

# Construction of a Fuel less Generator

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**Abstract:** Electricity supply has been erratic for a long while in Nigeria. The need for new energy sources had led to a number of alternatives, which have been unaffordable and unavailable due to huge cost and scarcity. In response to this, Fuelless generator was designed and developed using local materials. The driving mechanism of fuelless generator is the 1hp direct current motor, powered by a 12 volts battery, which spins the 0.95KW alternator to produce electricity, while recharging the battery by means of a diode. The fuelless generator has an output of 1KVA; it is pollution-free and eco-friendly. The test unit was built in November, 2014 and has been tested to power offices in the department.

**Keywords:** Dc motor, Alternator, Diode, energy sources, Fuelless generator.

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## 1. INTRODUCTION

In order to find other ways of producing energy, a number of alternatives have been considered. One of these alternatives is the generation of electricity from a fuelless engine in an isolated power generation system with low maintenance cost. A fuelless engine produces electricity 24/7 without fuel (petrol, diesel, gas, sun, wind energy). The driving mechanism is the DC motor, which is driven by a battery (12v). The battery drives the DC motor, which in turn spins the alternator to produce electricity and at the same time, with the help of the Diode, it recharges back the battery. Fuelless engine has no negative impact in the environment; it is noiseless, pollution free, self dependent. It can be built to the capacity of the load you want it to power.

## 2. MATERIALS AND METHODOLOGY

### Materials:

Direct Current Motor: one horse power dc motor

Battery: 12 volts battery, it supplies direct current to the motor.

Alternator: it generates an alternating voltage and current with the aid of capacitor.

Diode: The constant recharging of the battery is done by the diode.

Capacitor: it aids the conversion of energy from the alternator into an alternating voltage.

Ignition key: This is used as an on and off control of the generator system.

Shaft: The shaft is used to transmit torque from DC motor to the alternator.

Cables: Cables are used to transfer current from one source to a load.



