The main goal of this project was to synthesize the sounds of a microwave popping a bag of popcorn. Originally, I wanted the ambient sounds of a kitchen to be included, as well as the opening and closing of the microwave door. Those elements did not get implemented because of complexity and time, but I did get to create the sounds of the microwave beeps, the microwave vent, the popcorn kernels. I am also quite happy with my user interface, since it attempts to imitate the way time is input into a real microwave and the start and reset buttons. Overall, I am quite proud of this project (:

Stages:

1. Real world example: I recorded myself popping popcorn in a microwave a few time. Between recordings, I changed microphone placement slightly so I could focus on the different aspects, like the microwave door or the vent.
2. Analysis: I used Sonic Visualizer to get the time duration of things like the beeps and the popcorn kernels, and to get the frequency spectra of the elements as well.
3. Model: (basically FP2) I made a block diagram of how each sound element should fit together and came up with a few ideas of how to make the vent, beep, and kernel sound.
4. Implementation: I started following my FP2 ideas and realized that having five kernels was actually quite silly. I started instead playing with randomizing how frequently the vline~ object gets called, and tried to time it to match ~90 minutes, which is how long it took my microwave to pop the popcorn. Then I very quickly made filler patches for the vent and the beep.
5. Comparison/fixing: The vent ended up being very good from the beginning, but the beeps were very hollow when compared to the real microwave. The UI also came to mind after playing with the real microwave again. That took a lot of effort and research into how Pd lists work, but it worked out. I also noticed the beeps of the microwave change duration between starting and stopping: the number-punching and start beeps last the same amount of time, but the stop beep lasts for almost twice long.

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