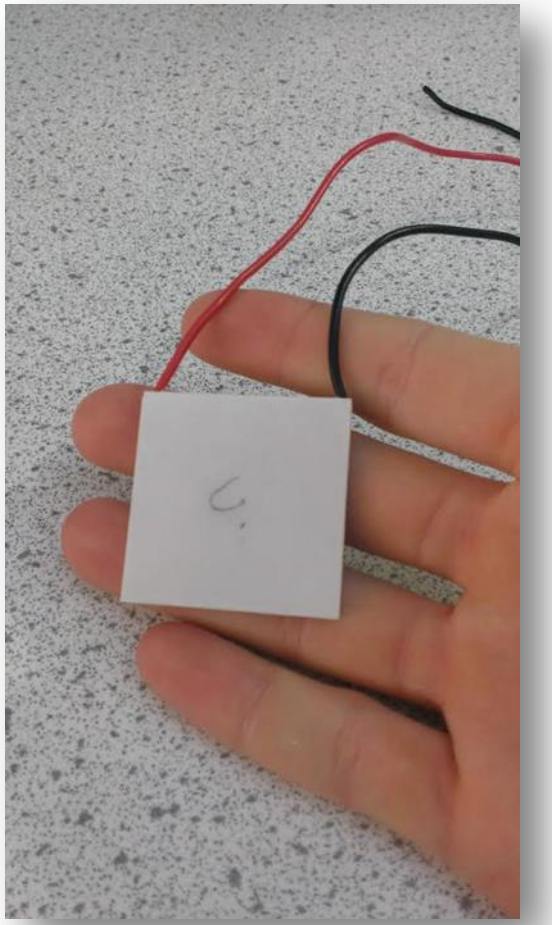
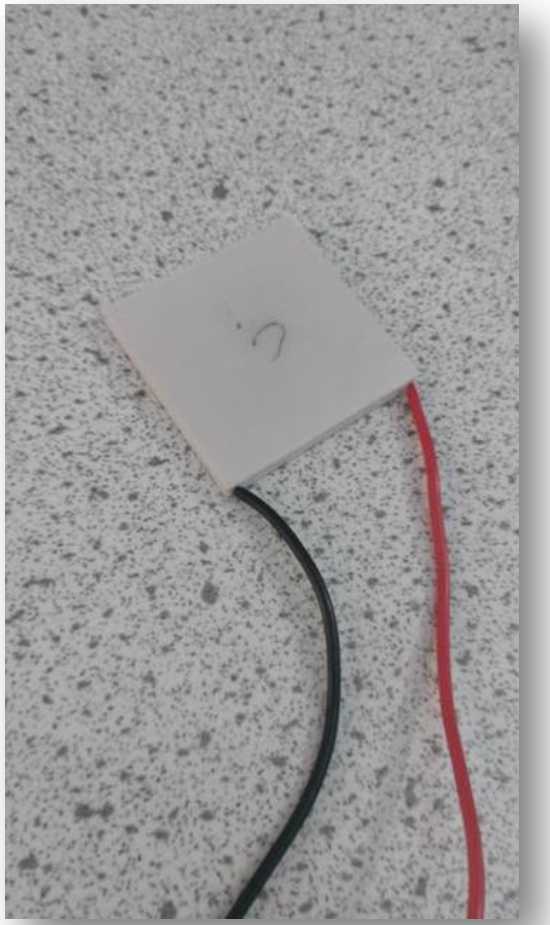


Thermoelectric Tile

Stephen Cimino



What we did

- Initial tests included running current through tile at different voltages to measure temperature after 30 seconds

