Abstract

Cyber Physical System (CPS) integrates physical and cyber components for high performance, self-maintenance, self-organization, self-assembly, while the process must be dependable, safe, secure, and efficient in real-time. It supports heterogeneous devices, such as motes, PDAs, laptops, and actuators according to the applications' requirements. This paper describes an improved grouping abstraction for Cyber-physical systems. This abstraction allows different applications to simultaneously use the same sensors and actuators. It facilitates feedback control mechanisms by dynamic membership update and requirements reconfiguration based on feedback from the current members. It is implemented in Java, which ensures easy and conciseness of programming. It facilitates in-network aggregation and local processing which improves the lifetime of the network. This is shown in result to reduce energy consumption for enhancing the lifetime of the network. It would be validated on the application of smart campus, which takes care of three functions like classroom occupancy, attendance monitoring, and area access controlling and monitoring.
- Pooja Sobhrajjan, Swati Nikam "Comparative Study of Abstraction in Cyber
Improving Energy Efficiency of Grouping Abstraction in Cyber Physical System


Index Terms

Computer Science
Applied Sciences

Keywords

Sensor network  Cyber Physical System  Actuator  communications  computation  programming  software.