DriveMate - Vehicle Breakdown Assistance using Mobile Application

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Abstract: *The increasing need for on-demand vehicle breakdown assistance calls for a system that connects stranded drivers with nearby mechanics through a seamless mobile interface. This paper presents a survey of existing technologies, applications, and algorithms that aid in the development of a real-time mechanic dispatch platform. The app allows for mechanic registration, user-mechanic connectivity based on GPS location, and ratings to enhance service reliability. This survey highlights methods for implementing proximity-based assistance, secure admin control for mechanic vetting, and efficient user-to-mechanic communication.*

Keywords: LBS, GPS, Proximity-based assistance, Mechanic dispatch platform, RBAC, Real-time communication, Firebase Cloud Messaging (FCM), WebSockets, Dijkstra's algorithm, A* algorithm, Secure admin control, User feedback and rating system, Data encryption, Heap sorting, Quicksort, FCM