**Hardware Design Description**

**K-Type Thermocouple with Cold Junction:**

Measures the temperature inside the oven by exposing the different metals into a gradient. This gradient generates a voltage difference between the hot and cold junction. Its output voltage corresponds to 41 µV/ᴼC.

**OP07C OP-AMP**

Amplifies the output voltage read from the thermocouple.

**MCP3004 ADC**

Takes the voltage reading from the OP-AMP in channel 0 and the voltage reading from the LM335 in channel 1. Then the voltage readings are converted into a 10-digit binary code.

**LM335**

Senses the outside temperature and outputs a voltage reading into the MCP3004 ADC.

**LMC7660**

Provides a -5V in order for the op-amp to operate.

**BUZZER**

One terminal is connected to ground and the other terminal is connected into pin 1.6. This pin is connected to the DE2 board, which sends a frequency signal to generate a sound.