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General Article

Electrical Devices Charging with Portable Mini Wind Mill

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Abstract

Usage of renewable energy sources to maximum extent is what we are trying to do in what ever applications possible. This project is also based on this subject making use of wind power. The use of wind energy in such a way that it can charge your mobile phone or laptop. Take a situation, when you have all batteries drained off and you dont find any plug point to charge it, as you need to do some important work. What can you do at that time? You need a source which can provide you the charge. This can be done simply with the help of a small size wind mill, which helps you to provide the charge. Very new and innovative design, hope this could be one of our future design.

Keywords: *Phone, Wind-mill, Charger*

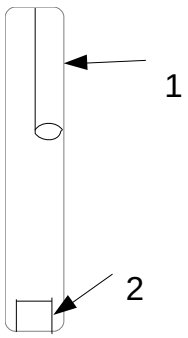
Introduction

This is a technologically advanced era, where people tried various possibilities. They try to mix up the data from every source and develop a new possibility that the world has never seen. Developing various models which were seemed to be only in imagination are now coming true. Here we have something interesting to learn, though many technologies had been discovered long back, but they were only theory based and based on that theory our generation and able to innovate things and much greater than that theory. So it definitely served as base for our development. In this, I have tried the same method taking the theories from the past and making a future device with the help of it. The age of mobile phones, laptops, tablets and many electronic devices, have played a significant role in our life. The major drawback of these devices is they have to be charged at regular intervals. So we have chargers for each electronic devices as per its specifications. The major issue is that it takes a lot of time to recharge these devices.

Checking out the other global crisis, depletion of mineral resources, which is caused due to over exploitation. Finally this is leading to the shortage of generation of electricity. This problem is being faced by many countries, and are still facing.

So we did find an alternative for this problem, using the renewable sources like wind, solar etc. many technologies have come up which use these resources and find their job done.

Getting back to the phone charging problem, there is a solution for this problem also. Making such a device which can use the wind as its energy sources and charge it. So this is the best way to save electricity and make maximum use of the renewable resources and the best part regarding this kind of charger, it recharges your device must faster than the regular chargers.



This is the outline of the device. This is 8 inch cylindrical rod consisting of 2 major parts.

1. The movable or bendable part on the top of the cylindrical rod.
2. USB connectivity at the bottom.

The part 1 is the opening for the fan to be used for rotation will the wind is being blown. The parts are kept moderate enough to fit perfectly into the cylindrical rod and they are made of Polyvinyl Chloride polymer, which gives it strength and doesn't get damage.

The part 2 is the USB connectivity, it includes the technology which helps to recharge the electronic devices faster. Even a small amount of energy generation is sufficient for charging any device from small mobiles to heavy duty laptops.

The specialty of the turbines rod is that it has two kinds of rotating turbines. Turbine series 1 has a set of 4 turbine blades made from PVC. They are about 3 inches in size. Turbine series 2 also has a set of 4 turbine blades. There are about 1.5 inches in size. The advantage of having a dual turbine series will help us harvest more energy through wind than usual single turbine series.

The design of the blades can be done in any manner. But the number of blades is restricted to only 4 blades per

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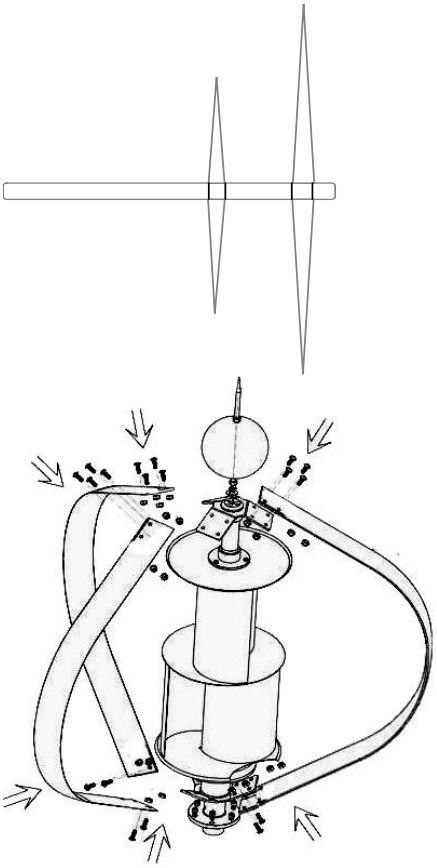
series. The above design known as vertical axis blades can be used instead of traditional blades. But if we design the model with the help of these blades then the number of series can be only one. A different flexible material has to be used for the vertical axis blades since PVC cannot be used.



Working

- Interesting part of this design is that the blades can open out, i.e. the upper part of the cylindrical rod rotates to 90 degrees angle and then the blades will be pushed out like the second image.
- Once the charger is ready, find a place where there is wind blowing or you can rotate it with your hand.
- Electric generator inside will generate electricity but this energy generated wont be sufficient enough to charge your phone. So making use of this new technology by Legion meter, this is an incredible technology. This will help us recharge our devices 90% faster. Even a small amount of electricity generated is sufficient to charge any devices. Since it multiplies the amount of energy generated there by providing the required charge.

Placing the tables (figure 1)

1. The amount of electricity generated is about 0.4-0.5 amps. This is not sufficient for charging any device, so with the help of Legion meter we can provide the device with the required amount energy.
2. This table tells you how the Legion Meter technology has decreased the charging time of the devices.
3. This table shows the percentage increase in time required for charging any device.

Device	Without Legion Meter (Watts)	Legion Meter Apple Mode (Watts)	Legion Meter Android Mode (Watts)	Maximum Gain
Standard PC Desktop/Laptop USB Port				
iPhone 5	2.6	4.5	4.5	73%
iPhone 4s/4	2.6	5.0	5.0	92%
iPhone 3s/3	2.6	4.3	2.7	65%
iPad	Does Not Charge	6.4	6.4	∞
iPad Mini	Does Not Charge	7.3	7.3	∞
Android Smartphones	2.4	4.5	4.5	88%
Name Brand Android 1A Wall USB				
iPhone 3s/3	2.6	4.3	2.6	65%
Name Brand Android 2A Wall USB				
iPhone 3s/3	2.6	4.3	2.6	65%
iPad	7.0	8.2	7.0	17%
iPad Mini	7.7	10.0	7.7	30%
Authentic Apple 1A Wall USB				
iPhone 4s/4	4.8	5.3	5.0	10%
iPad	5.0	6.7	6.7	34%
iPad Mini	5.0	6.7	6.7	34%
Authentic Apple 2A Wall USB				
iPhone 4s/4	5.0	5.0	5.6	12%
MacBook/MacBook Air USB Port				
iPad	5.0	6.2	6.5	30%
iPad Mini	5.0	7.3	7.3	46%
Android Smartphones	2.3	4.0	4.0	74%
iMac/MacPro USB Port				
Android Smartphones	2.3	4.0	4.0	74%

Figure 1

Applications

- This can be used in any place and any time.
- Its cost effective but not much costlier than the regular re chargers.
- Easy portable, very light weight
- Since it is made from PVC, its structure is very hard not easily destroyed.

Conclusions

- We have seen how the energy crisis has taken place and a step in order the save the electricity usage has been discussed in this paper.
- Even though if we consider the use of charger not such a big amount but if we could actually calculate the total usage of the whole world, it would go up to more than 500 Mega watts of power.
- This amount of power can be saved and utilized for future use. Interestingly 500 Mega watts of power can be used for many villages for about an year without any interruption.
- So these devices can serve the purpose of saving the small amount of power and saving the future of earth and brightening lives of many poor people.

References

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