
Generation Electricity by Using Exhaust Fan

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Abstract: - There are many new ways to generate electricity. This project explains how we can make electricity using outgoing gas. A turbine and a dynamometer are used in this project. Dynamo is connected to a turbine used to produce power. The turbine is mounted on an air-tight duct. The energy produced varies, depending on the flow of air through the exhaust system. The dynamo starts circling using a turbine and converts kinetic energy into electrical energy. The battery saves energy. The voltage must be adjusted, in order to be applied to the equipment. We can use the energy that is stored up to our advantage.

Keywords: - Turbine, Dynamo, Generator, Battery, LED Bulb etc.

I. Introduction

The aim is to build a system that uses Exhaust Fan to generate electricity in rural areas. The system controls all settings. Air blowers usually use medium power to move air forward. Inside the centrifugal fan there is a wheel with small blades in the circle and a case that directs the air flow in the center of the wheel and exits the edge. The design of the blade will affect the way the wind blows and the efficiency of the wind turbine. This project uses Exhaust Fan set, turbine and DC Generator. It is a renewable energy program that can reduce energy demand by creating waste energy. This system allows countries with low wind speeds, especially in urban areas, to use wind energy from fixed and predictable wind sources.

II. Aim of Project

- The main purpose of this project is to prove that the air from the exhaust air system can be used as a useful energy source.
- In addition, the use of man-made wind turbine by a wind turbine generator is intended to prevent adverse effects on the exhaust air system.

III. Literature Review

It works with the goal of converting kinetic energy into electrical energy. In this process, the turbine is adjusted near the silencer opening. The dynamo is attached to a turbine, which converts turbine-generated kinetic energy into useful electrical energy.

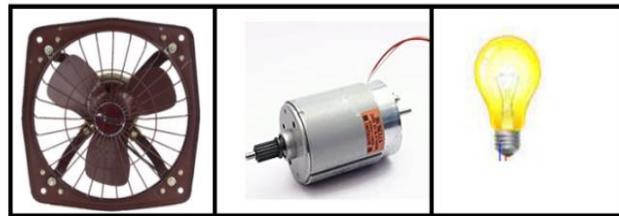
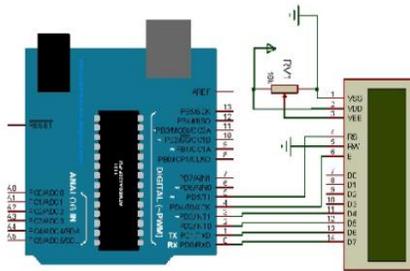
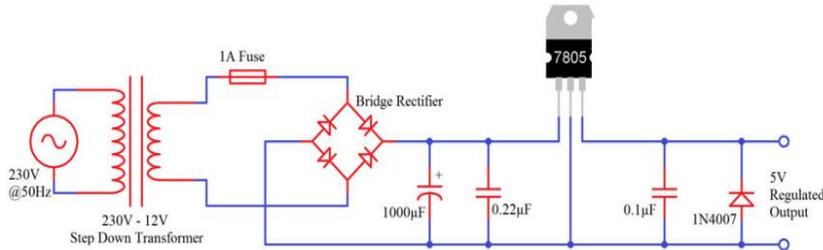
Various researchers have used the concept of accomplishment. The speculations of the papers written by the researchers are discussed below.

- Kranti Kumar Guduru et al. [1] learned that electrical energy can be obtained by using kinetic energy from outgoing gases. Use a turbine, a dynamo, a battery and a nozzle for this purpose. After performing the tests they found that the voltage generated at the outlet was directly proportional to the exhaust speed. They also found that efficiency increased with increasing speed.A
- Shrikant Gawas et al. [2] operated on a turbocharger system and found that the bleeding rate could be controlled by restoring electrical energy and by providing the right pressure at the cylinder entry point. They used a turbocharger, thermal activator and dynamo to accomplish it. By doing research they have found that the efficiency of the engine can be greatly increased in this way.

• Shaikh Mobin et al. [3] He said that electric power could be generated by using gas from a motor vehicle. They used a turbine, gears and a DC generator to perform their tests. From experiments they found that the output power was directly proportional to the speed of the turbine.

After referring to all of the above papers we conclude that energy from exhaust gas can be effectively obtained using turbine-based power generation techniques. The kinetic energy of the exhaust gas from the silencer can be converted into usable energy types with the help of a small turbine and a dynamo.

