

ABSTRACT

The growth of conventional vehicles in Indonesia has negatively impacted environmental quality, including air pollution and dependence on fossil fuels. The government's efforts to promote the use of battery-based electric motor vehicles (KBLBB) are still hindered by limited charging infrastructure and battery efficiency, especially in situations where charging stations are difficult to access. One identified issue is the use of Charge Controller UY-1200, where charging status is communicated through the WeChat platform. This process requires registering an account on WeChat and either a minimum of six months of use or a referral code from another user. This decreases user interest in utilizing this technology.

This capstone design offers a solution by modifying the data communication system on Charge Controller UY-1200 to be more accessible to users without the hurdles of WeChat platform requirements. The modification is carried out through a data sniffing process to collect information related to the charge controller's performance. This information is then presented through a smartphone application that provides real-time data such as voltage, current, temperature, battery charge level, graphs, and charging time to the user. The application is designed to make it easier for users to monitor battery charging conditions effectively without relying on a platform that is less familiar in Indonesia.

Testing and analysis show that the developed application, ELECTRAFLOW, successfully processes and displays data from Charge Controller UY-1200 in real-time. The application can detect overtemperature conditions and provide visual and audio notifications when abnormal conditions occur. It can also detect overvoltage and overcurrent conditions and implement a protection system by stopping the charging process. With an intuitive user interface, ELECTRAFLOW offers a better experience for electric vehicle users in Indonesia, particularly in terms of charging accessibility and efficiency.

Keywords: *Charge Controller UY-1200, Battery Charging, Data Sniffing, Electric Vehicle, Smartphone Application*