

Thermoelectric Refrigerator Using Peltier Effect

Prof. V. K. Kulloli¹, Rajat Kuche², Mayur Patil³, Shivam Pagar⁴, Ramashri Valunj⁵

Assistant Professor, Mechanical Engineering, NBSSOE, Pune, India¹

UG Student, Mechanical Engineering, NBSSOE, Pune, India^{2,3,4,5}

Abstract: This project is a demonstration of an eco-friendly methodology for the implementation of a solar powered thermoelectric refrigeration system. Solar energy is the most abundant and renewable source of energy in the environment, and hence it is used in our project. In conventional refrigerators, moving parts or rotating parts like compressor, expansion valve, coolants etc. are involved which leads to some vibrations and noise. Even coolants are not eco-friendly and much more costly. But in a thermoelectric refrigeration system, these mechanical parts and coolants get eliminated and a thermoelectric module is used instead. Still there are many rural areas where people have to deal with electricity problems, this module will be very helpful to them as it runs on solar energy. Food items and other different required things can be stored in it. Thermoelectric module consists of peltier plates and a heat sink module which will be placed on each side of the peltier device. We are using a microcontroller for this project to detect the temperature and display it to the user.

Keywords: Microcontroller, Peltier, Refrigerator, Sensors, etc.

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