

## **ABSTRACT**

*The railway crossing is the only meeting route between railways and other land vehicles, so the path has a high potential level of accident. Although train accident figures are not as high as other land accident figures, but the impact is higher than other land accidents both in financial and fatalities. Therefore, the study was designed a tool capable of monitoring the condition of the crossing area to be passed by the train. This tool is designed using WSN system, where there are 4 sensor nodes that are placed on each corner of the train crossing area with the aim of detecting the object (vehicle or human) in the crossing area.. A sensor node consists of 2 pieces of sensor, PIR and ultrasonic components. Information on the crossing area can be accessed directly by train machinists through the Android applications that have been designed. Based on the results of QoS analysis (Quality of Service) then obtained packet loss with a percentage of 0% then delay for 12.84 ms and throughput of 35334 bit/s. Referring to the reference standardization table, the performance of the tools that are designed included in the category is very good, so it is suitable for monitoring the train crossing area well.*

*Keywords: : wireless sensor network, internet of things, ultrasonic, PIR, train*