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ParkMate- An Android-Based Smart Parking

Wagh Gaurav Raju1, Borude Nikhil Sanjay[2], Honde Vaibhav Ramnath[3], Prof. Chaudhari N. J[4]
Students, Department of Computer Engineering[1,2,3]
Professor, Department of Computer Engineering[4]
Samarth College of Engineering and Management, Belhe Bangarwadi, Junnar, Pune, India
(AICTE Affiliated)
gauravwagh130@gmail.com, nikhilborude000@gmail.com
vaibhavhonde24@gmail.com, chaudharin011@gmail.com

Abstract: *As urban areas grow and vehicle usage increases, finding available parking spaces in large lots has become increasingly difficult, leading to delays, frustration, and inefficient space utilization. Traditional parking systems often rely on manual processes or basic digital solutions, which lack essential features like offline navigation, structured (sequential) parking, and flexible slot reservations—key elements for a smooth user experience. ParkMate, an Android-based application, addresses these challenges by improving the efficiency and user-friendliness of parking management in high-traffic areas.*

ParkMate utilizes a QR-based system for advance slot reservations, streamlining access and reducing congestion. Upon arrival, users receive a digital receipt confirming their reservation and parking location. The app's offline navigation feature enables users to find their vehicle without needing internet access, especially useful in areas with limited connectivity. Additionally, ParkMate supports sequential parking, guiding users to specific slots in a structured manner to optimize space usage. By offering a hybrid of offline functionality and digital conveniences, ParkMate improves traditional parking systems, enhancing operational efficiency and user satisfaction in large urban parking facilities.

Keywords: ParkMate, Parking management, QR-based reservation, Offline navigation, Sequential parking, Urban mobility, Android application, Parking optimization, User experience, Smart parking systems