



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

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Project Title The Portable Comfort Zone	
<p style="text-align: center;">Abstract</p> <p>Objectives When in a communal space, there is no control over the temperature. Having a portable device that can heat or cool can help those that are temperature sensitive have their own Portable Comfort Zone . I made this device because I started to notice how people were complaining about the temperature being too hot or cold for their liking. Therefore, I wondered if it was possible to make a portable heater and/or cooler.</p> <p>Methods Peltier thermoelectric semiconductor, fan, power source. Place the Peltier thermoelectric semiconductor in front of a fan, and connect both to a power source. Reverse the polarity of the electrical current to switch from cooling to heating.</p> <p>Results I collected the heating and cooling temperature (degrees) of the device over time (seconds). The highest heating temperature was 45 degrees after 120 seconds, and the lowest cooling temperature was 17 degrees after 90 seconds.</p> <p>Conclusions This prototype will allow better local control of the temperature for people who are sensitive to heat or cold. Next steps will be to make it smaller, lighter, and have temperature sensors to automatically turn it on and off.</p>	
Summary Statement I built a portable unit that can heat or cool a the personal space for an individual.	
Help Received I discussed with my father the general concept. Then, I researched the internet to determine the components necessary to built the unit.	