Efficiency in Small Scale CPU Cooling

Elrod, Brandon (School: Harrisburg High School)

As CPUs and other processing chips have gotten more powerful, so too has their need for energy and the amount of heat that they produce. It is because of this fact that researching how to keep these parts cool is paramount to ensure the utility of future advancements. This project aimed to find what methods of cooling would be most useful at keeping the CPU of a small computer, a Raspberry Pi, in an acceptable range of temperatures while also having minimal power consumption. Each of these computers had a piece of software meant to use all of the CPU's processing power installed on them, which was then run of each computer while the cooling method(s) were active. Ultimately, the results show that active liquid cooling methods are able to keep the CPU at much lower temperatures than any other method, while passive liquid cooling is the most efficient in terms of both energy consumption and its ability to keep the CPU cool.

Awards Won: