



## DESIGN OF MULTIMODE GATEWAY FOR DATA ACQUISITION TO HIGH END DATA MONITORING USING IEEE802.15.4

Madhhav G.Raut<sup>1</sup> & Pradip B.Dahikar<sup>2</sup>

Hislop College, Civil Lines, Nagpur & Kamala Nehru Mahavidyalaya, Nagpur, India

### Abstract

Wired Electronic systems with or without current loops are used for these purposes. But such system heavily demands infrastructure developments with heavy costing for planting wires and then their maintenance. Sometime increased noise levels in signals also incorporate for inaccuracy in acquired data which may hamper entire DBMS. Our project research work titled "Design a Multimode Gateway for Data Acquisition to High End Data Monitoring using IEEE802.15.4" briefly focuses on solutions to overcome these difficulties in data acquisitions with improved noise immunity, cost redundancy and guaranteed and quality signal transmission and receiving outcomes.

**Keywords:** Signal Transmission cable, Wi-Fi High speed internet, LAN, Microcontroller, Data Bank, Hardware IEEE802.15.4 transreceiver etc..

### 1 Introduction

A data acquisition system plays an influencing role for monitoring and mentoring applications for industrial culture. Sensors and I/O calibration on techniques for PLC's highly demands the data base managing for research development and quality up gradation processes. Numbers of sensors are analog sensors few are dependent on digital or hybrid modules. Many a time need comes to transmit their responses and acknowledges over a long distance and store that in some software ERP systems. Traditionally wired systems with or without current loops are used for these purposes. But such system heavily demands infrastructure developments with heavy costing for planting wires and then their maintenance.

Sometime increased noise levels in signals also incorporate for inaccuracy in acquired data which may hamper entire DBMS. Our project research work titled "Design a Multimode Gateway for Data Acquisition to High End Data Monitoring using IEEE802.15.4" briefly focuses on solutions to overcome these difficulties in data acquisitions with improved noise immunity, cost redundancy and guaranteed and quality signal transmission and receiving outcomes. Since such system demand a wireless technology with low transmission rates and moderate distances for communication, ZigBee will be highly demanded air interface for this. Due to inherent ZigBee properties which are standardize with IEEE 802.15.4.

### 1 Properties of ZigBee Protocol:

ZigBee will provide a robust, strong, secured and low cost to interface as a replacement part of traditional wired communication techniques for data interfaces. Wireless technology, which has boomed in the IT sector over the past years, can be suitable for industrial control networks as well, providing solutions with high ROI for diagnostics, control and safety. In managing the move to wireless, it is clear that common wireless protocols such as Wi-Fi and Bluetooth can be utilized on the factory floor. The challenge is to understand how to utilize wireless solutions, developed for IT applications, as replacements for wired systems in time-critical scenarios typical of factory floor domains. To date, most wireless systems in production systems are focused on applications that require polling frequencies on the order of seconds or longer. However, the fundamental capabilities of these protocols allow support of much higher-speed applications such as motion control and closed