

**INEXPENSIVE SENSOR NETWORK SOLUTION FOR  
ENVIRONMENT MONITORING**

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**ABSTRACT**

Sensor Networks are designed for specific applications which range from small-size healthcare systems to large scale environmental monitoring systems. The design of sustainable sensor networks is a very challenging issue. With the aid of rapid development of the modern technology, commercial equipments for monitoring environment factors have been introduced so frequently. However, the cost of these equipments becomes the main problem when developing a sensor network. Also, energy consumption of these equipment is another problem. In this paper, these factors were considered and a sensor network implementation which uses small low cost Linux board (Raspberry Pi) and low cost sensors was introduced. A small microcontroller was used as the interface between the sensor and the Linux Board and the functionality of this microcontroller was also discussed. This was tested for recording CO<sub>2</sub> content, temperature and spectrum data. A practical method for continuous power supply for the developed system was also described and application in large scale environment was also proposed.

**Key words:** Sensor networks, sustainability, Raspberry Pi, microcontrollers