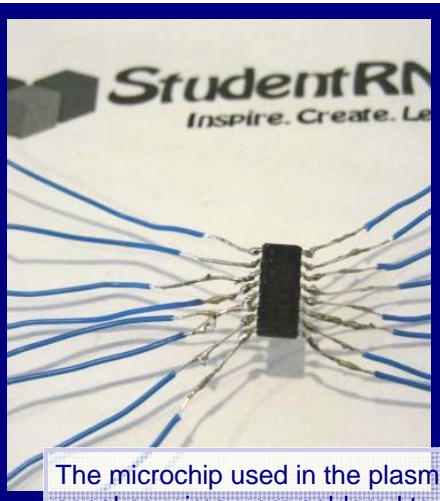


# CASE STUDY: Plasma Speaker

## The Idea

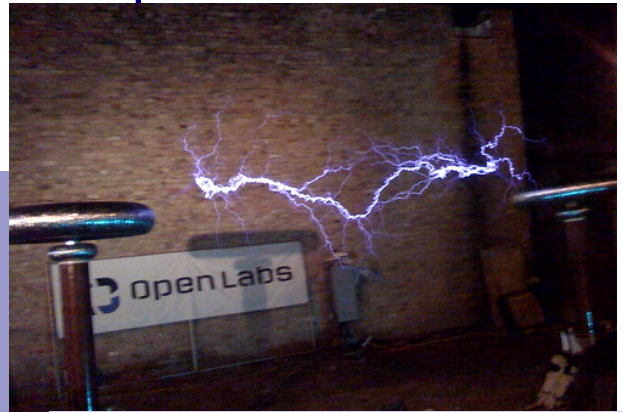
When Dennis and Ed went to the Vex World Robotics competition, they discovered **ArcAttack**, a band that creates music using **Tesla coils** – devices that generate **high voltage sparks**, which in this case vibrate to **create sound**. They thought it would be cool to do something similar. When StudentRND was founded they had a place to do just that. What resulted was the **Plasma Speaker**, a speaker that uses a **plasma arc** (high-voltage stream of electricity) that vibrates to create sound. They brought the idea to our workshop program, and work began on its construction.



The microchip used in the plasma speaker; wires were soldered to each lead.

## What Happened

We found an article on Instructables on the plasma speaker, which included instructions and explanations of how it works. In addition to the standard components found in a speaker, the plasma speaker required a **Fly-back Transformer**, which was needed to generate the **high voltage** to create the plasma arc. Thus we salvaged one from an old **CRT monitor**. After we gathered all of the parts, it was time to get to work. In about a day, we had finished putting all the parts together. Now to put it to the test. Using **11 rechargeable AA batteries**, we turned on the speaker and hoped for the best. **Nothing happened**. Not to be discouraged though, we **took apart** the plasma speaker, and, trying to **learn** how it works, put it back together, this time with more **understanding**. However, due to involvement with other projects, we could not finish the plasma speaker in time for the Farmer's Market exhibition



Tesla coils: devices generating high-voltage sparks that vibrate to create sound (courtesy of ArcAttack)

## Personal Statement

"Even though I was not able to see the finished product by the deadline, I have **learned a tremendous** amount about its operation. This was an **exciting** project to work on, even though I didn't get much time with it. Even though we won't be able to show it at the exhibition, I still want to go back and finish it if I can." —Marshall Meng

## Contact Us

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