Abstract

In real-time embedded system, that must carry their own power source and cannot depend on the power outlet on the wall, apart from feasibility schedule the set of tasks, power management is also the major issue because without power the system is useless. In this paper, we propose a harvesting aware real-time scheduling algorithm with variable speed assignment scheme to set of periodic tasks aims to reduce the energy consumption while feasibly schedule the set of periodic tasks within their deadline. This can be done by DVS(Dynamic Voltage and frequency Selection), executing the task with the speed such that a task can consume as much energy which is quite sufficient to complete it successfully within its deadline. The example and simulation results shows that the propose approach is capable of performing better in terms of average stored remaining energy of the system as well as acceptance ratio of periodic tasks at lower periodic load.

References

Engineering, 381-386.
- Zhu, L., Tongquan, Wei, T., Yonghe, Guo., Xiaodao, Chen. and Shiyan, Hu., 2010. Energy efficient fault-tolerance task allocation scheme for real-time energy harvesting systems,
Real-Time Scheduling with DVS and Harvesting Energy Constraints

International Conference on Intelligent Control and Information Processing (ICICIP), 589 - 594.

Index Terms

Computer Science
Embedded

Keywords

Real-Time Scheduling  DVS  Energy Harvesting  Periodic Tasks  Embedded  Power
System  Management