

## **ABSTRACT**

The train is a popular means of transport in Indonesia especially in Java. In addition to affordable tariffs, transportation of this type is known quickly and without hindrance. Distance railway could tens or even hundreds of kilometers with a distance like that can be imagined how much of a railroad crossing with a public street to see whether or not the highway. With the number of crossings that is no wonder many hundreds of accidents involving trains and road users, generally it happens because of lack number of latch to secure if the train would pass. Doorstop outage was caused by various factors and one of the factors that outage officers guarding every crossing. This is really fears the road users. To overcome this problem, the need for automation train doorstop.

Automation rail latch is designed using a microcontroller system that is integrated with a GPS device. In this experiment created a receiving device of the automatic latch system as a whole. At receiver system consists of a set minimum system microcontroller which directly connected to GSM module and the device that drives the motor directly doorstop. The general working of this system is a receiver device to receive signals from transmitters that are on the train and received by the GSM module and the data received are passed to the device minimum system microcontroller and processed according to existing logic in the microcontroller, then the microcontroller will drive the motor to close the latch. To reopen the already closed bars used a magnetic sensor to detect the presence of trains in the area doorstop. This system will be equipped with a safety device consisting of an RF receiver that would still work if the communication with the GSM module to crash. In this research using simulation methods and not carried out directly on railway crossings, this is done aimed at avoiding undesirable thing to remember is very risky to use directly the original train.

The final project is expected to be useful for society and can overcome the limitations of the cross guard officer.

Keywords: microcontroller, GPS, GSM Module. magnetic sensors.