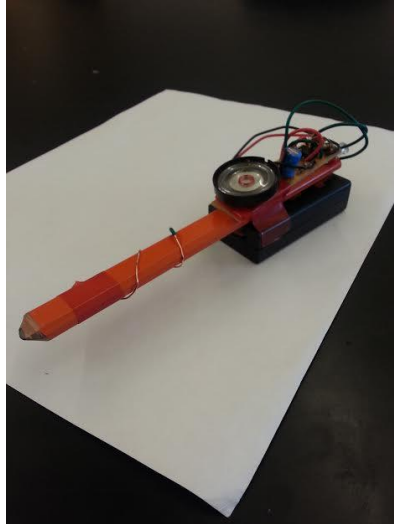


Final Project Report, Drawdio Musical Pencil

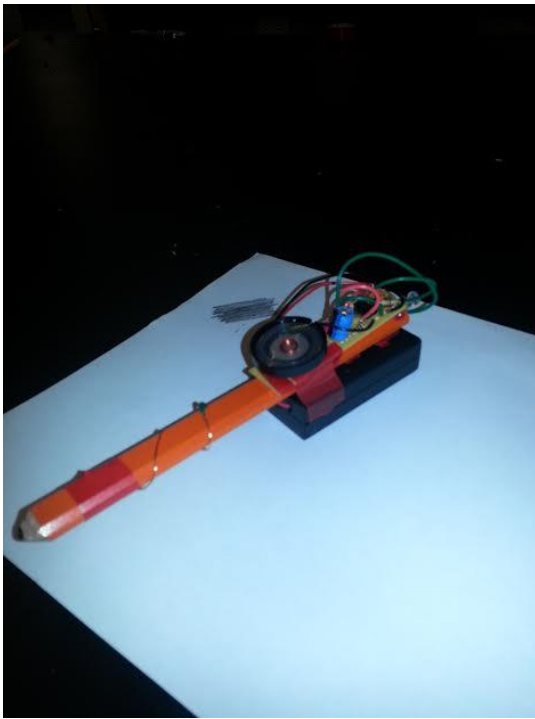
Our final project was to construct a Drawdio Musical Pencil. Initially we believed we could find all the parts we needed in the circuit lab kits; however we decided to buy most of the parts ourselves. The reason for doing so was to be able to keep the project afterwards and to ensure we had all the needed parts. A vast majority of the parts are available at RadioShack. A basic list of the parts includes: a 555 chip, several resistors, several capacitors, an amplifying transistor, a mini speaker, battery holders, a pencil, wires, and a perfboard to construct the circuit. The most expensive piece of equipment is a solder gun to connect all the components; it can be purchased at RadioShack for around \$20.

The construction of the circuit is not very difficult, if at all. There's even a step by step video on how to construct the circuit. Without a doubt the most difficult part of this project was soldering the components together. Soldering is melting metal as a means to connect the components of the circuit parts. What was difficult about it was just making a strong enough connection, especially if more than two components had to be soldered together. The actual construction of the circuit was rather easy; it was just putting the proper components within the perfboard and soldering them together. Despite our best efforts the one component that could not be found was a 570 pF capacitor. Upon Tom's advice, we added a 100 pF and a 470 pF capacitor in parallel which results in having the 570 pF capacitor that was needed. Once we had that part the construction of the rest of circuit was easy. Once everything is assembled the pencil plays a tone, but the tone varies by the resistance between two points; the pencil and the point of contact. Your body even acts as a resistor within the loop of the circuit. The transistor amplifies the sound that is emitted from the speaker so that the human ear can detect it. That's the idea behind the Drawdio Musical Pencil.

In the end the construction of the circuit was actually quite fun. It's something I'd construct again just for my own fun. I'd recommend doing this project for future circuits students because it's fun and it's not very tedious like other projects can potentially be. It can even be used to do homework while playing some musical tones because it is a pencil after all. The only



The Pen Itself:



Video Link:

https://www.youtube.com/watch?v=pbIMdDny_ho&feature=youtu.be&noredirect=1