

ABSTRACT

Along with the development of digital technology, alternative sources of electrical energy are needed that can sustain human needs, one of them by utilizing heat energy. Heat energy is an alternative energy that is environmentally friendly and is widely used to meet various human needs. The conversion of heat into electrical energy can be done by using a Thermoelectric Generator (TEG).

Thermoelectric Generator is a device used to produce temperature differences between two different semi-conductor materials. Elements in this thermoelectric will flow current which will produce a voltage difference, this principle is known as the seebeck effect.

This research was conducted to determine the power stored in the 3.7 Volt 400 mAh Li-Po battery which comes from energy conversion in the Thermoelectric Generator module type TEC1-12706. TEG hot side in the energy heated by waste heat from the refrigerator compressor while the cold side of the TEG attached to the heatsink and aluminum waterblock as heat-absorbing of the TEG. The voltage from the TEG conversion will be increased and the voltage is stabilized using a Boost Converter type CE8301 USB Port model and will be stored in a Li-Po battery. Testing of energy conversion in the TEG obtained value of the average voltage output of 1.05V tested for 720 minutes. And the testing of Li-Po battery charging, the battery can hold a charge of 28.7% of the battery capacity for 120 minutes and a measured battery voltage of 3.61 volts to 3.91 volts.

Keywords: Thermoelectric Generator, Boost Converter, Li-Po