

ABSTRACT

Technological developments in combining multiple sources of electrical power to the system On Grid that at this point has been done, which aims to generate green electricity. The electrical power source still stands alone so dibutuh tool that can merge some of these resources. Given these problems, this research is designed to be able to control many of these resources for stable use as a major resource for the home.

Different power resources such as resources of solar, water and resources from PT. PLN that will be controlled by using mikrokontoler board as a tool used to regulate the power control system. Parameters that can be controlled by a device which has been designed consisting of the transfer of power from different power sources. So the result of which is controlled on the device will be distributed directly to consumers, the amount of power in the channel will be sent in real time can be monitored on the web. Interface is used to connect between the device is designed with a LAN network using Ethernet Arduino Shield connected to the microcontroller via SPI communication.

Results of studies are designed to be able to control various power resources that will be used in the community. This study was designed with three phases consisting of phase measurement, phase control and monitoring stages. On the measurement voltage value obtained error value by an average of 2,716%. At this stage of controlling resources generate controlling resources with the condition when the voltage value on the backup power source is greater equal to 220 volts, the device will use backup resources, yet if the voltage value is less than 220 volts, the device will use the resources of PT PLN , And for communication between the device and the web server generates stable communication and capable of transmitting data continuously at intervals of 4 seconds.

Keywords: Power Control. Smart Grid, Ethernet.