

# Window Constrained Scheduling of Processes in Real Time CPU Using Multi Objective Genetic Algorithm

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## ABSTRACT

This paper presents a new approach to window constrained scheduling, suitable for weakly-hard real-time systems. The originally developed algorithm, called Virtual Deadline Scheduling (VDS) that attempts to guarantee  $m$  out of  $k$  deadlines are serviced for real-time jobs such as periodic CPU tasks. VDS is capable of generating a feasible window constrained schedule that utilizes 100% of resources. However, when VDS either services a job or switches to a new request period, it must update the corresponding virtual deadline. This updation is a bottleneck for the algorithm which increases the time complexity. Further, when VDS tries to solve the problem of delay the number of context switches increases. Context switching and delay are two conflicting criteria. By using Multi Objective Genetic Algorithm a trade off can be achieved between the context switching and the delay. We design our algorithm in such a way that it also overcomes the problem of updation which is an additional overhead in the original VDS algorithm.

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