

ABSTRACT

Rechargeable batteries in daily life are widely used to store electrical energy in both small-scale power generation systems , vehicles that use electric energy as a drive , etc. In the use of rechargeable batteries for electrical energy storage, a voltage balancing system is required to be monitored in the use of the rechargeable battery , so that the use of the rechargeable battery can be used properly and upgrade the electrical energy storage system that will be developed. From the design and analysis of the monitored lead acid battery voltage balancing system to be made it is expected to be monitored and management of the battery voltage balance level , so that the storage of electrical energy on the rechargeable battery can be stored and used optimally. In the designed system , a lead acid battery voltage detection circuit is required, so that the lead acid battery voltage can be detected by the designed system. In the designed system also requires a series of power dissipation when the charging battery voltage exceeds the maximum voltage of the battery using the controlled shunt resistor method, so the voltage value between the lead acid batteries in charging is expected balance. Beside that , a circuit is also required that can display the battery voltage value and other parameters, so that the user can monitor.

The designed system can detect lead acid battery voltage by getting error average battery voltage detection values 1 and 2 using MCU 1 against the average voltage detection value using multimeters > 0.09% as well as error average battery voltage detection values 1 and 2 on average using MCU 2 against battery voltage detection values 1 and 2 on average using multimeters > 0.3%. The system's power dissipation circuit can dissipate lead acid battery power above the V_{REF} reference voltage = 7V, where the V_{REF} value is derived from the control voltage value on the lead acid battery datasheet of approximately 6.8V-6.9V. The system can also display voltage detection values on 16X2 LCD and database , so that users can monitor.

Keywords: Lead Acid Battery, Monitored Voltage Balancing System