

# Jordan University of Science and Technology

## Data Traffic Optimization in Different Backoff Algorithms for IEEE 802.15.4/Zigbee Networks

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**Abstract:** Zigbee/IEEE 802.15.4 is a short range wireless communication standard designed for home monitoring, health care, and industrial applications. In this paper, the impact of data traffic load and two data traffic types, namely, Constant Bit Rate (CBR) and Variable Bit Rate (VBR) are studied by considering Binary Exponential Backoff Algorithm (BEB), Liner Backoff Algorithm and Fibonacci Backoff Algorithm (FIB). The efficiency of these algorithms is extensively evaluated by modifying the number of CBR or VBR packets sent from the nodes to the PAN coordinator. The obtained results demonstrate that using the VBR data traffic increases the throughput and decreases the end to end delay, while adopting the CBR data traffic decreases the total energy consumption of a small scale network.