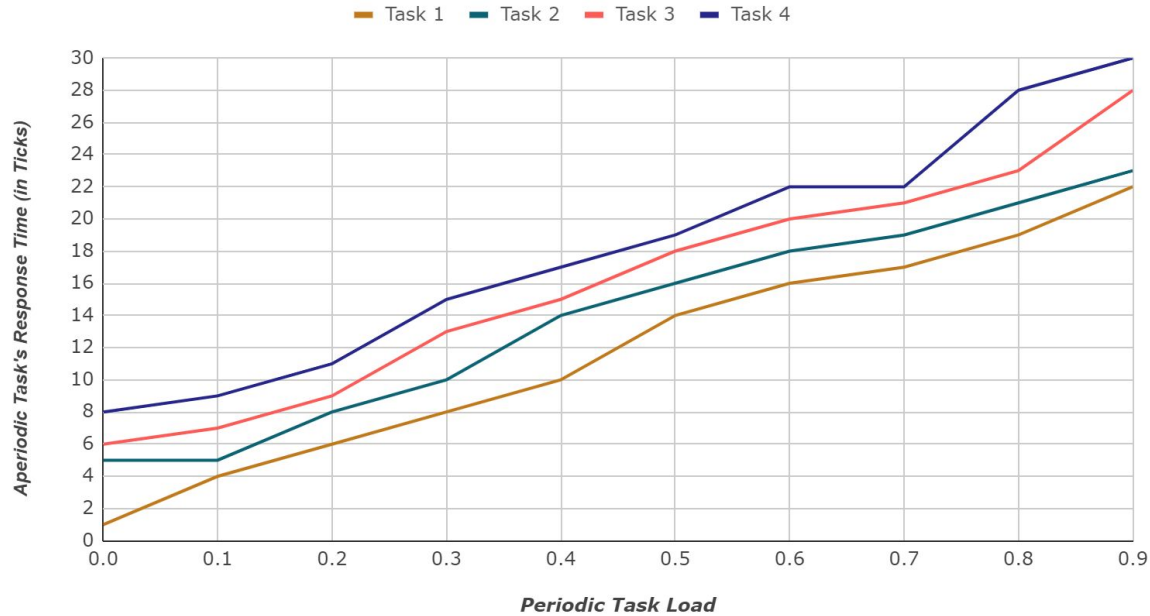
Results (Polling Server Period = 600 ms)

