



Memorandum

To: Boss

From: Kailen King

CC: Prof Dougal

New Product Design

Here is a quick status update on that new product we are developing – the **Quad-Temp Thermal Alert System**. You may recall that we are developing it for a temperature system for determining what clothing to wear outside . One attractive property of this new product is that it can be customized for so many different applications, just by changing out a few resistors. We can sell a gazillion of them for so many different uses!



The circuit diagram is quite simple, as shown below, and the Bill of Materials is short and inexpensive, as shown in Table 1

100 LM324 opamp	\$26.09
100 pieces of leds	\$0.66
100 dip chip socket.	\$3.74
100 thermistor	\$3.86
100 333ohm resistors	\$1.2
100 .01u capacitor	\$1.82



Table 1

We think we can produce these for less than \$0.5925 each, sell them for \$2.00, and earn a per-item profit of \$1.4075! With a projected sales volume of 10M/yr, this will provide a big boost to our company profits.

Here is a picture of the prototype that we fabricated and tested last week. For the climate clothing application, we set the sensors up at temperatures -3c,6c,17c, and 30c. These temperatures determine the type of clothing that should be worn during the day with the last one being light clothing. -3c raises concern to stay inside, 6c means heavy layers of jackets, and 17c would recommend a regular hoodie.

When we tested the prototype it was found to be very successful with some discrepancy in temperature readings. Best of all, our users will love the fact that one set of batteries will last 180 hours. Each battery has 1.5 A/hr and it takes 3 batteries, when dividing the total by .025 amps the application last 180 hours. In order to increase the time the product can last there would need to be a lower current requirement to still give accurate temperatures.

