

# Smart Peltier Thermoelectric Cooling System

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**Abstract:** It generally say 'Energy can Neither be Created Nor be Destroyed', only it can be transformed from one form to another form. This is the Universal Truth and in concern with that many scientists given their laws. The existing air conditioning system works on the compressor and these depends on refrigerant gases like Freon, Ammonia, CFCs etc. One of the major disadvantages for these refrigerant gases are global warming and harmful gas emission which contributes in environmental problems. So, to reduce the intensity of the discharge gases eco-friendly alternative had found. Research shows that thermoelectric cooler is the best option for this problem.

Motive of this project is to analyzed the working of the TEC and to design the system. The system uses TEM which works on Peltier effect. This is the effect whereby heat is given out or absorbed when an electric supply is given across a junction between two semiconductor materials. One surface of the module gets cool and the other surface become hot. On this phenomenon this project had developed, a new air conditioning system which works on Peltier effect of thermoelectric module (TEM) which is completely eco-friendly air condition and portable, no vibration, Small in size unlike the existing cooling system.

In the project it is analyzed to protect the environment, these problems can be solved by using thermoelectric modules (Peltier Modules). This advancement is very useful to reduce the pollution and is according to conservation of energy. This model can be implemented in the application for compact, in undesirable vibration. This project has one more parameter where the cooling system is controlled wirelessly with the help of mobile application to make the system more convenient and advanced..

**Keywords:** Air Conditioning, Eco-friendly, Peltier Effect, Thermoelectric Module (TEM), Thermoelectric cooler (TEC)..

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