The Scene: Popcorn in a Microwave
The goal of this project is to synthesize the sound of popping popcorn in a typical microwave oven. I would like this to be in an otherwise still kitchen, so that the popcorn is the main focus, and I want the perspective to be as if the listener is the one putting the bag of popcorn in the microwave and then standing nearby while waiting for it all to pop. I don't intend to have any dialogue.

The Components:
1. The popcorn kernels: small, almost-spheres, soft enough to dent with fingernails. When rolled on a surface, they make a shuffling sounds - similar to a instrument shaker filled with beans. When popping, the kernels make very sudden sounds: sometimes the pops are hollow and isolated, and other times they are flat clink of the kernel hitting the container in which it is popped.
2. The bag containing popcorn: the bag is made of thick paper, and the inside is coated with butter so that it will melt and make the popcorn will taste buttery. The bag crinkles as it expands, which is does unevenly and usually as the kernels hit its wall. I think the butter dulls the sounds of kernels slamming against the bag, because the sound is very, very short and flat.
3. The microwave: the microwave really provides complex support to the scene.
    a. The door is plastic, is opened by pushing a large plastic button that swings the door open, and is closed by swinging it shut until its hooks engage. When opening the door, the button makes three very fast, high-pitched, and dull clicks in quick succession. The door then swings open and the springs that push the door open resonate softly. When closing the surprisingly loudly. When closing the door, there is a smack as the plastic hooks hit the metal catches and slide into place. The same springs that resonated before do so again, but this time much more loudly and powerfully; the sound is hollow.
    b. The buttons on the microwave thankfully all sound the same! The beep sounds like a simple enveloped and fairly bright tone.
    c. Once it is turned on, the plate inside the microwave spinning and the ventilation make a noisy, low humming. I can clearly hear a ramp-up, where the humming goes from very low and soft to louder and more highly "pitched." There is initially also some pulse-like clicking until the ramp-up is nearly done. After about two seconds, the humming becomes steady and constant. A ramp-down can also be heard, where the humming decays back into very low and very soft until it can't be heard- however, this sound is very hard to hear because the BEEP BEEP of the microwave's timer happens at the same time and is much louder.

Approximate Order of Sounds:
● Microwave door opening
● Kernels in bag moving inside bag
● Microwave door closing
● Microwave buttons

- Microwave humming/plate turning
- Kernels popping
- Bag expanding/crinkling
- Microwave beeping

Project Timeline:
1. For FP1: Record the entire process, from opening the door to put in the bag in all the way to the beeping of the microwave timer. Split the recording into sections (kernels, bag, "steady state" microwave, accessory microwave) to analyze the components as separately as possible.
2. For FP2: Start analysis with the sounds of the popcorn kernels, the steady state microwave, and the bag (in that order) and create a model for those sounds.
3. Fiddle with sounds and start synthesizing and trying out different approaches.
4. FP3: Continue synthesis of the kernel, bag, and steady microwave sounds. Put sounds together and find what the scene is missing and try to fill those holes. Mess around with the envelopes and timing. Depending on difficulty and success, also start making a model for the BEEPs for when the popcorn is done.
5. FP4: Finish synthesis, put the whole thing together, debug like crazy, etc. If there is somehow still time and everything sounds great, maybe add in the "accessory" sounds of the microwave door and initial buttons.

Parameters: How long to put the popcorn in the microwave (just like you would on a real one)? Microwave speed? Rate of kernels popping?

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