

Implementation of an IoT-Based Weapons Inventory System Using Barcode Technology for Weapons Inflow and Outflow Tracking at the Poltekad's Weapons Armory

Abstract

The security and efficiency issues in the management of weapons storage in military environments especially in the Indonesian Army (TNI-AD) have become a significant concern because many potential loss case or misuse of weapons that frequently happen. This research is aim to implement and develop an integrated system by using the IOT Infrastructure combining with barcodes to monitoring the inflow and outflow process at weapons armory. The method used microcontroller ESP32 as the control center to collect and deliver the data into the web server for recording and reporting. This method is tested through daily operational simulation to tested the accuracy and reliability of inflow-outflow weapons process. The result show that the system is capable of providing realtime and accurate weapons status information through a web interface and can be accessed via internet. This system is successfully reducing the manual recording process and is able to provide direct inventory condition to the officers. The barcodes system is successfully implemented on 104 SS-2 Pindad Rifles and 105 Pistols located in the Poltekad's Armory with 100% success reading rate at optimal read distance 2-5 cm.