



The Wind Master

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The Chain Of Electricity

The wind powers the turbine by turning it, so it goes from Wind to Mechanical Energy, then it goes into wires, so now its going from Mechanical to Electric Energy, and it goes from the wires to a battery, so it goes from Electrical to Chemical energy.



Pros and Cons of Wind Power

Pros: Free Energy, its renewable energy, there are no dangerous emissions, it can be used in remote locations, and it can be used in conjunction with Solar Farms.

Cons: It needs to be built at a windy place, the wind speed can fluctuate, wind doesn't blow all of the time, it can be expensive to maintain, and energy storage devices may be necessary such as batteries.



Wind Turbines today

Today Wind Turbines are used widely across America to generate power for cities and towns. They can be so high as 15 meters high.



Goal

With our turbine, our goal is to generate at least 0.75 volts, but the overall goal is to generate any amount of electricity.



Ask

We had to research several questions before we were to start designing a Wind Turbine. The constraints were the size and materials. We had to make them pretty small. We needed to know a lot before we started. Some things we learned are how a electric circuit works, and how a wind turbine uses the wind to generate electricity.



Imagine

We went with a design for the fins to be 5 inches long, and 3 inches wide. The wiring comes out of the back to power the machine or battery.



Plan

By now our prototype wind turbine has 3 fins, and is 5 inches long, and 3 inches wide. The materials we used are one motor, one piece of balsa wood that is 3" x 48", red and black cable that are both 14 inches long, three spokes that are 4 inches long each, and finally we had a hub with three holes for each spoke.

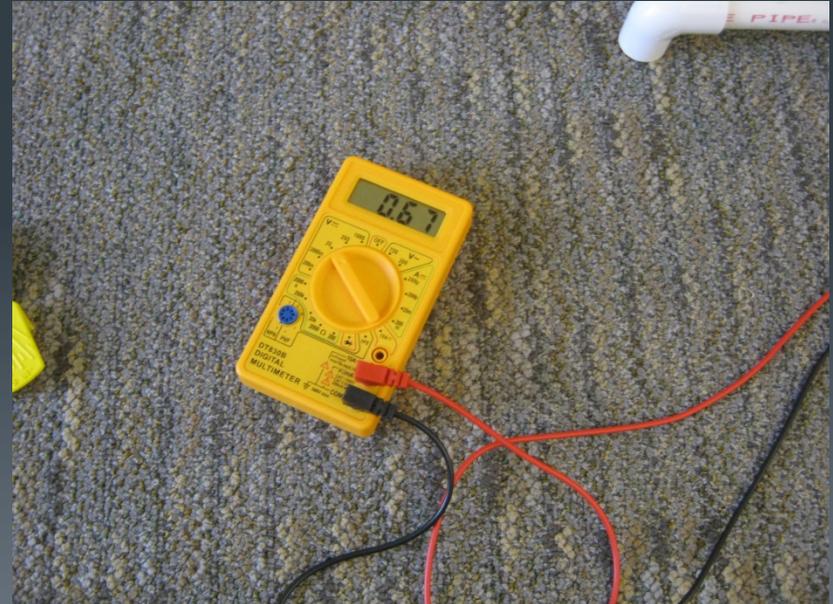


Create

As we followed our plan, there were a lot of things that went well. Some things that went well were making the fins, and measuring the wires. We did change the angle of our fins from 3° to 10° .

Experiment

We experimented our Wind Turbine many times and here are some pictures of the power generated, and what it looks like.



Improve

We improved our turbine by changing the angle of the fins to 12° and now it generates in the 0.70's-0.80's Volts.

