Orac - Sound FX

My origional Orac had a small analog circuit that emulated the hum of the TV Orac. The clever addition of a high-farad capacitor behind the frequency-drive circuit even allowed me to get the start-up pulse sound right, though I was never able to simulate the power-down sound in this manner to my satisfaction.

The Arduino Microcontroller's audio-modulation capabilities should enable me to get all of this right in the new model. Of course in a real stage-prop, the sound effects wouldn't be built in anyway - they would be added in post-production. But this project is as much about demonstrating things to do with the Arduino, and the whole thing is more impressive in live demo with sound!

I stuck a piezo transducer (*top right*) between one of the output pins and GND and used the `tone(pin, Hz, [duration])` command to drive it. An Arduino only supports one sound channel, though you can send it to any output pin. Also, I found the tone command does weird things for a frequency below 30Hz so I avoid setting the frequency below this.

Here is the start sound, which is an initial higher-pitch pulse which then rapidly drops to the running hum:

```
tone(9, 2000);      // start-tone - higher pitch pulse
delay(100);
for(count=1500; count >100; count-=100)
{ tone(9, count);  // drop pitch to running hum
  delay(10);
}
```

Here is the running sound, which is a low-pitch hum with slight, random pitch variations:

```
tone(9,70+random(20));  // make the slightly-varying low-level buzzing noise
```

And here is the shut-down sound, in which the running-hum tails down in pitch, with some significant random pitch variation:

```
    for(count=230; count >30; count-=5)
    { if(count % 30 > 15)
        tone(9, count);        // kill-tone-low - pitch drops
      else
        tone(9, count*2);      // kill-tone-high - modulate the dropping pitch up periodically
      delay((250-count)/5);    // taper out the timing too
    }
    noTone(9);                 // turn off sound completely
    on = 0;
```

They are not brilliant replications of the TV Orac's sound, but are close enough for my demonstration purposes.

Replacing the Peizo Transducer

I replaced the Peizo Transducer on the sound output with a tiny little speaker from a smashed mobile phone I found on the road (*right*). The sound is suddenly AMAZING!!! *Loud and clear* is the exact expression.

Next: The Key

▲ **Back to Glenn's Project page.**

Glenn's home page.