PENERAPAN SISTEM TERTANAM DENGAN KONSEP *SELF-SUSTAINED OFF-GRID*

LAPORAN TUGAS AKHIR SISTEM KOMPUTER

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ABSTRAK

Tujuan dari penelitian ini adalah untuk menerapkan sistem tertanam dengan konsep memproduksi listrik itu sendiri, di mana listrik dihasilkan dari panel surya. Sistem yang dibuat dengan konsep *self-sustained off-grid,* dimana pada penelitian ini dibuat tanpa terhubung dengan sumber listrik PLN. Sistem juga dapat memonitor energi yang tersimpan dalam baterai. Sistem terdiri dari panel surya sebagai penghasil energi listrik, pengontrol surya sebagai pengatur tegangan dan arus masuk dan keluar dari baterai, dan sistem tertanam sebagai beban yang digunakan. Sistem yang diterapkan dapat menentukan berapa lama baterai dapat memasok listrik ke beban. Sensor arus mendeteksi arus bernilai -1,8A disaat energi yang dihasilkan melebihi kebutuhan beban dan energi yang berlebih akan disimpan kedalam baterai, arus bernilai 1,5A saat suplai listrik hanya dari baaterai. Durasi baterai dapat menyuplai beban bervariasi tergantung pada arus beban yang terbaca oleh sensor arus. Mode prioritas dapat aktif pada saat baterai berada dibawah 120.000.

Kata kunci: Self-Sustained, Off-Grid, Sistem Tertanam

APPLICATION OF THE SYSTEM PLANTED WITH SELF-SUSTAINED OFF-GRID CONCEPT

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ABSTRACT

The purpose of this research is to implement an embedded system with the concept of producing electricity itself, where electricity is produced from solar panels. The system is made with the concept of Self-sustained off-grid, which in this study was made without being connected to a PLN electricity source. The system can also store energy stored in batteries. The system consists of solar panels as a producer of electrical energy, solar controllers as regulators of voltage and currents in and out of batteries, and a savings system as a load used. The applied system can determine the length of time the battery can supply electricity to the load. The current sensor consumes a current of -1.8A when the energy produced is more than needed and excess energy will flow to the battery, the current is valued at 1.5A when the electricity supply is only from the battery. The duration of the battery can supply the load depends on the load current that is read by the current sensor. Priority mode can be activated when the battery is under 120,000.

Keywords: *Self-Sustained,*Off-Grid, Embedded System