CREATING AN ARRAY OF THERMAL SENSORS, Alexandra S. Surasky-Ysasi[1], Brown University[1], Department of Mechanical Engineering, Division of Engineering, Providence, Rhode Island 02912, Dr. Anne-Marie Nickel*[2], Milwaukee School of Engineering[2], Physics & Chemistry Department, 1025 N. Broadway, Milwaukee, WI 53202, nickel@msoe.edu, Dr. Michael Zach*[3], Argonne National Laboratory[3], Material Science Division - Superconductivity & Magnetism Group, Building 223, Room C-133, Argonne, IL 60439-4845, mzach@anl.gov

In order to measure the variation of temperatures across a thermal gradient, an array of thermal sensors is needed. Such an array has the potential to aid scientists in determining the impact of temperature on their experiments and could be used specifically in combinatorial chemistry experiments. Combinatorial chemistry is a method by which a range of chemical reactions may be tested en mass and this demanded an alternate way of measuring temperature. The created array of sensors would sit underneath an array of reactions and to ensure that the temperature measured is representative of the temperature of the reaction cells the device must thermally conduct. It also must electrically insulate to prevent electrical interference from between individual sensors. The temperature sensors in use were surface-mount thermistors and they were soldered onto a printed circuit board. The topography of this printed circuit board could be acquired using reverse engineering. Using this file a 3-D image of a form-fitting lid could be developed. This lid could then be made using rapid prototyping specifically Selective Laser Sintering with Duraform GF powder.

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