ABSTRACT

The battery is a device that requires maintenance, the battery is treated with periodic replacements related to age. However, battery life can be shorter due to usage and temperature factors. High temperatures result in shorter battery life. The difficulty of monitoring the battery caused by the BTS in a remote location becomes an obstacle in maintenance activities. The battery charging process at BTS (Base Transceiver Station) is carried out with PLN resources and there are some BTS that use a hybrid system by adding solar cell sources and generators. Batteries are used to back up if other power sources experience problems or blackouts occur, so it is very important to seek battery maintenance because batteries are the last step as a backup power source if other sources are not available.

The battery monitoring system proposed by the author aims to keep the battery condition monitored and can be charged properly and correctly. The research that will be carried out is to design a battery monitoring system that can be monitored online via Android devices with a firebase database. The system works to read each battery cell to determine the voltage condition of each battery. The work of the system is to read the analog voltage of the battery through the resistor divider for the analog to digital conversion process through the ADC module and the process of finding the voltage difference between the battery cells is carried out so that the voltage value of each cell is obtained.

The planning result of this research is a battery monitoring system that can be accessed online. The average reading error of the INA219 current sensor reading error is 1.85% and the measurement results obtained an average voltage reading value of 0.46%.As a backup power source, 4 battery compositions are arranged in series, so that a voltage of 48V is obtained which corresponds to the nominal value of the BTS device.

Keywords: *Base Transceiver Station, Battery, Android, Firebase, Monitoring*