

## **ABSTRACT**

One popular transportation in Indonesia, especially in Java is the train. For major roads with high traffic volume, PT. KAI railway crossings are guarded by an officer in turn for 24 hours. However, most railway crossings that pass through the lane does not have railgate. This leads to frequent accidents at railroad crossings that do not have the railgate. To solve this problem, then one solution is to manufacture an automatic railgate system that can detect the arrival of the train.

The project is to make a transmitter-based microcontroller. At the transmitter is equipped with a device in the form of infrared sensors. Systematics general working of this device is an infrared sensor that will detect if there are no trains that pass. Sensors will detect if the length of time passed in accordance with a program that has been entered. Then the infrared sensor will continue to sismin there to send a signal to the receiver. On the receiver side the received signal is passed to the latch to close the crossing immediately. After the train passed, the crossings will open the latch by itself.

Tests performed on the RF module and precision sensor detects IR. The test results are optimal RF module can work up to 1.2 km with an average lag time of data transmission for 1.5 seconds. The results of testing the IR sensor is a sensor to detect and inform the 1.69 second delay. And the results of tests for the early detection of the IR sensor to close the latch until the bars open again after the train crossed perfectly in 35.4 seconds with a speed of 40 km / h

Key words: Microcontroller, railway crossings doorstep, infrared sensor