

## **ABSTRACT**

*Ubiquitous Sensor Network (USN) is a system which can be apply to creat neighbourhood security and surveillance. Ubiquity, refers to telemetry, it means for long data transmission using Bluetooth. USN use class 1 Bluetooth at 100 meter range for indoor.*

*The sensor consist of four sensors, they are temperature sensor, smoke sensor, infrared sensor and camera sensor. The sensors are digital sensors, which collected in sensor nodes. The sensor nodes have integrated with Bluetooth, so that the data of sensor nodes transmited by Bluetooth to Bluetooth Access Point (AP).*

*The Data's sensor in sensor nodes send to Bluetooth AP in wireless, the data from AP transmited to Central Monitoring System (CMS) in wired, using UTP cable for transmission media in bus topology. It allow because the Bluetooth AP support LAN connectivity. CMS identify, and report if there is trouble.*

*The design is simulation using MATLAB. The result of the design produce analysis consist of througput and BER. The analysis use to show the performance of the design system of USN, which is use Bluetooth for the transmittion. The maximal BER for Bluetooth is  $10^{-3}$  and it obtain in 9 meters of distance and in SNR 10 dB. By using the class 1 of Bluetooth, which has 100 meters in distance, and by using SNR 20 dB, BER will decrease to  $10^{-5}$ . Thus, the data transmittion is reliable because, the decrease of BER cause the transmittion more reliable.*

*Keyword : Sensor network, ubiquitous, Bluetooth, telemetry*