CS350

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I installed the AHTX0 temperature/humidity sensor on the existing Qwiic cable and followed the Module Six guide closely. After updating my Raspberry Pi, I installed the required library with sudo pip3 install adafruit-circuitpython-ahtx0, then safely powered down using sudo halt and waited before unplugging. I connected the sensor to the Qwiic port, making sure the keyed connector was oriented correctly; the guide notes the board’s I²C address is 0x38 and the plug only fits one way. After reboot, I verified readings by running python3 TemperatureSensorTest.py and saw live temperature and humidity values.

To integrate the sensor, I edited the template so the top line of the 16x2 display shows temperature (with F/C) and relative humidity as a percent, while the second line shows date/time. I added a button handler to toggle between Celsius and Fahrenheit and launched the program with sudo python3 TemperatureSensorIntegration.py. Challenges included fitting text within 16 characters (I shortened labels and rounded values), minor button bounce (fixed with a debounce delay), and one startup where the sensor wasn’t ready (handled with a brief retry). Overall, I met the lab requirements and learned how to route I²C sensor data through the Pi to the display; if anything, I’d like more guidance on formatting long timestamps cleanly on the limited display.