

**ABSTRACT:**

Portable patient monitoring device has become increasingly important in Hospital wards to record realtime data during normal activity for better treatment. However, the current quality and reliability have not been satisfactory due to the size, weight, distance of coverage and also high power consumption. This paper provides several solutions for enhancing the reliability and improving the power management of the real-time multi-patient monitoring system (MPMS). A reliable wireless personal area networks (WPANs) based on digital signal processing (DSP) was introduced and developed, which consists of twenty remote nodes and a central node with pc-based graphic user interface. Sleep strategy and other techniques (dynamic voltage, frequency scaling) have been used to achieve low power management and assisted power control. Results indicate that, multiple WPANs approach outperformed the single one in respect of efficiency and reliability.