Finding Errors

The design we have created brings an alternat solutions to harnessing wind power at an affordable rate.

The customer for this wind belt was originally targeted to be the average homeowner looking for greener energy solutions. However, after creation and actual testing was done, the optimal power output we were looking for was not achieved. Therefore, we have changed our target customer to people who live in the mid-west or another windy location where power cannot be produced by traditional means, such as in a windy third world country.

It is designed to perform at a suitable level for the customer by oscillating at a defined wind speed threshold. The challenge was to

determine, “dose this meet there requirements”?

The final design consists of a rectangular frame measuring 3” long by 18” wide by 4.5” high built out of ¼” thick polycarbonate plastic. 2” diameter PVC tubes are attached to the frame by threaded ¼” bolts and hex nuts, which allow for movement in the tubes and, consequently, the adjustment of tension in the ribbon. The ribbon, which is ½“ wide Mylar coated Taffeta tape, is secured to the PVC by the bolts and stretches across the length of the frame to the opposite PVC tub.

½” diameter by 1/8” thick neodymium (NdFeB) magnets with a strength of 1.48 Tesla. Each are placed on either side of the ribbon about an inch from the PVC tubes.

The frame may be made first using a band saw to cut the pieces of the basic frame and the brackets. The brackets may be secured to the frame material with rivets and a riveting tool, or small nuts and bolts. Any holes that are to be riveted must be pre-drilled. After this is complete, drill one hole on each side of the frame which will be used to insert the bolts for the tensioning device. Once these holes have been drilled, four holes need to be drilled on each side of the top and bottom pieces of the frame in order to attach the coils. The coils may be attached solely their with eight zip ties, two for each of the four coils. The Mylar coated taffeta tape may be

attached to the tensioning device by cutting a small slit in the tape, and inserting the bolt through the tape when the construction is complete. Two magnets must carefully be attached to either side of the tape, as they are often delicate and brittle. The pulling force of the magnets and friction against the tape will hold them in place. The magnets should be attached to the tape and separated only by the thickness of the tape.

Finding Errors 2

I wanted to build a new method to detect bats entering and leaving caves so I researched it. Then I figured out how to detect the bats. Then, I looked for ways to connect sensors to a computer. I discovered that my laptop was out of disk space. What I discovered was that this would be really really hard! So then I looked at other ways to do it.

When I bought all the stuff I needed to build the detector, I was missing some parts. Some sockets and some connectors. I had most of the chips already and I borrowed some from a friend so it was almost free. I stayed up all night and worked really hard on the box for this. I put the circuit board inside the case. The case was 3 inches deep. It ran on batteries. I connected a red wire to the plus terminal on the battery and to pin 5 of the circuit board. I also connected ground. There were three more pins to connect to the other chips on the circuit board. The chips needed five volts to work rite.

A small motor turned the wheel on the door to make it open and close by turning just a little bit. It worked really good. It worked once and opened the door. In theory, it could open a bigger door too. Their was a handle on it to make it easier. With a bigger handle you could use two hands.

Because bats live in caves the project had to work outside. In the winder the bats sleep. They sleep most of the winter. So the hole project has to work in the cold, even the coldest parts of New York. Volunteers and people would check on the project to see how many bats came in and how many came out.

When the project was done it worked perfectly. It counted ten bats.