THERMOELECTRIC MOBILE CHARGER

- **Description:**

Thermoelectric mobile charge is a heat based mobile charging project. As part of sustainability agenda, heat energy is converted to electrical energy to charge Mobiles. This same technology is scalable to expand and charge or use other electrical devices. This project explains the process and components used to convert heat energy to electrical energy.

- **Components:**
  1. Peltier
  2. Step Up Transformer
  3. Step Up USB mobile charger

1. Peltier:

The peltier used in this project is TEC 1- 12706. The peltier is a component which is used for the conversion of heat energy into voltage. So based on the amount of heat is produced the peltier converts it into volts. The maximum voltage of a peltier is 12V. This amount of voltage can be produced when the temperature is given up to 200 degrees Celsius. Thus in this project peltier is an important component.

2. Step Up Transformer Booster:

The booster used in this project is XL6009. The step up transformer helps to boost the voltage up to 5V, when heat is not efficient to produce that amount of voltage.

3. Step Up USB mobile charger:

This component is important which is used to connect the peltier and the step up booster with mobile charging. This component has up to 5V, which is efficient for charging a mobile.

- **Procedure:**

The peltier is kept between two heat sinks which is used to dissipate unwanted heat energy produced by peltier. This arrangement is kept under a candle which is the heat source for the project. The peltier consists of positive and negative wires in which it is connected with the step up booster. Through voltmeter the voltage is calculated until it reaches to 4.5V. After getting the step up booster output as 4.5V the Step up USB mobile charger is connected. Later the USB mobile charging produces maximum up to 5V where the mobile gets charged efficiently.

- **Ideation:**

The main idea of the project is to prove that through heat, electricity can be produced. As heat is a renewable resource which can be get from any sources such as sunlight instead of current, electricity can be generated through heat. So based on the amount of heat energy, the voltages can be produced. For example, by using a temperature of 40 to 50 degrees Celsius, a maximum 5V can be produced for mobile charging. By having a temperature of 100 to 200 degrees Celsius, 12V can be produced from the peltier which can be used to charge EV batteries. So, to avoid more current consumption, heat sources can be used to produce electricity, which helps save more current consumption. This is the idea of the project.