IV. Block Diagram



V. Working

- Wind from a fan can drive a wind turbine and these wind turbines produce electricity that can be stored in storage.
- The final unit may vary depending on the electricity output from the wind turbines.

Procedure for generating Electricity from Exhaust air:

- When opening the first item check that the inverter is off.
- Then Turn on the exhaust fan supply.
- The exhaust fan will work and the dynamo will start working and the electricity generated will be connected to the charging converter and connected to the battery.
- The battery will save electricity.
- Then turn off the exhaust fan supply.
- Now turn on the inverter switch.
- AC load provided.

VI. Construction

- Non-natural air resources can come from Exhaust industrial fan or restaurants, cooling towers, ventilation systems, lubricants and any system that produces strong and stable winds.
- However, the combination of an outgoing wind turbine generator is not the same for all non-natural air resources.

- Special configurations should be designed to obtain the maximum amount of power in the air exhaust system without significant negative impact on the actual system. In this study, an outboard wind turbine generator is specially designed.

VII. Components

▪ **Exhaust Fan:**

- Exhaust Fan heaters used to transfer heat to waste; The main office, buildings and buildings of Industries usually install one or more ventilation fans to construct an air intake system. This type of Exhaust fans rely on power-driven fans to draw or force air with blades.
- Many air-conditioning systems and industrial processes produce heat that must be removed and dispersed. Water is often used as a heat transfer device to remove heat from refrigerator condensers or industrial process heat exchangers.



▪ **Dynamo generator: 12V, DC, 0.9Amper**

- A generator is a machine that converts mechanical energy into electrical energy. It operates on the basis of faraday law of electromagnetic induction.
- The law of faradays states that whenever a conductor is placed in a variety of magnetic fields, the EMF is attractive and the EMF generated is commensurate with the degree of flexibility of the flexible connection. This EMF can be produced if there is a related space or time difference between the conductor and the magnetic field.



VIII. Advantages

- The destructive wind power from a fan can be used to generate electricity.
- It will not be affected by the environment and can therefore be used in many large industries. It will be abundant,

renewable and a source of natural energy.

- Saved power can be used when power is cut off. Therefore, it can be used as an Emergency Unit and is a renewable energy source.
- It uses very little soil and Fuel transport is not required for wind power conversion.

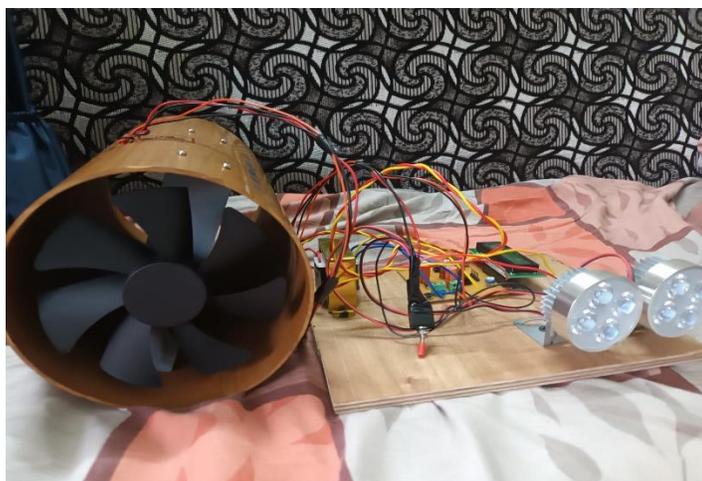
IX. Disadvantages

- Due to its inconsistency, wind power needs to be maintained.
- Wind power conversion is noisy in operation.
- Care is required.
- Costs are relatively high.

X. Future Scope

- It is recognized that greenhouse gases can serve as an excellent source of electricity. The wind speed is sometimes higher than the natural wind speed and can therefore generate more electricity than is produced in natural air.
- As mentioned earlier the air from the exhaust fan may disperse over time, there should be some kind of conductors / connectors that will direct the air from the exhaust fan directly to the turbines without lowering the wind speed as wind speed is the most important factor in the system.
- Contaminated air from an exhaust fan can be used effectively to generate energy when proper use is made.

XI. Project Image



XII. Conclusion

- It is recognized that greenhouse gases can serve as an excellent source of electricity.
- The wind speed is sometimes higher than the natural wind speed and can generate more electricity than is produced in natural air.
- Contaminated air from an exhaust fan can be used effectively to generate energy when proper use is made.

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