

WIRELESS ENVIRONMENTAL DATA ACQUISITION SYSTEM

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ABSTRACT

Environmental monitoring is still not used extensively in today's world particularly in modern infrastructures such as labs and offices, where there is an equally high chance of mishaps occurring.

Therefore, this project is about setting up a wireless data acquisition system to monitor environmental conditions in labs and offices for analysis and display. Wireless transmission of data such as light, temperature and humidity to a server for monitoring is the main purpose of this project. Unlicensed ISM radio bands are implemented using transmitters and receivers within a high frequency range of 900 MHz for the transmission of data to a server. This project can be divided into three parts: First, the sensors which are used to sense for temperature, humidity and light. These sensors will input their readings to the microcontroller of the transmitter circuit. The next part is the wireless transmission and reception of the sensor values sent as data packets between the transmitter and the receiver. The last part involves the display of the sensor readings on a remote server as well as the storage of the readings in a database.

In this project, results show that data is hardly compromised with wireless transmission, having the ability to maintain accuracy in readings. However, its transmission is sometimes affected by devices making use of ISM radio bands, though not very often.

This report contains the project background, its overview, flowcharts, literature review as well as explanations for both the hardware and software aspects. The report is ended with a discussion and a conclusion on the finality of the project.