ABSTRACT

SYSTEMS AND METHODS FOR SCHEDULING A SET OF NON-PREEMPTIVE TASKS IN A MULTI-ROBOT ENVIRONMENT

Systems and methods for scheduling non-preemptive tasks in a multi-robot environment is provided. Traditional systems and methods facilitating preemptive task(s) allocation in a multi-processor environment are not applicable in the multi-robot environment since tasks are preemptive. Additionally, critical parameters like deadline and performance loss are not considered. Embodiments of the present disclosure provide for scheduling of a set of non-preemptive tasks by partitioning, the set of non-preemptive tasks either as a set of schedulable tasks or as a set of non-schedulable tasks; sorting, by a scheduling technique, the set of non-preemptive tasks partitioned; determining, by the scheduling technique, a possibility of execution of each of the set of schedulable tasks; and scheduling the set of schedulable tasks and the set of non-schedulable tasks upon determining the possibility of execution of each of the set of schedulable tasks. The present disclosure focuses on performance loss minimization when deadline miss is unavoidable.

<<To be published with FIG. 2A through 2B>