

## **ABSTRACT**

*To meet the infrastructure needs of electric vehicles, Telkom University, through the Center of Excellence (CoE) Smart EV, has provided Public Electric Vehicle Charging Stations (EVCS) based on the Open Charge Point Protocol (OCPP) 1.6, using Radio Frequency Identification (RFID) cards as the charging method. However, the current backend system is not integrated with a digital payment system and does not offer alternative charging methods, resulting in a manual process handled by internal personnel. Furthermore, the absence of user management and role-based access control complicates authorization, activity logging, and identification of device ownership. The system also lacks integration with web and mobile applications, which limits the monitoring and control of EVCS by both users and operators. This Final Project aims to develop a backend system based on OCPP 1.6 that integrates with a digital payment system, charging devices, and both web and mobile applications. The development was carried out using the Agile Software Development Life Cycle (SDLC) methodology and includes features for charging tariff settings, user management, and partner management. The system was tested using black-box testing methods, including integration testing and end-to-end (E2E) testing. As a result, the developed backend system enables an automated, recorded, and integrated charging process. Therefore, the system provides a solution for the organization.*

*Keywords: EVCS, OCPP 1.6, Backend System*