Project Summary

The goal of this project was to build a frequency modulation transmitter, better known as an FM transmitter. This transmitter can be used to play some kind of audio through the input and have it broadcast through an empty channel in the FM radio range. To begin, a sine wave is produced that contains music or some kind of sound. It is then transmitted by altering the frequency signals so that it matches a carrier frequency. To do so, the signal goes through an amplification and an oscillator. The carrier frequency is then picked up by a receiver, normally an antenna. Finally, the sound being carried as a sine wave is broadcasted to whatever it is playing it from.

At the start of the project, it was important to break down the different parts of the transmitter. It had to contain an amplifying and oscillating process. From figuring that out, I went into looking at what each of those circuits looked like and put them together. The transmitter must be able to change through the stations so a trimmer capacitor was added to be able to adjust the frequencies. For audio input, an electret microphone or audio jack can be used. They connect similarly as one leg goes to ground, the other connects at the node with the base of the transistor. Lastly, an antenna was added to help with transmitting the signal.

This project helped me understand how amplifiers and oscillators worked. It gave me first hand experience in being able to play around and see what was being produced. Working on this project also helped me understand how frequencies and radio stations work. It’s necessary for stations to have huge antennas to be able to reach miles and miles away from where they are broadcasting from. There is a lot that

goes into making sure that the broadcast is clear and that there isn't another station interfering. After working on this project, I have a greater appreciation for those who work to improve radio transmissions.

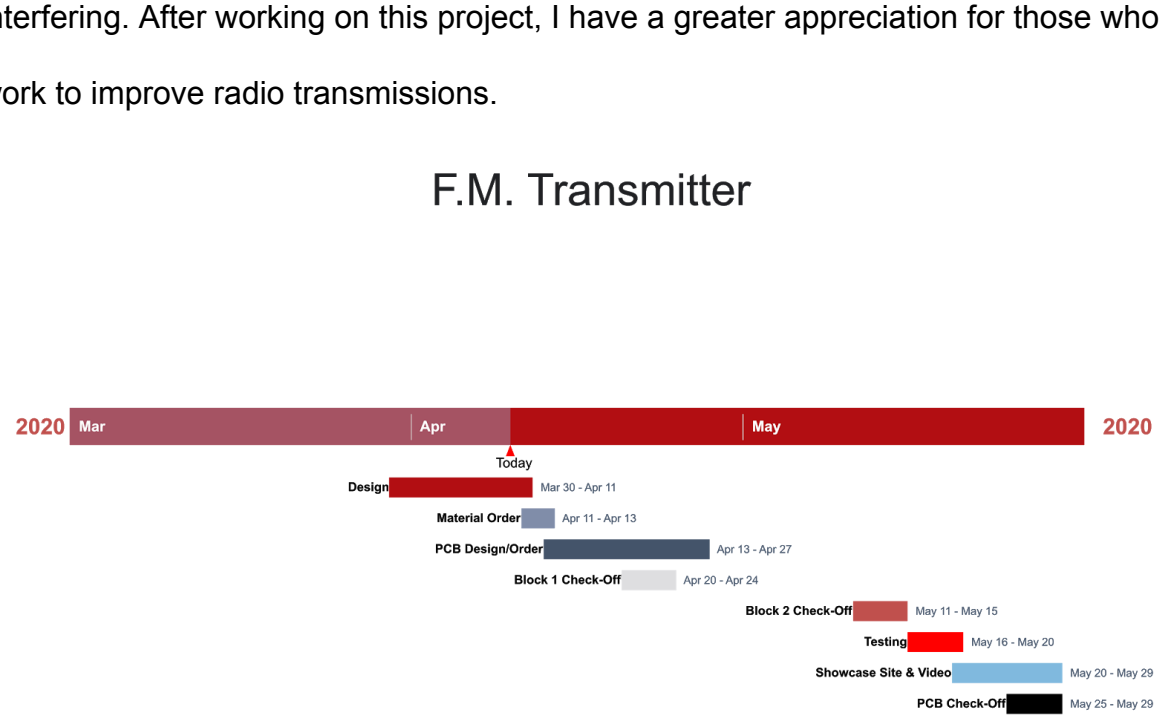

Figure 1. Timeline