

ABSTRAK

Perkembangan pesat teknologi digital saat ini telah memicu berbagai inovasi pada layanan transportasi umum, termasuk konsep smart transportation. Di Kota Medan, bus listrik BRT TransMebidang sudah beroperasi sejak 2024, namun tingkat penggunaannya masih rendah. Masalah utamanya adalah kurangnya informasi posisi bus secara real-time dan sistem pembayaran digital yang belum terintegrasi. Penelitian ini bertujuan mengembangkan prototipe aplikasi mobile yang menyediakan pelacakan bus real-time, estimasi waktu tiba (ETA), informasi rute-halte, serta pembayaran digital melalui m-banking, e-wallet, dan QR code dalam satu platform. Penelitian menggunakan metode Research and Development (R&D) dengan tahap analisis kebutuhan, desain, pengembangan prototipe, serta pengujian usability melalui System Usability Scale (SUS) terhadap 30 responden. Hasil uji menunjukkan rata-rata nilai SUS berkisar di angka 87,3. (kategori Good dan Acceptable). Prototipe ini terbukti memudahkan pengguna dalam mendapatkan informasi akurat serta melakukan transaksi pembayaran secara lebih cepat dan aman.

Kata Kunci: *smart transportation*, bus listrik, *System Usability Scale (SUS)*, pembayaran digital, prototipe aplikasi.

ABSTRACT

The rapid advancement of digital technology has triggered various innovations in public transportation services, including the concept of smart transportation. In Medan City, the electric bus service under the BRT TransMebidang program has been operating since 2024; however, its utilization rate remains relatively low. The primary issues are the lack of real-time bus location information and the absence of an integrated digital payment system. This study aims to develop a mobile application prototype that provides real-time bus tracking, Estimated Time of Arrival (ETA), route and bus stop information, as well as digital payment features through m-banking, e-wallets, and QR codes—all integrated within a single platform. The research employed the Research and Development (R&D) method, which includes needs analysis, design, prototype development, and usability testing using the System Usability Scales (SUS) with 30 respondents. The usability test results showed an average SUS score of 87.3, falling into the *Good* category and considered *Acceptable*. This prototype has proven effective in helping users obtain accurate information and complete payment transactions more quickly and securely.

Keywords: *smart transportation*, electric bus, real-time tracking, *System Usability Scale (SUS)*, digital payment, application prototype.