Comparing Peltier Tiles and Piezoelectric Harvesters

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This science fair project is about Peltier Tiles and Piezoelectric Harvesters and determining which renewable energy source serves as a better source of electricity and applications for both. Peltier tiles will be used to harness energy to produce a temperature difference using a temperature difference from the heat of the sun and coolness of an ice pack, creating a voltage. Piezoelectric generators will be repeatedly struck by a finger, using the vibrations in the movement of the generator to measure the voltage. The Thermoelectric effect is the direct conversion of temperature difference to electric voltage. The Piezoelectric effect is the direct conversion of mechanical stress to electric voltage. Peltier tiles can be used in applications that involve a temperature difference to create energy and Piezoelectric harvesters can be used in applications that involve mechanical vibrations. A series circuit of Peltier tiles will create a temperature difference by cooling one side of the tile and heating the other side of the tile to create the voltage and another series circuit of Piezoelectric Harvesters will be used to create a series circuit utilizing the tapping of a finger to yield a voltage. Four varying resistors will be placed across each circuit to compare the current flow and voltage. Measuring the voltage output will determine if the thermoelectric or piezoelectric devices will serve as a more efficient energy source. Testing each renewable energy source will provide more knowledge into societal applications for less developed areas.

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