

ABSTRACT

Advances in technology and global efforts to reduce carbon emissions are accelerating the development of intelligent, environmentally sustainable solutions. Electric vehicles (EVs) play a critical role in lowering emissions of pollutants such as CO, NO_x, HC, and SO₂. As EV adoption grows, demand for charging infrastructure Public Electric Vehicle Charging Stations (Stasiun Pengisian Kendaraan Listrik Umum, SPKLU) is also increasing. In the end of 2022, Indonesia had approximately 600 SPKLU units in operation, a number still far below what is needed to fully support national EV growth. In response, a range of institutions have begun contributing to infrastructure expansion, including Telkom University, which has installed SPKLU facilities on its campus. Despite this progress, implementation challenges remain particularly in terms of usability, reliable access to up-to-date SPKLU location information, and an overall user experience that has yet to be fully optimized. To address these issues, the development team created KedaiCas, a Flutter-based mobile application integrated with backend APIs. Although initially motivated by campus needs, KedaiCas is intentionally designed for broader scalability to support the wider electric-mobility ecosystem. To verify that core functions operate as intended, the application was evaluated using Black Box Testing, focusing on input and output behavior. The results show that KedaiCas achieved a 100% functional success rate, indicating that the vast majority of primary features performed according to specification. Accordingly, KedaiCas can be considered a viable digital solution for improving access to and utilization of Public EV Charging Stations (SPKLU).

Keywords: Electric Vehicle, Mobile Application, SPKLU, Technology