



## **IMPLEMENTATION OF A SIMPLE WIRELESS SENSOR NODE FOR THE DETECTION OF GASEOUS SUBSTANCES LEAKAGE**

S. Edward Jero<sup>1</sup>, A. Balaji Ganesh<sup>2\*</sup> and T.K. Radhakrishnan<sup>3</sup>

<sup>1&2</sup>Opto-electronic sensor research laboratory, TIFAC-CORE, Velammal Engineering College, Chennai-600 066, INDIA, <sup>3</sup>Process Control Laboratory, National Institute of Technology, Trichirappalli-620 015,INDIA.

Email: <sup>1</sup>edwardjero@gmail.com, <sup>2</sup>abganesh@velammal.edu.in and <sup>3</sup>radha@nitt.edu

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*Abstract- The paper presents the steps involved in implementing a customizable wireless sensor node for the detection of gaseous substances leakage in both internal and external environments. The node consists of various modules namely, sensors, signal conditioning, computational unit, wireless communication and power supply. The measurand to be measured are carbon dioxide, oxygen, relative humidity and temperature. A computational analysis is performed using a nano-watt PIC18LF4620 microcontroller and the wireless communication is realized through a MRF24J40MA Zigbee module. The results obtained prove that the sensor node possess good features such as, low cost, simple to use, minimal power consumption, long network range and compatibility with analog/digital sensors. The simple construction procedures create the possibility of implementing such customizable sensor node for the different environmental monitoring applications.*

**Index terms:** Wireless Sensor Node, Gaseous substances, PIC18LF4620, MRF24J40- Zigbee, Carbon dioxide.