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Objective

We wanted to make a proof of concept for a microcontroller with button inputs that produces pure tone outputs. We explored using Raspberry Pi with .wav files to play, Arduino and its tone function, and building a waveform using cosines or predefined cosine values for speed.

Outcome

For this milestone, we used the cosine function on an Arduino to produce the waveform for a pure tone. Knowing that the waveform is more jagged than a pure tone, which would introduce audible distortion, we want to implement a low-pass filter for the next milestone. We were able to produce a pure tone of A using cosine using the Arduino with button press, as well as with a .wav on the Raspberry Pi before deciding to use Arduino.

Individual Contribution

For this milestone, I was involved in cosine generation for the Arduino. Alongside Myles working on the hardware, I designed waveform generation inside the program loop using the PWM output pins on hardware to write the analog values of the the cosine at each loop iteration.