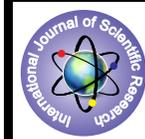


## Design and Fabrication of HYKE-Idle Fuel Saver



### Engineering

**KEYWORDS :** Hybrid Bike, Idle Fuel Saver, Electric Powered Bike.

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### ABSTRACT

*In the Normal Vehicles the idle rpm of the Engine run by the Fuel and hence during the static position of the vehicle the fuel gets wasted. To overcome this wastage of fuel in two wheeler this runs by electric power in idle speed and runs in fuel during acceleration of Vehicles. During idle run time of engine the fuel gets wasted unnecessarily and hence to reduce the consumption of fuel during that time the electric motor is used. The idle RPM of the engine is to be run by the electric motor and only during the acceleration the fuel is used. Hence the minimum RPM is run by electric motor and the accelerating RPM is run by fuel. Our project is a design and fabrication of refrigerator which utilizes maximum energy as possible instead of wasting the energy in the form of heat to the environment.*

### 1. INTRODUCTION

When your vehicle is idling, they are not contributing to your bottom line. They are simply burning your fuel. According to the EPA, every hour of idle time burns .82 gallons of fuel—that's almost one gallon of fuel per hour! And, contrary to a popular belief, restarting an engine burns no more fuel than if you spent thirty seconds idling. Furthermore, 31% of all fuel consumed in the US is estimated to be due to hard driving and excessive speeds. And, excessive speeding may decrease fuel economy by up to 20%. When you let your engine idle to warm up your car, while waiting at a drive-through or waiting for passengers, your vehicle is needlessly burning fuel. Given the usual wear that occurs on the mechanical parts of your car when it starts, it is more economical to turn off your engine when you stop for more than 60 seconds (outside the flow of traffic) and to start it up again when the time comes. Cut your engine when you stop for more than 60 seconds. To overcome this problem our idea of saving ideal fuel is proposed.

### 2. COMPONENTS USED

- **DC Motor** relies on the fact that like magnet poles repels and unlike magnetic poles attracts each other. A coil of wire with a current running through it generates an electromagnetic field aligned with the center of the coil.
- **Automotive Battery** is a type of rechargeable battery that supplies electric energy to an automobile. Usually this refers to an SLI battery (starting, lighting, ignition) to power the starter motor, the lights, and the ignition system of a vehicle's engine.
- **Bearing** is a machine element that constrains relative motion and reduces friction between moving parts to only the desired motion.
- **Chain drive** is a way of transmitting mechanical power from one place to another. It is often used to convey power to the wheels of a vehicle, particularly bicycles and motorcycles.

### 3. COMPONENT SELECTION AND SPECIFICATION:

S.NO	COMPONENTS	SPECIFICATION
1	Engine Volume	98CC
2	Engine Torque	7.80HP
3	Engine RPM	7250RPM
4	Electric Motor RPM	2000RPM
5	Electric Motor Torque	1HP

**Table 1. Specifications**

Experimental Vehicle used to do this product is Suzuki Max 100. The weight of the Vehicle is around 96 kg. Since the minimum idle RPM of Suzuki Max 100 is 1400 RPM. We have chosen a motor with 2000 RPM to run the engine at idle conditions.

### 4. MODIFIED CRANKSHAFT

The crankshaft, sometimes abbreviated to crank, is responsible for conversion between reciprocating motion and rotational motion. In a reciprocating engine, it translates reciprocating linear piston motion into rotational motion, whereas in a reciprocating compressor, it converts the rotational motion into reciprocating motion. In order to do the conversion between two motions, the crankshaft has "crank throws" or "crankpins", additional bearing surfaces whose axis is offset from that of the crank, to which the "big ends" of the connecting rods from each cylinder attach. It is typically connected to a flywheel to reduce the pulsation characteristic of the four-stroke cycle and sometimes a torsional or vibrational damper at the opposite end, to reduce the torsional vibrations often caused along the length of the crankshaft by the cylinders farthest from the output end acting on the torsional elasticity of the metal

**5. CONSTRUCTION AND WORKING**

In normal bike, the engine is modified and this modification helps us to save fuel in vehicle. The side of the engine drills a hole and then extra shaft is welded with cam shaft which is already present in the engine. This shaft is a rotating shaft at the end of this shaft cycle bearing is attached. The electric motor is attached with this bike. Power supply is given to the electric motor to run. From the electric motor power is transmitted to the crank shaft using chain drive. During Ideal RPM, fuel is not used and this ideal RPM is run by an electric motor. These will not any damage to the engine. This will reduce the pollution and also the fuel consumption. This will save 5-10% of fuel during driving in urban cities and will save around 15-20% of fuel during Traffic jams. It reduces the emissions of harmful gases like CO, Hydro Carbons etc.

**6. COST ESTIMATION AND DIAGRAMS**

S.No	Components	Quantity	Rupees
1	Two wheeler	1	5000
2	Electric motor	1	2000
3	Battery	1	1000
4	Bearings	1	300
5	Chain	1	500
6	Shaft	1	1200
TOTAL			10000

Table 2. Total Expenditure

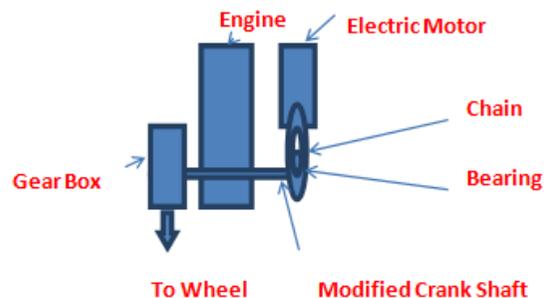


Figure 1. Layout of Electric Motor attached to the Engine

**REAL VIEW OF OUR PROJECT**



Figure 2 Real View of Our Project

**7. ADVANTAGES**

It reduces the consumption of fuel. Maintenance is less. It can be used in any vehicle which runs in fuel. Idle RPM is run by electric power supply Reduce the emission of pollution.

**8. APPLICATIONS**

It can be used in any normal vehicle which runs by fuel. It can be used in traffic hours.

**9. CONCLUSION**

This idle fuel system setup can be installed in a car, so that we can saves a lot of fuel. In future, the power required to run the Electric motor is supplied by using solar energy instead of using battery charged by AC current. So that we can reduce the emission of pollution from the vehicles and we can derive the same power given by Gasoline Vehicles in Hybrid vehicles.

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