

ABSTRACT

PT Kereta Api Indonesia (PT KAI) continues to strive to improve safety and service quality in line with the growing public interest in rail transportation. One of the main challenges faced is the high incidence of derailments, which account for 62.14% of train accidents in Indonesia from 2007 to 2023. This issue is exacerbated by the manual management of maintenance and repair data for railway tracks. This situation hinders comprehensive analysis for risk mitigation of incidents. This study aims to develop a web-based management information system dashboard capable of managing and visualizing key data such as maintenance history, repairs, incidents, and speed history on railway tracks. This research employs a prototyping method comprising stages of communication, rapid planning, rapid design, prototype construction, and testing and feedback. The system was developed using the Yii Framework with the CSS Bootstrap Framework for the interface. Testing was conducted using Black Box Testing to assess functionality and the System Usability Scale (SUS) to measure system usability. The test results showed that all functions worked as expected, and the system obtained a SUS score of 77.5 (dashboard) and 75 (management information system), which falls into the “acceptable” category. The developed dashboard is expected to support PT KAI in making strategic decisions to improve the operational safety of trains.

Keywords: Dashboard, Safety Railways, Railway Tracks, Prototyping, Management Information Systems, Data Visualization.