ABSTRACT

The KIR test is one of the tests that must be carried out by public vehicles or loaded vehicles, but behind all the testing activities, there must be data errors, either done intentionally or accidentally. For example, a vehicle that should have been declared not passing the test succeeds in obtaining the license. This happens because several hands change the data contained in the test. To reduce these incidents, a system was developed that could record everything historical and valid. The blockchain is the system needed to handle all of that. This research discusses how to create and implement a blockchain system integrated with IoT devices in vehicle KIR test recording. These properties of the blockchain can reduce errors in data. The most common feature of a blockchain is cryptography. All data stored on this blockchain will go through a cryptographic process where each process will not go through a third party, so the reconciliation process between nodes will be faster. As well as for the blockchain ownership process using a public key and private key system. This research aims to create a blockchain system that can be integrated into an IoT device. The success of this research is that the blockchain can record the KIR test results of a vehicle and read the test result data by being connected to an IoT RFID reader. From the test results, it can be concluded that the system created in this study is following the blockchain rules because the test results of the blockchain verifier have shown that the blocks on the blockchain are connected and for the waiting time required by the user to process finished with an average of 2.88 seconds.

Keywords*:* *Blockchain*, KIR, *Smart Contract*, IoT.