

## ABSTRACT

As we know, the parking area is a place to put and leave vehicles. With the increase in the number of vehicles, available parking slots in public places are increasingly running out in terms of capacity. To make it easier for drivers to find a parking space this research designs applications and tools to manage parking slot reservations including the payment system, so that drivers can find parking slots more easily and know the weather conditions in the parking area. Differ with the previous research that only covered the parking reservation system.

This design parking system application by implementing Internet of Things. The application can be used as a parking slot reservation, and to open the automatic doorstop requires a QR code obtained from the application after the booking operation. This tool was made using an ESP32 CAM, Raindrop Sensor, buzzer, and servo motor. The component is located on the automatic door latch. The system works with the ESP32 CAM to scan the QR code the driver receives from the app. This application has several features such as parking history, parking location, parking reservation (date, time and slot, profile updates (name, contact, address), knowing weather conditions in the parking area and making parking payments using the QRIS system.

This research also has QoS measurement analysis by capturing the TCP packet transmission between Raindrop Sensor to the Firebase using Wireshark. The QoS analyze the packet loss and delay parameters according to ITU-T G1010 standard. The Delay test parameter Raindrop to Firebase obtained a result of 503 ms and classified to good category with an index of 3. This result obtained because the data sent continuously. Therefore, there are still issues with the comparatively high results in packet loss rate that were classified to medium category with an index 2, with a result of 23%.

**Keywords:** Internet of Things, Smart Parking, ESP32 CAM, Weather Sensor, QRIS