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The Coffee Can Turbine

The construction project built for this project was a wind turbine. Wind turbines generate energy by running off a free fuel that will never dissipate. By using a renewable resource, the carbon footprint of a wind turbine ends as soon as it's work begins. The energy is made by spinning magnets over enamel coated magnet wire spun into several connecting coils. The movement of the magnetic fields allows the turbine to become an alternator. The project was made from enamel coated magnet wire, 6 magnets, an old coffee can, scrap wood, and tools to construct it. A voltmeter was used to measure the electrical output in millivolts. Two separate tests were performed on this construction project, a comparison of three different wire gauges of coils and three different numbers of loops per coil.

The first test was slightly successful. The three different gauged coils sets all produced different electrical outputs. However, while being measured in millivolts (mV), there was only a 4.4 mV difference between the smallest and largest gauges. The smallest (30 gauge) had a maximum voltage of 10.6 mV, the medium (26 gauge) had a maximum voltage of 11.4 mV, and the largest (22 gauge) had a maximum voltage of 15mV. The radius of the coils and the number of loops per coil remained constant in this test. From these results the largest gauge worked the best at producing energy.

The second test had much more distinguished results. The number of loops per coil was compared by using 50 loops, 100 loops, and 150 loops. The difference between the highest and

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lowest resulting voltages was 96.9 mV. The 50 loop coils had a maximum of 10.6 mV, the 100 loop coils had a maximum of 25.8 mV, and the 150 loop coils had a maximum of 107.5 mV. The radius of the coils and the wire gauge (30 gauge) remained constant. From this test it was clear to see that the greater number of coils produced a larger electrical output.

The two tests conducted both showed clear results; although, the second much stronger than the first. The results conclude that when building a wind turbine, a larger gauge wire will help, but is not extremely important, and the more loops per coil the better, and that will make a very noticeable difference. Another variable that could have been test was the size of the coils. This should also affect the maximum voltage on a set of coils.

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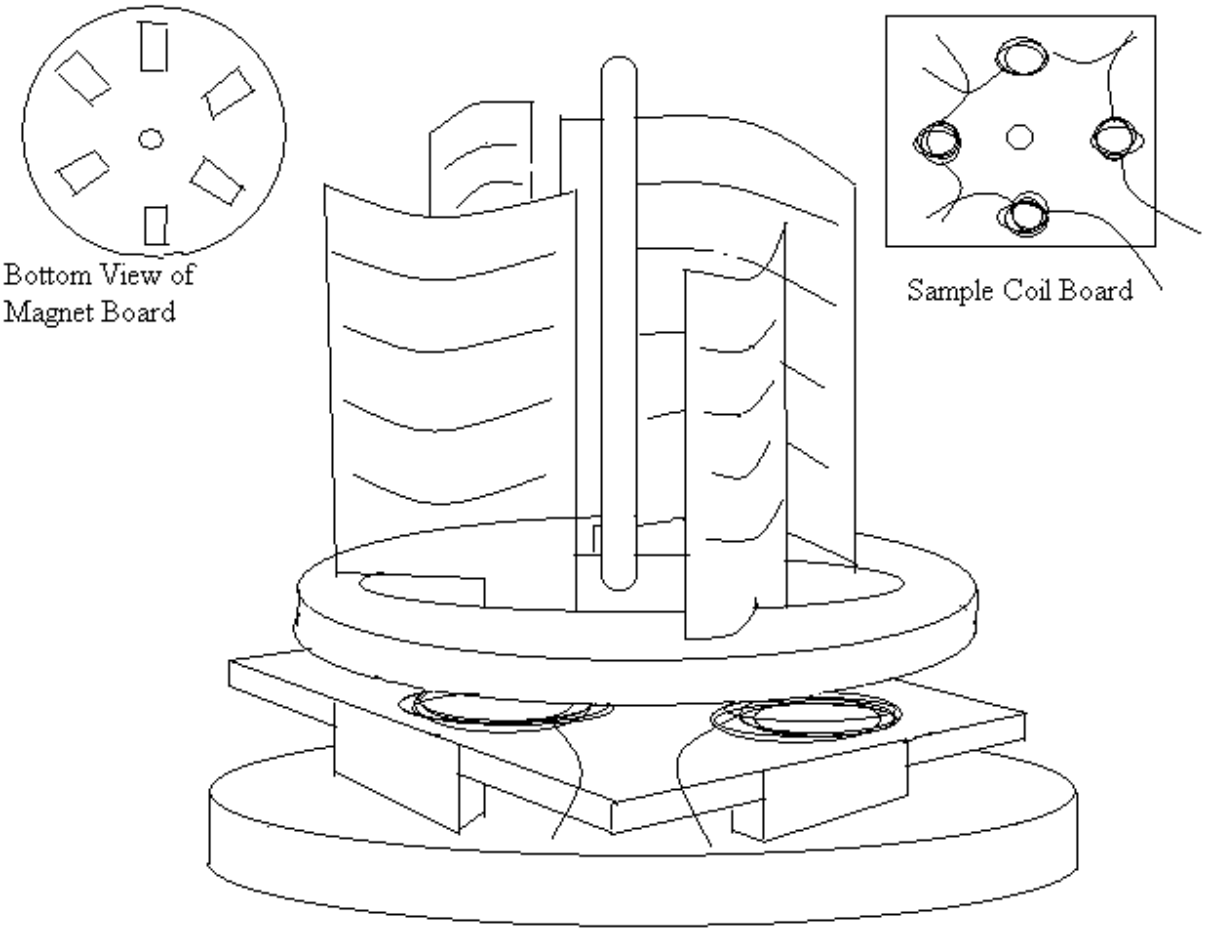
Diagram of Wind Turbine



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