

## **Yoghurt Maker -**

Making yoghurt requires a pretty consistent temperature profile. You first pasteurize the milk for 10 minutes at around 180 degrees F, then let the milk cool down to 110 or so, put the bacteria culture in there and let it brew for several hours. When you want the bacteria to stop reproducing, you put it in the fridge.

Conventional yoghurt makers take a lot of work because you have to dish the cultures evenly into small cups. With this device, you could make large batches of yoghurt in a crockpot. To make something like this on the stove is very difficult because you have to constantly monitor the temperature and use a timer. Now that's all built in.

## **Beer Making -**

In order for the yeast to do its thing, the fermenter needs to be within a certain temperature range. Most home brewers stick it in a dark closet, but for cheap people like me who don't turn the house heat on, or for people who leave the carboy in their basement, it sometimes gets too cold. They sell special belt heaters to maintain temperature, but they have no feedback on them and can easily get too warm. Now you can easily plug one of those belt heaters into this outlet and have the temperature constantly monitored and controlled.

## **Nightlight -**

Once I perfect the circuit, the LCD can be turned on or off by the microcontroller and thus could be used as a nightlight. This also makes sure the device could be left plugged in without producing an annoying light.

## **Kombucha -**

Slightly similar to beer, this is a popular health food drink. Because it is also fermented, you need to first boil the water to sterilize it, and then maintain the brew at a fixed temperature while the yeast do their thing. Again an ideal use for a temperature controlled crockpot so that you can make decent sized batches at a time.

## **Soap Making -**

One more use for a nicely controlled crockpot. People who make their own soap know the excitement of having their pot boil over if it isn't carefully monitored. Usually the temperature is controlled by looking at the pot and seeing if it is boiling too vigorously. Might be nice to set it at a fixed temperature.

## **Candle Making -**

Another instance where you have a vat of stuff you want to keep at a consistent temperature. And since stovetops rarely have temperature control, why not use the crockpot?

## **Reflow Oven Controller -**

In the DIY community, it's popular to convert a toaster oven into a reflow oven. This allows you to

easily (or at least, less painfully) solder surface mount components onto a PCB. Most surface mount parts have a pre-defined temperature curve that they work best with. Usually, the toaster oven is taken apart and the power cord is cut in order to re-wire it to a relay and build the temperature controller in. Sparkfun even sells a kit (at [sparkfun.com](http://sparkfun.com) and search for reflow oven) to do this with.

With this device, you don't need to cut the cord, making the whole assembly process a little safer and a little cleaner looking.

### **SMD Parts baker -**

Assuming you are a hardcore DIY circuit board assembler, there is a growing problem among surface mount components where they are very sensitive to moisture. Your average hobbyist might use a few parts, but if they buy in bulk, as the parts sit on the shelf they absorb moisture from the air. These parts need to be baked around 120 degrees for 48 hours sometimes in order to get all the moisture out before they can be soldered onto a board. If you already have a temperature controlled toaster oven, this becomes pretty simple to do.

### **Sou Vide Cooker -**

This is a growing trend in the gourmet cooking field. Meat is vacuum sealed in a plastic bag and then boiled in water at around 150 degrees F. The idea is you cook it just enough to kill the bacteria, thus making it fully cooked, but with the vacuum sealed plastic, you maintain all of the tenderness and moisture and the result is a very juicy and soft entree. I've already helped one friend convert a PID controller to set his crockpot at a fixed temperature. Just one more use for a nicely temperature controlled crockpot.

### **Deep Fat Fryer Controller -**

I've heard that the leading cause of household fires is deep fat fryers that got out of control. Usually around Thanksgiving time when people are making turkeys edible. Why not put a safety on that fryer to make sure that it doesn't get too hot if it isn't being monitored?

### **Soldering Iron Safety: Timed shut off -**

Another DIY problem; forgetting to turn your soldering iron off. Or any hot device you might be working with. I have a mechanical timer attached to mine so that even if I forget to shut it off, it will shut itself off in about half an hour. This outlet could do the same thing. And could have flashing LCD screen when the time gets close or some other style of warning.

### **Automatic Mr. Coffee -**

Most coffee makers have a timer built into them to start brewing at a certain time in the morning, but if you don't want to spring for a new coffee maker, and already have an outlet that you could program to turn on at a certain time, then you could easily fix that.

### **Coffee Temp Control**

I like my coffee at a certain temperature; somewhat lower than most coffee drinkers. Now I have a controller that will let me make a coffee mug heater to keep my coffee exactly at the temperature I like

it.

### **Temperature Logger**

I created an application to monitor the temperature in my bedroom. I was trying to graph the effect of temperature on nighttime blood sugars, but still. A general temperature logger is generally useful.

### **Timed Power Strip**

Because the device basically turns one outlet into two outlets that can be individually turned on or off it's like a power strip with a digitally controlled switch.

### **Timed TV?**

Use the device to limit how long your kids are allowed to watch TV, or play video games, or something or other. Would require a little bit of programming knowledge to set the time, but could be useful.