

FLASHLIGHT POWERED BY HUMAN ENERGY

Introduction

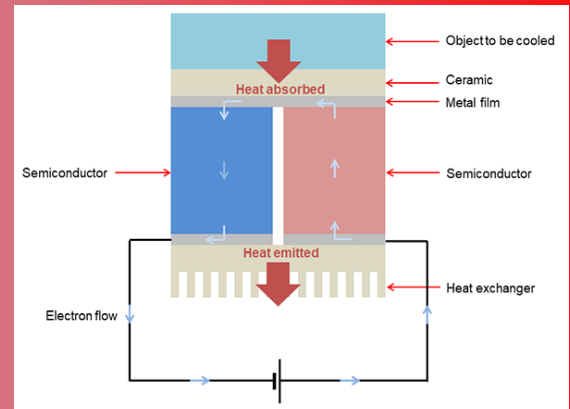
The torch powered by the generated energy, coming from the heat of the human body is not only helpful to the environment but also to a lot of people for whom we do not worry about as much as it is necessary to, those people do not have easy access to electricity like the most of us do. Another reason why this project is particular, is the glorification it gives to us as humans, how our bodies can give out energy (in this case energy excess from our bodies is not lost but useful) in order to produce light, without generating wastes such as for example, natural gas releases carbon dioxide and nitrogen oxide leading to air pollution and smog. Due to reasons such as financial stability, poor living space, environmental catastrophes, state of war, or simply the concern for the environment this kind of tool could be handy and much needed. It is made of a simple circuit and inexpensive materials in order to be easy to get ahold of and affordable. Our project works best in cold environment when the difference between the human body temperature and the outside environment is in contrast

Procedure

Mainly, our flashlight works as a thermoelectric generator which are solid-state semiconductor devices that convert a temperature difference and heat flow into a useful DC power source. In that case, we used Peltier tiles, which produce electricity when heated on one side and cooled on the other. We fashioned the flashlight out of an aluminum tube with an opening to allow a person's hand to come into contact with the Peltier tiles. Our design is ergonomic, thermodynamically efficient, and only needs a five degree temperature difference to work and produce up to 5.4 mW at 5 foot candles of brightness. The Peltier tiles rely on a temperature differential to transform heat from a human hand into energy to power an LED bulb that burns even brighter when it's cold outside. We assume that this technology could help prevent the unnecessary use of batteries, which leak toxic chemicals into the ground. And it could ultimately provide a cheap, renewable light source to those that lack access to electricity. Our goal or purpose in this project was to harvest surplus energy, energy that surrounds but we never really use. The human body, at any given moment, produces energy equivalent to a 100 watt light bulb. In that sense, we're always wasting our energy—energy that can be used to, well, power a light bulb.



The model



How the Peltier tiles work



Materials needed

- four Peltier tiles
- hollow aluminum tube
- PVC pipe

And that is all we need in order to :

- ⇒ make electricity more accessible in places where needed
- ⇒ Channel our energy excess into something useful and helpful
- ⇒ Prevent generating wastes (CO₂,NO) that come from the production of electricity .

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