International Journal of Electronics and Communication Engineering
Vol:8, No:11, 2014

A Unique Solution for Designing Low-Cost, Heterogeneous Sensor Networks using a Middleware Integration Platform

Authors : Jarrod Trevathan Trina Myers

Abstract : Proprietary sensor network systems are typically expensive, rigid and difficult to incorporate technologies from other vendors. When using competing and incompatible technologies, a non-proprietary system is complex to create because it requires significant technical expertise and effort, which can be more expensive than a proprietary product. This paper presents the Sensor Abstraction Layer (SAL) that provides middleware architectures with a consistent and uniform view of heterogeneous sensor networks, regardless of the technologies involved. SAL abstracts and hides the hardware disparities and specificities related to accessing, controlling, probing and piloting heterogeneous sensors. SAL is a single software library containing a stable hardware-independent interface with consistent access and control functions to remotely manage the network. The end-user has near-real-time access to the collected data via the network, which results in a cost-effective, flexible and simplified system suitable for novice users. SAL has been used for successfully implementing several low-cost sensor network systems.

Keywords : sensor networks, hardware abstraction, middleware integration platform, sensor web enablement
Conference Title : ICEP 2014 : International Conference on Electronic Publications
Conference Location : journal city, WASET
Conference Dates : November 23-23, 2014