Building a wind turbine generator



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The idea of generating electrical energy using the wind energy always attracts me. So now being a well equipped DIYer its time to built the first wind generator from scratch.

The whole idea is to built a small wind generator using relaible techniques and the stuff thats best suited to serve the purpose while gathering all the material from the hardware store or a junkyard.

Yes the generator, for that we have decided to use a brushless hub motor and the one that we found was from an old hoverboard, as these days you can easily find one arround in a scrap yard. The reason for using a permanent magnet hub motor is the fact that you dont need to worry about the brushes wearing out as in a brushed motor and their effiency, which is far better than a similar size brushed motor.

Besides that these hoverboard motors can produce good voltage even when handcranked. Now this factor is important for a wind generator as even with slight gusts of wind we can get voltage that can get the system working.

Now with all the factors in mind we have dissassembled a hioverboard and get our hands on one of the motor. Most of the times these motors are in good condition but just to make sure they are in working condition, mount the motor on a bench with the shaft using a clamp. Now attach a 12v bulb on any two of the three thick wire and give the motor a quick spin by hand. The bulb should make a decent glow, now you can do that with the other remaining wire as well.

Next, we dissassembles the motor with the six flat head screws on the back of the motor. Pull the back plate and remove the tyre with a screw driver. Now time to step on the casing and pull the stator using a plier, sure you are going to need some fore doing that.

To get the motor spinning, we need to translate the wind energy into mechanical energy. So to make the motor spin we need to mount the blades on the hub motor and for that we are going to need an adapter.

Now the adapter is made of two 3mm thick steel plates with a diameter of 6 inch. The blades holder are going to be 1 inch wide 5mm thick steel stripes that are going to be sandwitched between the steel discs.

The other end is going to hold the tail so two 6mm holes for that as well. Now for mounting that bar on the moving platform we have to get a 36mm hole almost across the centre of the stripe, this will allow the head of the main bolt to be tightened across the whole assembly.

One of the adapter plate will be welded to the mounting pole on the roof top with the other one is going to be sandwitched with the moving mechanism to mount the whole assembly on the mounting pole.



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The blades are made out of 6inch Dia PVC Pipe. No calculation but just a good assumption to get things going. The blades were cut down using a jig saw, could be done with a handsaw as well. Each blade is 5 inch at the widest part and nearly 2 inch at the narrow end. Both the ends were trimmed to give them a nice shape and make them spin smoothly.

The blades were 40 inch in length and yes the most important piece of advice, make sure you use the heaviest gauge of pipe and cut all the blades with the taper/pitch in the same direction.

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