Abstract

Energy management is a central problem in real-time systems design, in particular for embedded wireless devices such as sensors. In our work, we aim at the improvement of real-time operating systems that are powered by renewable energy sources (solar energy, for example). The objective of this work is to develop software components for the design of real-time operating systems. We provide an on-line scheduling scheme, named Earliest Deadline with energy guarantee (EDeg), in order to address the limitations in energy harvesting systems. We also integrate EDeg scheduling algorithm into CLEOPATRE open-source component library, a patch to Linux/RTAI and evaluate the scheduling overheads of EDeg observed under Linux/RTAI.

References

- P. Mantegazza. DIAPM RTAI for Linux: Why’s, what’s and how’s. Real Time Linux Workshop, University de Technology of Vienna, 1999.

Index Terms

Computer Science

Wireless
Keywords
Energy Management  Real-time  Operating Systems  Energy Harvesting  RTAI.