

## ABSTRACT

Solar power plants and wind power plants can be combined into hybrid power plants as an alternative to anticipate energy limitations in the future. There is a hybrid power plant that has been built at Deli Building Telkom University, wind turbines and pv. The Battery Management System (BMS) is needed as a support to regulate the power that will flow from the converter to the battery. This system is made to add to the features of the Hybrid power plant in Telkom University. The BMS design in this study has 2 features, monitoring and protection. Monitoring based on IoT (Internet of Things) using a smart phone. Parameters monitored are voltage, current, and State of Charge (SOC). The protection system aims to prevent the battery from being overcharged and over discharged by cutting off the voltage at the top and bottom of the battery (Cut in and Cut Off). Charging the battery uses the Fuzzy Logic control method which functions as a regulator of the amount of voltage going into the battery via PWM (Pulse Width Modulation). In the charging test, the battery voltage rose slowly from 23.7 volts to the full battery capacity of 27 volts with a charging time of 6 and a half hours. PWM standby is given so that the voltage that will go to the constant battery is not below 24 volts. The system can cut off voltage when the battery capacity is full by using a MOSFET.

**Keywords:** BMS, Fuzzy Logic, IoT, PWM.