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250 Project Report

For this project, I worked on it by myself. My IOT device is a home weather kit. The IT device has a temp-humidity sensor attached to the gove pi and it tells the user what the current temperature and humidity are for 25 seconds. While the device takes as many reads as it can for 25 seconds, at the same time, there is a UDP connection or User Datagram Protocol that sends a message to the server or in the experiment to the laptop. Once the server receives the package or the data(temperature and humidity), it prints the following, “Received data from the client”. Once the data is transferred between the two nodes, the laptop, and RPI, the RPI sends one more piece of data which is a graph. While the UDP connection was happening, the data was also being converted into the frequency domain using the FFT algorithm. This data is then put into a visual representation which is a graph with the frequency as the x-axis and the magnitude as the y-axis. While the project was created quite smoothly, there were some issues along the way. Sometimes the sensor would start to do weird things where it would produce information in almost every nanosecond which cause the 12 to 20 data points to become like 300 data points. This really messed up the LCD because it could not show the data that fast which caused the LCD to bug out and show nan or -0.00. Second of all, while more data might be better to get an accurate representation, it would not be appropriate in the setting of weather since both temperature and humidity take time to change. You can’t just change these variables instantly. Also, with already the minor changes during my demo, made the graph look straight even though the weather did have slight changes in humidity. There were also slight issues with the server but that was because of the RPI not connecting with the IP Address that was mentioned. Despite

these issues with the hardware and the server, there wasn't much going wrong with the experiment. With that being said, here is my diagram down below:

Diagram: