

## T BOX WIND POWER GENERATION

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**Abstract** - This paper refers to the generation of electricity by the roll of wind turbine and the wind is caused due to the movement of train. The electricity will be produced or generated through the wind energy as train runs over the road tracks. Essential form of wind energy produced by train conception is really unique and it will be operated to run the multicolored loads connected to the train cabin and access generated power will be operated by storing the power in the batteries. This propose work is an attempt to generation of electricity via renewable energy sources.

**Key Words:** T box, wind power, batteries

### 1. INTRODUCTION

#### 1.1. General

This T box is executed or place between the two slippers ( rails) at the centre of road track. As soon as the train passes over the track, due to the pressure of the wind which is applied on the capes of turbines. So, the moment of the train rotates the T box turbine blade and generates the electricity. The electricity generated due to the T box is operated for the operation of the remote sticks areas and in rustic areas where electricity is not handed.

#### 1.2 Objective

Apply the up thrust created by train around it to move the alternator turbines.

Deliver a answer for power generation which wo n't bear the redundant big- ticket land and disturbance to being structure.

Deliver this generated power to the close villages. So no need of transmission lines hence no transmission losses will be incurred.

The system should be ecofriendly and deliver no disturbance to the external world.

### 2. PROJECT METHODOLOGY

#### 2.1 WHAT IS T-BOX WIND POWER GENERATOR?

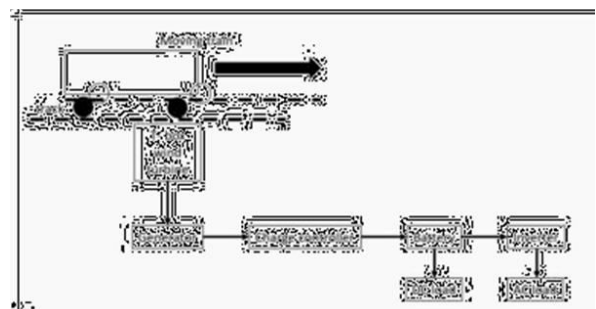


The T-box is a power generated device that harnesses wind energy as trains run over rail tracks. This alternate form of wind energy produced by trains is really unique, as it does not depend on any natural energy sources. Rather, the energy generated from this device is produced as a consequence of earthborn exertion. The T-box device generates energy without any bar of the normal train operation – the device is installed between rail ties, and is incompletely buried underground. As the train passes over the device, the wind generated from the train spins the turbine inside the T-box to breed electricity. The T-box contains all the mechanical ingredients bore for applying, storing and supplying converted power. Hence, the power generated from this device can be supplied to public complexes along the rail and also to remote areas where electricity has not yet reached.

The device, called a T-Box, differs in that it's designed to be installed within the factual rail track itself. It consists of a durable metallic cylinder with verbalisms, which allow air to inpouring through and rotate turbine blades housed out. Yanko claims that a 1000 meter stretch of road can be retrofitted with about 150 T-boxes. Considering that a train barrelling down at a speed of 200 kilometres per hour creates winds of roughly 15 long hauls a volition, the T-boxes could effect2.6 Kwh of electricity.

But like multiple matching ideas, the T-Box presently exists in the pristine world of conceptions where issues like debris, dirt and sustentation issues are absent, which isn't the case in the real world. So there's a strong probability that train passengers will nowise see one in operation

#### Block diagram



**Hardware required**

- Bracket x2
- Main Cover
- Inside Cover
- Turbine (Blades) Internal
- 2 Vents on Inside Cover
- Side Cap x2
- Axis x2
- Flume x2
- Generator x2
- Power Generation Device
- Balance Device
- Hook



**DESIGN OF T-BOX**

“ In As anyone living near road tracks will tell you, speeding trains work quite a bit of wind as they chirr history. Crude originators Qian Jiang and Alessandro Leonetti Luparini have come up with a device that's installed between the sleepers on a track, and as the train passes above, the wind drives a turbine to work electricity. The T-box tendency could be placed along road or lodge lines, and make good use of an else wasted resource. Unlike wrinkles analogous as the Solar Roads system and Solar Wind conception, the T-box device wouldn't have to depend on a natural energy source, but rather one that is produced as a consequence of natural exertion. China's Jiang and Italy's Luparini reckon that about 150 of these tendency could be installed along a kilometre (0.62 country country miles) of track and as a train preferences along, the turbines inside the device would work electricity. The originators say that the turbine is rested on models produced by HETRONIX, although the blades are obviously designed to rotate about a central axis within the cylinder shell. Tectonic of the T-box would be below ground stratum with only the speech burial, and yea though the wind produced by passing trains may only come in short bursts, installing them along a busy route should sizzle in a decent volume of energy being produced. Of course, keeping these clean and safe could be a problem. In addition to the dust and debris remonstrated up as the train faves along or smut and grease deposits escaping from under, fencing similar glowing boxes from the destructive hands of vandals could prove like tiresome.

**3. INVENTION OF T-BOX**

A speeding train, for illustration, produces tremendous gusts that can just as freely be converted into electricity. A couple periods agone, an Indian developer named Santosh

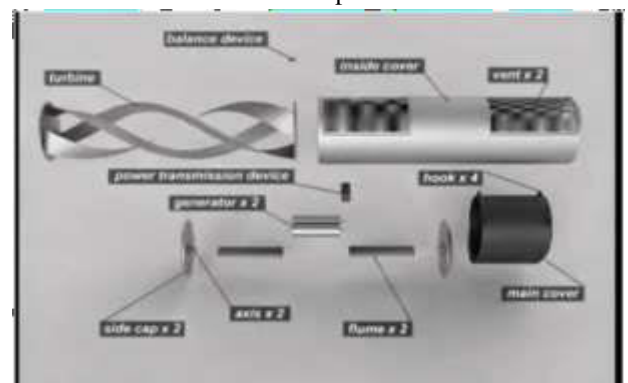
. Pradhan proposed a change to current trains that, according to his maths, would have gathered as much as megawatts of electricity each day from trains operating in Mumbai, a city in India.

Now inventors from the company Yanko Design have seized upon the same principle and developed a device that can collect wind energy from passing trains. The technology works likewise to a wind mine conception put forth last bit by a gang of Korean originators in which bitsy turbine- rested authors would be strategically placed at chromatic spots along the walls of a mine train mine. The idea of a train being fit to exploit its really frame to prompt electricity is really fascinating. Generating power by exploiting the wind energy created by swiftly moving trains is not an idea that may cook to the average investigator. Notwithstanding, two artificial originators

. China's Qian Jiang and Italy's Alessandro Leonetti Luparini have managed to develop a device that produces power by exploiting this unique form of wind energy.

**INSTALLATION OF THE T- BOX**

To fit the T-BOX on the tracks, some work has to be done on them Originally, Concaves have to be constructed in cement between each of two slumberers Two rubrics either have to be placed on two sides of the concaves The rubrics have to be examined to guarantee that they are well fixed The T-box is either set upon the maneuvered tracks



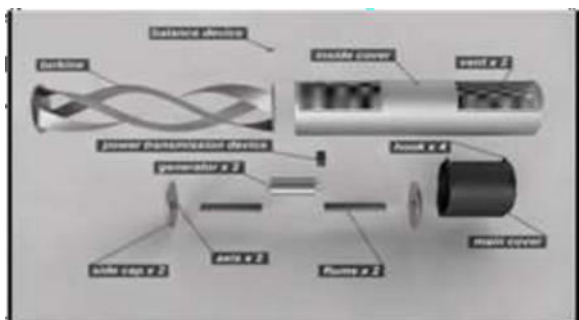
**TURBINE OF T-BOX**



The designers say that the turbine is hung on models produced by HETRONIX, although the blades are obviously designed to rotate about a central axis within the cylinder cocoon. Eventful of the T-box would be below ground position with only the phrasing immurement, and yea though the wind produced by passing trains may only come in short bursts, installing them along a busy route should perform in a decent volume of energy being produced. Hetronix wind turbine system is the ultimate small wind turbine initiator system designed to hand electricity which can be used on several different type plays, matching as batteries charging, or standalone remote electrical power force system. Either, with the farther Power Grid Inverter, the Hetronix wind turbine system can also be connected to the power grid

The Hetronix wind turbine system consists of a 2.5 measure rotor system and a initiator which is 35 cm in circuit. The 58 kilogram wind turbine is rated at 2000watts@12.5 m/s wind. The Hetronix wind turbine system features superior low windspeed blade design which provides great performance, really high system effectualness, and low noise. The Hetronix wind turbine system also provides the optional monotower paraphernalia and guyed tubular incline edifice paraphernalia.

**Construction**



The The construction of the T-Box power instituter is as shown in the figure over. The elliptical strips are wound around the central axis of the structure. This axis is coupled with the shaft of the instituter. So, both rotates at the same time. This structure is enclosed in a blade capsule. A net is fed near the blades structure, so as to grease the air pressure to be exercised on the blades. This type of structure helps is hedge from external gravestones or dust to enter into the blades to harm it. The

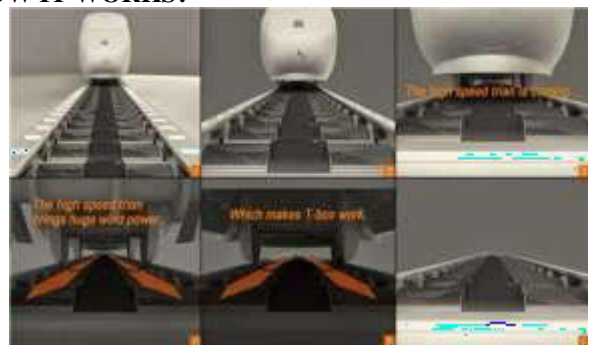
establisher work is either taken outdoors to the control room box, where the charge control is fitted. The affair from the charge control is either fed to the battery, which is to be charged for DC illumination purpose. Either an inverter is delivered to step up the voltage to AC and pass onto the grid of 50 Hz. Commonness. In this way, a robust and protective T-box structure is described of the arrangement for installation.

**Working**

When the train moves on the road track, it creates a high pressure force around it. This force is plied on the T-box wind turbine blades. This blades are in the form of standing axis wind turbine. So the movement of blades in turn rotates the shaft of the initiator coupled with it. Due to the Faradays law of electromagnetic induction, electromotive force is induced in the captain. So electricity is generated and passes through the captain.

This electricity is either passes through the buck boost appliance module, which limits the voltage produce to the needed 12v of the battery. So the server voltage is controlled for permissible voltage. So the battery is charged with the help of moving train. Further this stored charged can be used to illuminate the ground directly. Further this electricity is reversed to power the AC sources through the Mosfet powered AC inverter of 230 Volts AC.

**HOW IT WORKS?**



**Advantages and Disadvantages**

**Advantages**

- Will help contribute to civil electric demand.
- Rather than public reach, it can surely help fulfill electricity dmends of bordering villages.
- No supernumerary space will be needed, since it will be placed underneath the living track.
- Inferior installation cost.

- It's Ecofriendly. As, it do not emits any Carbon contents it does not harm atmosphere and also it helps inde-escalating pollution if we use it rather of the Fossil Energy sources.
- It's Cheaper. Construction of TBox is really easy and also it does not cost so much.
- Easy to install. It's really easy to install.
- Needs lower keep & has lower chances of Failure.

2. Box-A-New-Generation-WindPowerDevice  
<http://www.indianrailways.gov.in>  
<http://www.gizmag.com/tbox-conceptwould-capture-wind-energy-fromspeeding-trains/18272/>  
<http://www.coroflot.com/jq/t-box/>  
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<http://www.wikipedia.org/>

### Disadvantages

- Since it's a moving part, regular maintainence will be needed.
- Theft protection will be needed to guard it.

## 4. CONCLUSION AND FUTURE SCOPE

### CONCLUSIONS

The T-BOX wind generation Sire may be a device which may facilitate in comparable the Wind Mills across the planet. As we tend to before grasp that within the Setup of these giant Wind Mills we want to speculate most of Croesus. Also, they have {a giant|an outsized|an oversized} space for it as a result of in Wind Farmsteads they ought to be in large in ciphering, either solely they'll turn out electricity. Also, one draw back is that they are variable and totally depends upon winds and that is why they ca n't turn out continued electricity. The T-BOX is to be setup between the rail dozers by creating solely a dish-shaped area and by victimization 2 genera it will be freely install. It's extremely little in size as compared to Wind Mills and additionally do n't want spare area. These will be extremely helpful in those places wherever electricity is not offered. These T-BOX want lesser capital investment compared to the solar array installation of same capability. Also, they produces another energy in terms of area taken by them. As INDIAN Railroads NETWORK is basically giant and crowded . The tracks ar in each cosmopolis, hamlet of the country, as it's in each a part of the country either if T-BOXES ar put in in Republic of India either there'll be a large labor of electricity as a result of in Indian Railroads there ar 1000's of trains and that they runs incessantly and it will turn out great quantity of power.

### Future Scope:

This game is consists of 2 half that is outfit and computer code. The outfit are the bike and therefore the computer code is that the program of the management to regulate the operationbicycle. To be a lot of specific concerning this game, there'll be mistreatment many gear that square measure

### REFERENCES

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