

ABSTRAK

Instalasi sistem DC di PLN terbagi menjadi 3 macam, yaitu: Instalasi sistem DC 250, 110, 48 V. Yang berfungsi menyuplai sistem kontrol dan proteksi pada peralatan gardu induk, sehingga harus bersifat stabil dan continue.

Karena persyaratan itulah, maka perlu adanya sistem monitoring agar informasi penting serta gangguan pada gardu induk dapat selalu terpantau operator.

Berdasarkan permasalahan di atas, penyusun membuat rancang bangun charger baterai dengan metode charging otomatis berdasarkan presentase tegangan baterai, yang terdiri dari rangkaian sensor tegangan dan regulator arus, yang kemudian akan dimonitoring melalui LCD 20x4 dan aplikasi VTScada.

Metode charging otomatis yang digunakan pada rangkaian charger adalah metode boosting dan floating dengan arus charging sebesar 0,7 dan 0,35 A. Yang bertujuan menjaga lifetime baterai.

Sensor tegangan berfungsi membaca tegangan baterai dan mengirimkannya ke Arduino untuk diolah, agar dapat menggerakkan relay penentu metode charging. Sedangkan regulator arus berfungsi membatasi arus charging baterai sebesar 0,7 A saat metode boosting dan 0,35 A saat metode floating.

Arduino Mega 2560 merupakan pusat pengendali input dan output pada alat rancang bangun dan monitoring. Dimana Input Arduino berupa: sensor tegangan, sensor arus, switch dan push button. Sedangkan output-nya berupa: LCD 20x4, Buzzer, indikator, relay, serta aplikasi VTScada.

Kata kunci: Arduino Mega 2560, otomatisasi metode charging, sensor tegangan, regulator arus

ABSTRACT

DC system installation at PLN is divided into 3 types, there are: Installation of DC systems 250, 110, 48 V. Which functions to supply control and protection systems at substation equipment, so it must be stable and continue.

Because of that requirements, it is necessary to have a monitoring system so that important information and interference at the substation always can be monitored by the operator.

Based on the problems above, the compiler designed a battery chargers with an automatic charging method based on the percentage of battery voltage, which consists of voltage sensors and current regulators, which then will be monitored through a 20x4 LCD and VTScada application.

The automatic charging method that used in the charger circuit are boosting and floating method with charging currents amounting to 0.7 and 0.35 A. Which intend to maintain the battery lifetime.

The voltage sensor functions to read the battery voltage and send it to Arduino to be processed, so that it can drive the relay to determine the charging method. While the current regulator functions to limit the battery charging current amounting to 0.7 A when use boosting method and 0.35 A when use floating method.

Arduino Mega 2560 is the center of the input and output control of the design and monitoring equipment. Where Arduino Input is: voltage sensor, current sensor, and push button. While the outputs are: LCD 20x4, Buzzer, indicators, relays, and VTScada applications.

Keywords: *Arduino Mega 2560, automation of charging methods, voltage sensors, current regulators*