



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

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| Name(s) Mihir S. Sirdesai | Project Number S0326 |
| Project Title Coanda Effect: The Effect of Vectorial Flow of Air on a Central Processing Unit (CPU) | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals Will a vectorial (laminar) flow of air cool a CPU more efficiently than the air flow generated by a traditional fan?</p> <p>Methods/Materials The following experiments were carried out. Procedure 1: The bulb was switched on. After the bulb had achieved its maximum temperature, the bulb was switched off and the fan was turned on simultaneously. The fall in temperature was recorded every thirty seconds using thermocouple until the temperature reaches the minimum. The same experiment is repeated with the other fan (the one using Coanda principle). Procedure 2: The bulb was switched on. After the bulb had achieved its maximum temperature, the bulb was left on (simulating real situation) and the fan was turned on. The fall in temperature was recorded every thirty seconds till the temperature reaches the minimum. The same experiment is repeated with the other fan (the one using Coanda principle). Procedure 3: The fan was switched on. Then the light bulb was switched on. The rise in temperature was recorded every 30 seconds and the maximum temperature achieved was recorded. The same experiment was performed using fan with Coanda principles.</p> <p>Results In the first experiment the bulb was cooled only 16% faster than control by fan using Coanda principles and 6% faster with regular fan. The results were surprising, but I guess the cool temperature of the room swamped the airflow effect due to Coanda principles. The results in the 2nd experiment provided real life scenario. Here the fan using Coanda principles cooled >4 times compared with traditional fan and the minimum temperature achieved by Coanda fan was 130 deg. F as opposed to 150 deg. F achieved by traditional fan. (The highest temperature achieved by the bulb was around 156 deg F)</p> <p>Conclusions/Discussion The results showed that vectorial (laminar) airflow using Coanda's principles provide a lower maximum temperature and more rapid cooling for my simulated CPU.</p> | |
| Summary Statement A vectorial flow of air using Coanda principles cools more efficiently than a chopped flow of air generated by a traditional fan. | |
| Help Received Friend helped to build the apparatus according to my designs | |