## ABSTRACT

This project aims towards developing a system which will produce cooling effect without the use of refrigerant. Thermoelectric cooling system does not require working fluids or any moving parts. Thermoelectric refrigeration devices have a distinct place in medical applications, electronic applications, scientific equipment and other applications. The difference between the existing methods and this model is that a thermoelectric cooling system refrigerates without use of mechanical devices (Conventional Condenser fins and Compressor) and without refrigerant. The system consisted of the refrigeration chamber, thermoelectric modules, heat source and heat sink. A result which is a criterion of performance of such device is a function of the temperature between the source and sink. Conventional cooling systems such as those used in refrigerators utilize a compressor and a working fluid to transfer heat. Thermal energy is absorbed and released as the working fluid undergoes expansion and compression and changes phase from liquid to vapour and back, respectively. Semiconductor thermoelectric coolers (also known as Peltier coolers) offer several advantages over conventional systems. They are entirely solid-state devices, with no moving parts; this makes them rugged, reliable, and quiet. They use no ozone depleting Chloro Fluoro Carbons, potentially offering a more environmentally responsible alternative to conventional refrigeration.