

## **Abstract**

Cigarette smoke is a chemical substance that is extremely harmful to human health. Cigarette smoke contains many chemicals that can cause cancer. But, unfortunately people still not aware with the effect of cigarette's smoke. There are still many people smoking in public places. One of them are students who like to sneak out in school hour to smoke . Therefore, a follow-up surveillance is needed to keep an eye of the smokers. In this thesis, the researchers build a system that can detect smoke and send notification if smoke is detected. In addition, the system can automatically open the window if smoke is present in the room. media (twitter) and email are used as a media to send the notifications.

This final project utilizes wireless sensor network technology and ZigBee protocol in transferring data. By using ZigBee as the transmission medium, hopefully, the detection process can be monitored in real-time and remotely, in addition, ZigBee which have the characteristics of low data rate is suitable to be used in systems .

Based on the test results and the analysis, the optimal level of accuracy (100%) can be reached by the system with 2V as the threshold value. The ideal distance between the smokers and the sensor is 40 cm, because 40 cm is the highest accuracy can be achieved at a distance of 40 cm from the sensor. The system can work well on the RSSI with -68.6 dbm and -82 dbm, this is because there are no packet loss could be found with those rssi values. Meanwhile, the delay that generated by wsn is between 5.8 ms and 22.2 ms. There is a small difference, around to 4.3 dbm between Comparison RSSI with the RSSI value in the environment test.

**Keyword : Cigarette Smoke, Zigbee, social media, email, detection, RSSI.**