

# EARLY WARNING SYSTEM PROTOTYPE OF TRAIN ARRIVAL BASED ON INTERNET OF THINGS

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## ABSTRACT

This article discusses how to build a remote detection system prototype. An example of its application is for example to turn on a siren when it detects the arrival of a train at an unguarded rail crossing. The device to be produced is expected to be able to reduce and even prevent traffic accidents that often occur at unattended rail crossings.

The specific objectives of the research are: (1) Producing a prototype design for the distance detection system at unattended rail crossings; and (2) Obtain good performance from the prototype design of the distance detection system at unattended rail crossings. Specific targets of research are prototypes of distance detection systems at unguarded rail crossings that are performing well and well validated, nationally accredited journals, and IPR.

The method of implementation uses development techniques (Research and Development) which refers to Pressman (2006: 409). This activity is carried out for 6 months, in outline the steps are: description and analysis of needs, design, making system prototypes, and system testing. The instruments used included checklists and questionnaires. The data obtained from the questionnaire were analyzed quantitatively to test whether the results met the predetermined indicators.

The tool developed has special specifications, namely having a Lora-R02 transmitter and receiver module, a GPS module, a 900A SIM module which are all assembled as IOT using the Arduino Mega 2560. From the results of testing the prototype tool, all tool sensors can work well at a distance of less than 100 meters and only partial sensors work at distances greater than 100 meters. Meanwhile, the Lora module can begin to detect the arrival of objects at a distance of 300 meters.

Kata Kunci: *warning system prototype, rail crossing, not maintained*