Radio Receiver Requirements:

- The system must be able to receive and play standard radio frequencies between 88-108MHz
- The user must be able to adjust the frequency with a resolution of 0.1 MHz
- The user must be able to adjust the audio volume.
- The system must display the current frequency setting.
- The system must be contained in a rugged enclosure.
- The system must include a student made PCB in a meaningful way.

Initially when I approached this problem, I wanted to create my own receiver using a VCO to create an intermediate frequency and a phased locked loop to demodulate the signal. However, due to the time restraint of the project in addition to the Covid situation, obtaining parts, particularly the tuning capacitors or varactor diodes required to filter rf signals, became infeasible. Additionally, without access to the Oscilloscopes in the lab such a system would be very difficult to troubleshoot. In light of these issues, I altered my plan and decided to design the radio around the TEA5767 FM radio module and Arduino Uno. This allowed for digital tuning of the radio, as well as a digital display and digital volume adjustment. I also designed an amplifier board based around the LM386 audio power amplifier to increase the power in the audio signal to a level sufficient to drive the speaker.

Over the course of this project, I was reminded of the importance of starting early, using all of the resources available to you and being flexible.
**Initial Estimate of the project timeline**