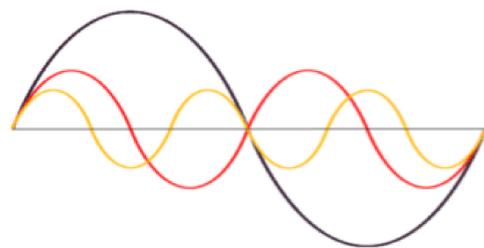
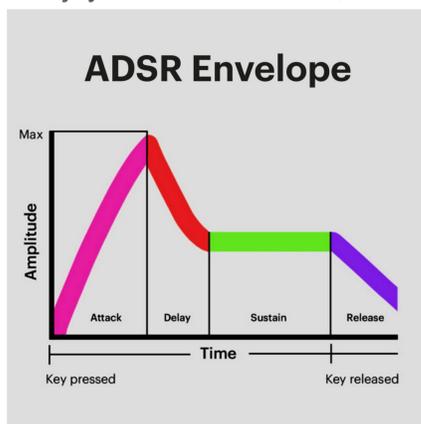


SympSynth

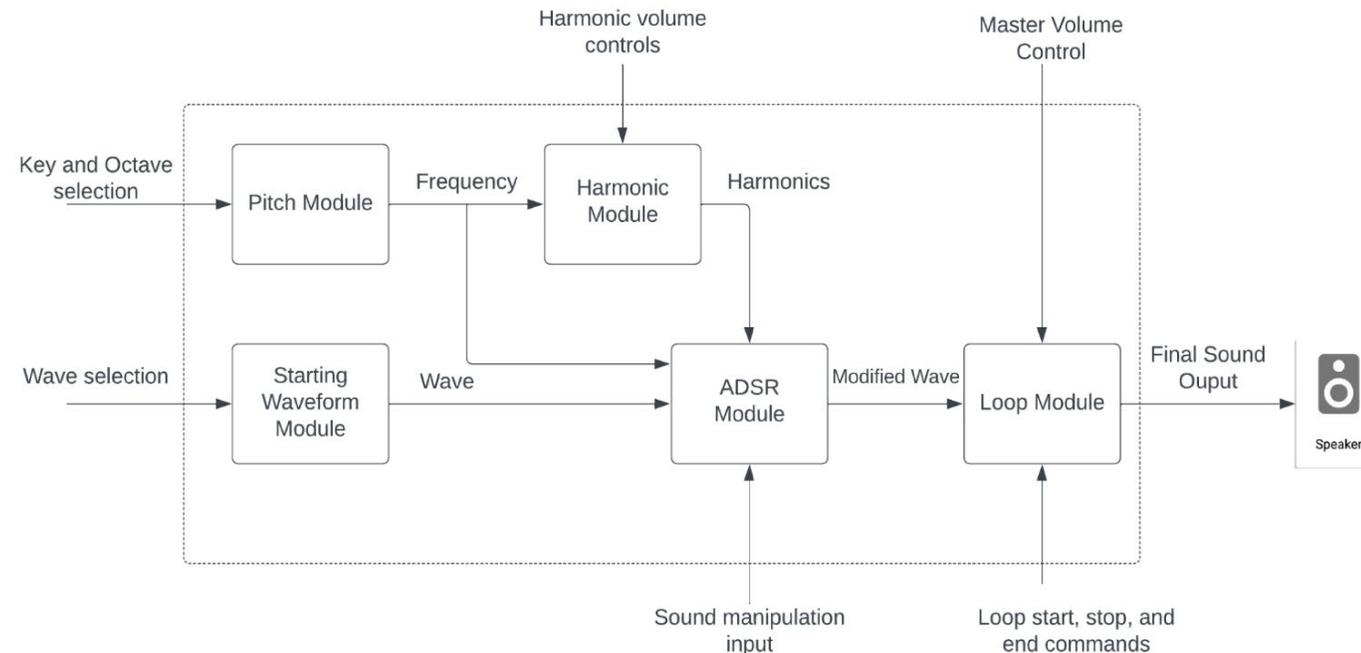
Project

Create a simple keyboard synthesizer that is easy to use.

- While many synthesizers are expensive and elaborate, this project aimed to be inexpensive and simple.
- This project aims to teach basic concepts of music synthesis to the user, as well as to get them more interested in the topic.
- Music is something nearly everyone enjoys, and this project aims to provide users with the joy of music creation, even if they have no prior music experience.



System

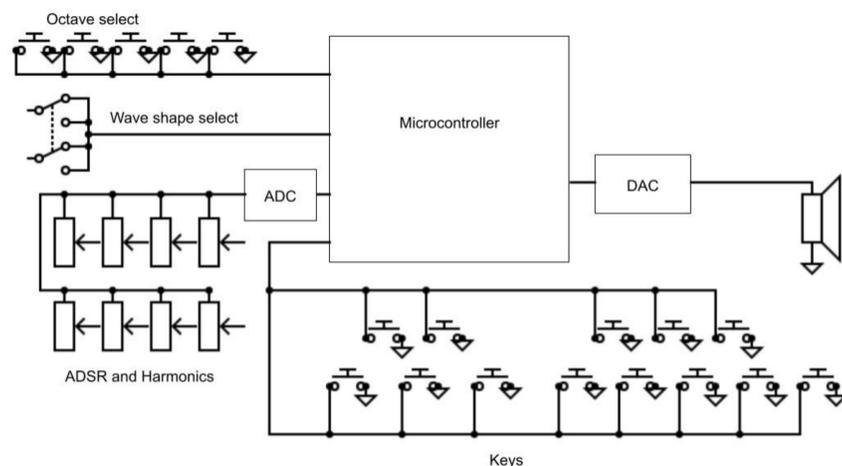


Methods

- For this project, it was decided it would be a digital synthesizer, so a microcontroller was used to create the sound output.
- Several types of switches were tested for the keys, but ultimately computer keyboard switches were used because they had a nice feel to them.

- A timer on the microcontroller was used to produce a sample rate of 44.1 kHz, which is standard CD quality audio.

- Software takes input from potentiometers and manipulates the sound wave accordingly.



Conclusion

The most important results from this project are the ones that are heard, so try them out for yourself!

What Was Learned

Starting this project, I knew next to nothing about music synthesis. Working on this project was a fun way to learn more about something I am passionate about. I gained an understanding of how the ADSR envelope and harmonic overtones affect how we perceive a sound.

What Could Be Improved

This project only scratches the surface of music synthesis. I would like to continue learning about this topic and add features to this device to be able to create more authentic and complex sounds.