Response Time Vs Periodic load

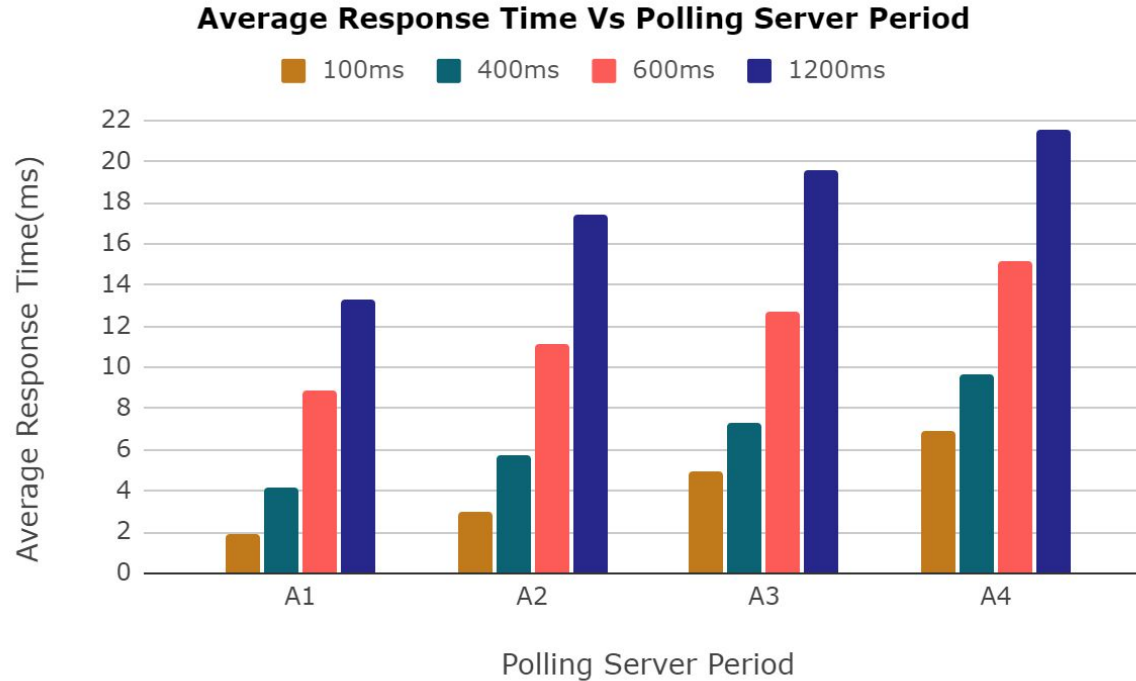


Results (Polling Server Period = 1200 ms)

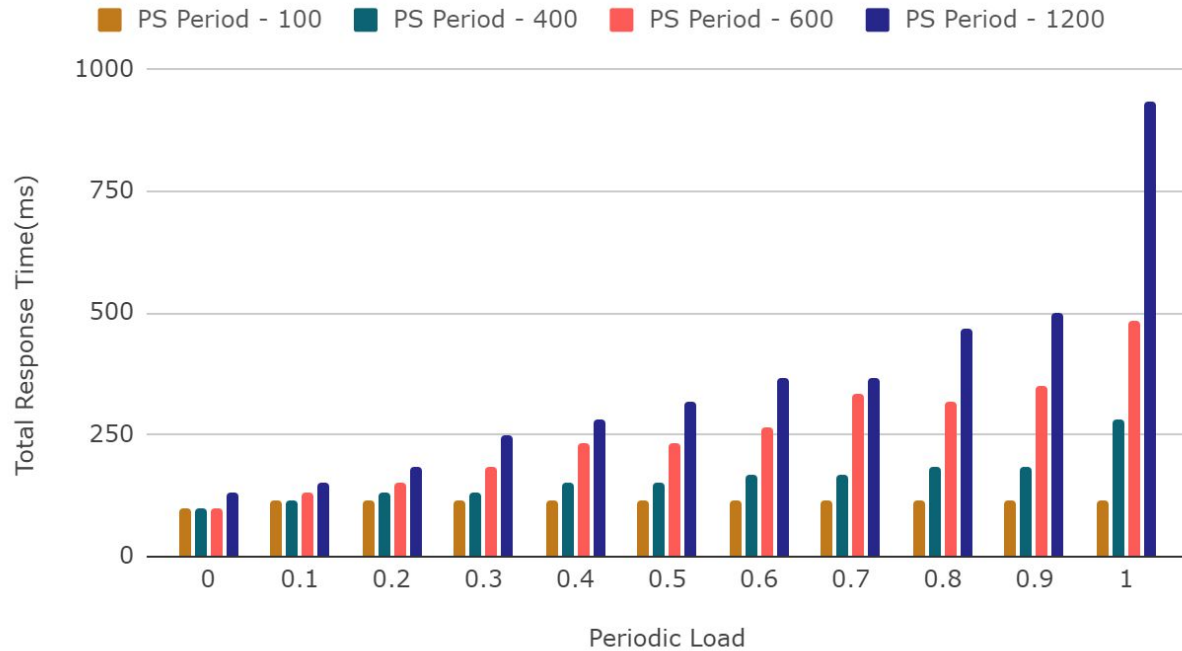
Response Time Vs Periodic load



Aperiodic RT for varying Polling Server Priority



Response Time Vs Periodic Load for various Polling Server(PS) Settings





Thank You!