

Public Abstract

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Performance Evaluation of a Low Cost Processor with Wireless Connectivity

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There is a growing interest in wireless sensors. In this study shows the development and analysis of the connectivity of a wireless system using a low cost processor for different applications. First, we designed a system with two sensor processors and a server PC. Second, we developed two protocols; the Ethernet protocol and the Round Robin protocol. Third, we analyzed the system. It was discovered that the Ethernet protocol had a faster transmission time while the Round Robin protocol had fewer collisions. Finally, we measured the overhead and found it to occupy between 50 and 90% of the transmission and processing time.

Furthermore, we found that the measurement of the data error rate for the transmission through different environments such as steel and wooden doors and unobstructed openings can be ignored compared to walls, and floors which cause significant problems. The stamp processor is a low cost, but low data rate wireless sensor system.