Fig 1 Direct current motor



Figure 2 Battery



Figure 3 Diode



Figure 4 Alternator



Figure 5 ignition Key



Figure 6 cables



Figure 7 Shaft

### 3. METHODS OF CONSTRUCTION

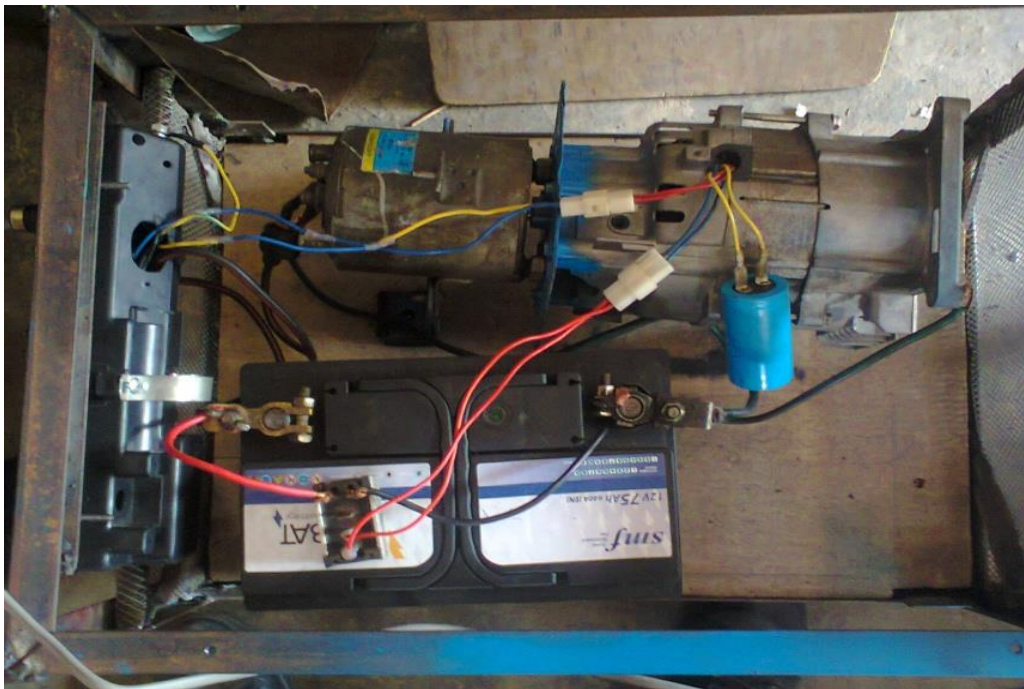
Mounting of the DC motor to alternator



**Figure 8 Mounting of the DC motor to alternator**

The dc motor has a threaded shaft with locking keys at two sides of the shaft. a rod of 1.5 mm diameter was drilled and fitted to the shaft, using 10mm gross pin nut. The alternator shaft was welded at a distance of 30mm<sup>2</sup> from the gross pin. The alternator and the dc motor were coupled, using two flat plates of 0.7mm thickness using bolts.

### 4. FIXING THE MAIN COMPONENTS



**Figure 9 Fixing the main components**

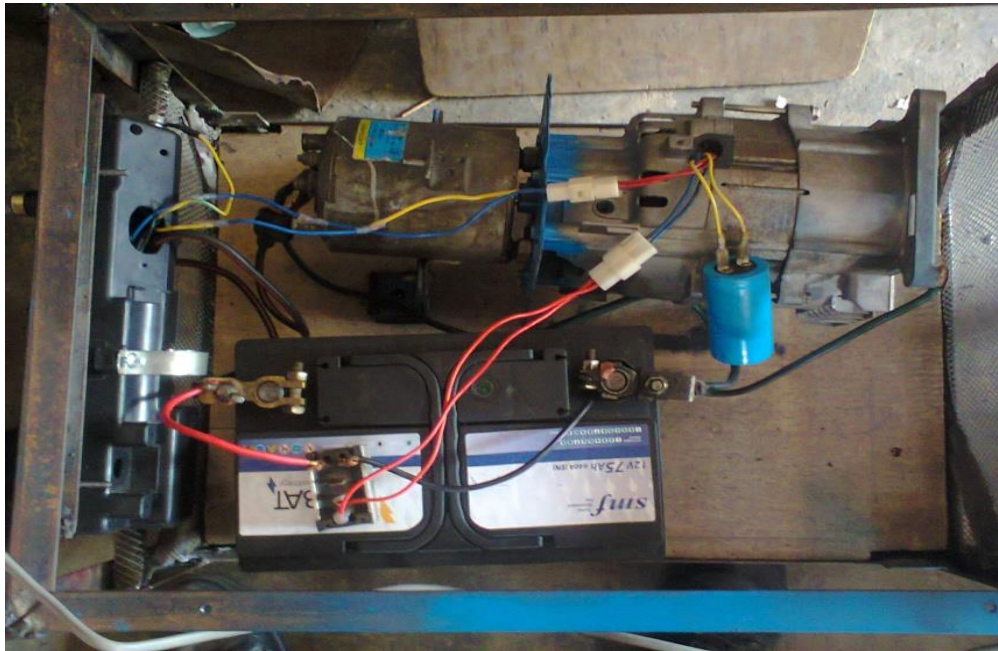
At the battery head, the positive cable indicated with the red wire will mounted to the positive terminal using battery terminal plug. This same wire was connected to the key starter where the charges switch will be controlled. And the battery wire indicate with the black colour was also mounted to the negative terminal of the battery using the same method. The red and black cables from the battery were connected to the positive and negative part of the dc motor



respectively. At the same time, the red and black wires from the diode were connected to the positive and negative terminal of the battery respectively. The diode was also connected to the alternator according to the respective charging outlet on the alternator. Then the load outlet was connected to a wire connected to a bulb for a test run. After test – running the devices, we found that they are in good condition

#### Casing and Wiring the Component:

The components were arranged in order and enclosed in a frame. Handles were welded at the top edges .



After we have completed the casing, wiring and appropriate connections required for the generator was done. The power outlet from the alternator was connected to the load plug indirectly through the circuit switch. The capacitor was also connected to the capacitor lines coming out of the alternator, the key starter were also mounted at an adjacent position beside the monitoring board. Then the diode was positioned at a specified place which is suitable for the heat disposal as a result of the heat sink attached to it.

## 5. RESULTS



Figure10 Fuelless generator



Figure 11 Testing generat

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