



Colorado Science and Engineering Fair

2024 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Let's Get Rowdy!

Finalist's Name: Landon Nestor

School and City: Limon High School, Limon

Sponsor's Name: Becky Thompson

Category: Energy (ERGY)

Division: Senior (9th - 12th grades)

Abstract (250 words or less):

The world is in dire need of more clean, renewable energy options. If sound could be harvested and transferred into electrical energy, an obstreperous environment could begin to be powered by itself.

By using piezoelectric discs, can sound be transferred into electricity? To test this, I used a subwoofer speaker aimed towards a piezoelectric disc that was suspended inside of a testing chamber. The piezoelectric disc was connected directly to a multimeter outside of the testing chamber. To see if voltage was created, I played a song full of musical twists and turns and watched the multimeter. Every ten seconds I recorded the decibel and voltage level that was produced from the dynamic song.

Once all of the data was analyzed, I came to a conclusion. The amount of energy produced was 29.7 millivolts or 0.0297 volts. It is clear that piezoelectric discs can in fact transfer mechanical sound energy into usable electric energy. However, the amount of voltage produced was not substantial. Additionally, there was a slim correlation between decibel level and voltage output; therefore, I couldn't conclude that decibel level directly affected voltage.

If I were to continue this project, I would find a way to increase the amount of voltage that is produced. As an example, maybe more piezoelectric discs would result in more output. Even though the voltage produced was low in amount, piezoelectric discs do have the capability to be a new method of generating electrical energy.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

2-26-24

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.