

ABSTRACT

According to the report by the Central Statistics Agency (BPS), the population in Indonesia increased from 270.20 million people in mid-2020 to 272.68 million people in mid-2021, which has influenced the increase in the number of motor vehicles to 153,400,392 units as of February 9, 2023, according to Korlantas Polri. The high demand for transportation modes has led to limited parking space, causing traffic congestion, air pollution, and wasted time due to parking queues, making conventional parking systems ineffective and inefficient. This research aims to create a prototype for optimizing parking space using reservation technology in an automated parking system to optimize the use of parking space. The system is designed to improve efficiency and convenience in parking management by utilizing reservation technology to allocate parking slots more efficiently. The QR code scanner tool uses the GM66 barcode scanner to detect and recognize QR codes on motor vehicles that have made reservations to enter the parking area. By utilizing this technology, it can help optimize the use of parking areas, increase time efficiency, and provide a more comfortable parking experience for drivers. Based on the distance testing that has been conducted, the ideal distance for the GM66 to read the original QR code is from 8 cm to 40 cm with a success accuracy of 85%. In the delay testing conducted 20 times on the original QR code, the average delay was found to be 6.74 seconds.

Keywords: *ESP32, GM66, Reservation, Smart parking, Website.*