ABSTRACT

Trans Metro Bandung has several obstacles, COVID-19 and synchronization of income with the number of passengers. During COVID-19, the West Java government issued a regulation on Technical Instructions for Managing Capacity and Operational Hours of Public Transportation During the Enforcement of Restrictions on Micro-Based Community Activities in the West Java Region where one of the contents of the circular was the restriction on land transportation infrastructure users at a maximum of 50% (fifty percent) of capacity. With this, the Trans Metro Bandung experienced a loss due to the reduced number of users every day and many fleets being rested. Currently, the calculation of the number of passengers in the fleet is still using a manual system, where users pay for tickets to officers and calculate passengers by looking at total income. In this way there is a loophole for officers to manipulate the number of passengers on the fleet.

In this study, a device that can calculate the number of IoT-based passengers is designed with Radio Frequency Identification (RFID) and webcam to increase monitoring accuracy. The output from the RFID will be sent to the MySQL database while the output from the webcam will be sent to Firebase.

RFID devices have advantages and disadvantages. The advantage of RFID is that the accuracy in reading the number of passengers is better than that of a webcam. For Availability testing, this device has a value of 95.23% and reliability has a value of 95%. In terms of equipment efficiency, the results show that the equipment is 65.63% more efficient than paying field workers in a year. The results of webcam and RFID throughput in the morning and evening have a satisfactory value. The results of webcam and RFID delays in the morning and evening have a satisfactory value.

Keywords: Trans Metro Bandung, Internet of Things, webcam, RFID, Test, Quality of Service.