

ABSTRAK

Energi listrik menjadi energi alternatif selain energi fosil yang dimanfaatkan oleh manusia untuk memenuhi kebutuhan. Manfaat energi listrik di bidang transportasi berupa mobil listrik. Tim periset Badan Riset Inovasi Nasional telah merancang mobil listrik bersumber dari baterai Li-ion 48 V/ 80ah. Untuk mengetahui nilai tegangan dan arus dc yang dikeluarkan baterai maka dibuat sistem monitoring nilai arus dan tegangan dc pada baterai mobil listrik.

Dalam penelitian ini dilakukan perancangan program pada Arduino IDE untuk sistem monitoring. Virtual Private Server (VPS) dirancang sebagai penyimpan data pembacaan sensor yang ditampilkan melalui Grafana.

Hasil pengujian nilai error pada sensor arus sebesar 2,05 % dan nilai error pada sensor tegangan sebesar 0,72%. Pada pengujian baterai mobil listrik dalam waktu 2 menit dengan berjalan sejauh 450 meter didapat nilai rerata sensor tegangan sebesar 47,15 V dan nilai rerata sensor arus sebesar 11,58 A. Hasil pengujian performa baterai dari kondisi 100 % hingga ke 0 % mobil dapat melaju sejauh 16,43 km dengan waktu tempuh 66 menit.

Kata kunci : Monitoring, Internet of Things, Grafana, VPS

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ABSTRACT

Electrical energy is an alternative energy other than fossil energy which is used by humans to meet their needs. The benefits of electrical energy in the transportation sector are in the form of electric cars. The research team of the National Innovation Research Agency has designed an electric car sourced from a 48V/80ah Li-ion battery. To find out the value of the dc voltage and current issued by the battery, a monitoring system for the value of the dc current and voltage is made on the electric car battery.

In this research, the program design on Arduino IDE for monitoring system is carried out. Virtual Private Server (VPS) is designed to store sensor reading data displayed via Grafana.

The results of testing the error value on the current sensor is 2,05 % and the error value on the voltage sensor is 0.72%. In testing the electric car battery within 2 minutes by walking as far as 450 meters, the average value of the voltage sensor is 47.15 V and the average value of the current sensor is 11,58 A. The results of testing the performance of the battery capacity from 100% to 0% conditions the car can go as far as 16.43 km with a travel time of 66 minutes.

Key notes; Monitoring, Internet of Things, Grafana, VPS

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