Home Grill Automation

TI Design Challenge 2015

## Joseph Warner, J. Martin Troth

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**Abstract**

We made an analog circuit to take the voltage across a thermocouple and input it to the MSP432’s ADC. We attached the CC3100 to the MSP432 to transmit the data out of the ADC over wifi to a server. The server ran SQLlite. A webpage periodically requested the data from the server whenever it was open. Only values recorded since the web page was opened were requested. This way it monitored the data being sent to the server.

**Introduction**

Analog to digital converters (ADCs) are used to transform real signals into digital signals. This allows us to study them using highly efficient computer systems. In this project, we studied the use of the ADC14 subsystem of the MSP432P401R and how it digitizes the voltage out of our analog circuit attached to our thermocouple. Once this is done, we look at transferring the digital value over wifi to our server, which does the calculation to avoid the power-hungry operations to convert that signal into the voltage and temperature. A web page we wrote periodically checks for new data values on the server and graphs them with Javascript and ChartJS.

**Main Body**

As before: thermocouple -> analog circuit -> MSP432 -> CC3100 -> server -> web page.

**Conclusion**

This was a fun project even though it didn’t work.

**Acknowledgments**

This project was carried out by J. Martin Troth and Joseph Warner. This group also prepared this report together.

**Source Code**

Stuff here