

WIRELESS SENSOR NETWORKS BUOY FOR COASTAL WATERS OBSERVATION

Title	WIRELESS SENSOR NETWORKS BUOY FOR COASTAL WATERS OBSERVATION
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Accreditation	
Abstract	<p>The availability of data in real time and continuous is important to monitor in environmental change as early as possible. Wireless sensor networks (WSN) offer a new paradigm in the field of oceanography that can measure the parameters of complex marine environment using a moored buoy. This paper described design of a data transmission system with a moored buoy and tested the performance of WSN instrument based on ZigBee protocol radio module for monitoring coastal water environment in real time. Instruments were divided into two i.e., (1) five sensors served to measure sea surface temperature, stored the data, and transmitted the data to the base station, and (2) a coordinating instrument that placed on the bases station served to receive and record all measurement results of each sensor. The testing was done by deploying the instrument sensors in waters with depths of 2 to 5 meters and a coordinating instrument was located on the ground as a base station. Each instrument's sensor measure sea surface temperature, store, and transmit it to other nearby sensors and forward data to the next sensor and then to the next sensor send it to the base station. The Packet Delivery Ratio (PDR) value wa used as an indicator to determine the instrument performance and the values were from 89.69% up to 100% with transmission range up to 430 meter and battery endurance was up to 26 hours. The result showed that a buoy moored instrument based on WSN ZigBee radio module protocol has the potential for monitoring coastal water environment in a real time. Keywords: mooring buoy, wsn, zigbee</p>
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