

## **ABSTARCT**

A toll is a payment or fee exacted by the state, the local authorities or other organization for some right or privilege. Most of the toll collection systems used in Tanzania in the metro bus terminals is a manual transaction. Due to the manual collection the payment cheating is increased and the Government revenues are diminished. There is a need to collect the toll in electronic means. Electronic Toll Collection (ETC) is a system for automated collection of tolls from moving or stopped vehicles through wireless technologies such as radio-frequency communication or optical scanning. The objective of this project is to transform manual transaction to automated toll collection with the help of RFID technology. All buses are registered in the database and the payment of toll is based on the RFID card. The bus will have the permission to exit at the terminal after payment done in the database.

The accomplishment of the system was done through literature review and the collection of relevant data. The collected data was analyzed to get the best system to be designed, simulated and implemented.

Both design and simulation of the proposed system were conducted towards achieving a prototype. The simulation process was done using Proteus version 8.1 and the results were measured. The implemented prototype able to register the bus and deduct toll in the database, the sensing mechanism and closing the gate when the bus passing away from the gate have been achieved but opening of the gate failed due to the failure of microcontroller to receive the command from the database to open the gate.