CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

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Project Number

36031

Project Title

Cool Idea, Hot Topic: Personal Temperature Management

Abstract

Objectives/Goals

Find the body#s best spot(s) for #heating# (heat received) & #cooling# (heat removed) effect, and use this information for future design of energy efficient clothing to change a person#s temperature comfort level.

Methods/Materials

Comfort level was measured as heating and cooling was applied to different locations on the body. A custom vest with Peltier devices was designed and created, to apply this heating and cooling and rapidly collect data.

Results

The best spots of the body were identified for heating (upper chest & armpit, as well as the neck & lower back) and cooling (upper back, as well as neck, chest & lower back). This is expected as these areas are considered #pulse points# and areas of high blood & nerve flow. Differences also occurred between Test Subjects, based on body fat, age & circulatory system health.

Conclusions/Discussion

Peltier devices can be effectively used to heat and cool the body, for personal temperature management without the need to heat or cool an entire room. As we struggle to reduce global energy usage, personal temperature management may offer a potential solution.

Summary Statement

As we struggle to reduce global energy usage, personal temperature management may offer a potential solution.by using carefully placed and controller Peltier devices to heat and cool the body without the need to heat or cool an entire room.

Help Received

My Grandma helped me make the vest and over-watching me while I took data. My Mom helped and taught me how to put together the presentation. My Dad let me borrow some of his equipment and keeping me safe when I used it.