ABSTRACT

Having a motor vehicle at this time is a must for everyone, one of which is a car. In fact, in one family could get to have more than one car. This makes it hard to find a parking space for cars in public places, one of which is a shopping center with an indoor parking. Parking system in public places is currently less efficient, if someone wants to find a parking space when crowded circumstances require quite a long time which causes wastage of time, energy, and fuel. Therefore, we need an application Smart Parking and Monitoring System which will allow drivers to find a place to park their cars.

In this final project will be made a prototype smart parking applications and monitoring system that can monitor the state of the parking location somewhere using Wireless Sensor Network technology. The design of this prototype will use Star topology. Prototype smart parking applications and monitoring system using HC-SR04 ultrasonic sensor to detect whether a parking block cars parked there or not, then data obtained by the sensor are processed by a microcontroller Arduino Uno. Then the sensor data will be sent to the XBee coordinator, which will then be displayed in the Personal Computer (PC) in the form Guide User Interface (GUI) to make it easier to monitor and can be stored into the database. Then the system will show the location of the nearest car to the driver to be displayed on the monitor.

Based on the test results in this paper, we obtained an average error of measurement sensor at 5.43%, testing the maximum distance Xbee can receive data up to 32 meters with LOS condition for indoor done in Gedung Serba Guna (GSG) Telkom University, and 90 meters for outdoor conducted in the field GSG Telkom University with a LOS condition.

Keyword : *Smart Parking; WSN; Arduino Uno; HC-SR04; Xbee Series*