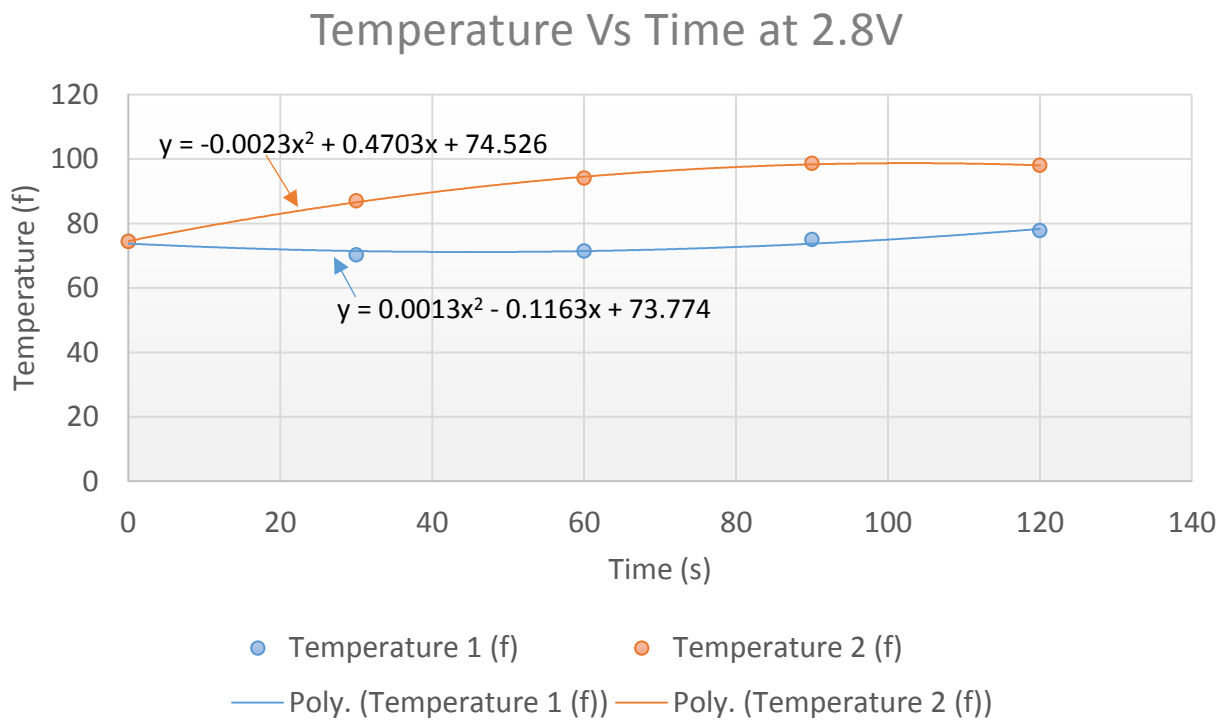
Time (s)	Temperature 1 (f)	Temperature 2 (f)	Voltage (V)
0	75.6	75.6	0.8
30	73.1	78.5	
Time (s)	Temperature 1 (f)	Temperature 2 (f)	Voltage (V)
0	73.8	73.8	1.8
30	69.6	80.6	
Time (s)	Temperature 1 (f)	Temperature 2 (f)	Voltage (V)
0	74	74	2.8
30	69.2	87	

This table displays the temperature measured on each outside surface (T_1 and T_2) of the tile at time *t* and at voltage *V*

We conclude that the rate and extent of temperature change on each surface increases with voltage

Long Term Data

- The Tile was then tested over a period of 2 minutes, and temperature data was recorded at 30 second intervals.



Time (s)	Temperature 1 (f)	Temperature 2 (f)	Voltage (V)
0	74.4	74.4	2.8
30	70.2	87	
60	71.4	94	
90	75	98.6	
120	77.7	98	

Conclusion

The tile initially heated up on one side and cooled on the other; however, as time elapsed, the surface temperatures began to equalize at a temperature higher than the initial temperature.

We thought it could be used as:

Heatsink (for electronics):

- Cool side could be attached to a heat-generating component like a CPU
- Hot side could be attached to a heatsink to dissipate heat
- Heat would be drawn away from electronics and dissipated into atmosphere

What it really is…

Peltier Plate

- Peltier effect: Generate heat and cooling
- Seebeck effect: Generating electricity directly from temperature difference.
- Can be used for heating or cooling
  - In practice, generally used for cooling