

HYBRID AUTOMATED ELETRIC MOTOR-BIKE

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ABSTRACT

Hybrid Automated Electric Motor-Bike is concept of multiple features available in four wheeler have been brought in two wheeler including following factors such as its hybridization, automation and further more. This will be the first conceptual design introducing to the field of mechanical engineering and automobile engineering with latest

technology implemented.

KEYWORDS: *Multi-featured, Hybridization Automation, Conceptual design, Technology Implementation.*

INTRODUCTION

Automated Hybrid Electric Motor-bike is conceptual automobile demonstration. Combination of individual fuel intake such as petrol and electricity have been implemented and accordingly used. Automation have been done in several parts due to which it makes the automobile user-friendly. The drawbacks of ordinary motor-bike have been resolved in this native project.

IC engines cannot use solid fuels which are cheaper. Only liquid or gaseous fuel of given specifications can be efficiently used. These fuels are relatively expensive. If fuel is considered, where most of the research is being focused now: high efficiency, low pollution, fuel price etc. and yes if petroleum fuel is considered, then it's in a limited state now, hence its better going for renewable source. When engine of vehicle is in idling condition, the most of the power created by the engine is wasted

By using both a conventional engine and electric motor, the best hybrids achieve significantly

better fuel efficiency than their non-hybrid counterparts. They also pollute less and save drivers money through fuel savings. When the engine output shaft is given to Alternator, the power developed by alternator will be stored in battery during idling engine, and will be used for driving E-wheel if the vehicle is to be propelled into motion.

Working Principle

Hybrid electric vehicles are powered by an internal combustion engine and an electric motor, which uses energy stored in batteries. A hybrid electric vehicle cannot be plugged in to charge the battery. Instead, the battery is charged through regenerative braking and by the internal combustion engine.

LITERATURE REVIEW

According to the increasing competition in automobile industry making vehicle user-friendly depending on the interest of Automation and making the hybrid can make it more reliable in use and causing in increasing in market demand and scope.

Objectives behind this project is to nominate the amounts of the Drawbacks and maximizing the amount of automation due to which we can complete the market demand and satisfaction of customer Could be possible.

In recent decades, the research and development activities related to transportation have emphasized the development of high efficiency, clean, and safe transportation. Electric vehicles, hybrid electric vehicles, and have been typically proposed to replace conventional vehicles in the near future.

Inventors: Alex J. Severinsky, Washington DC Abstract

A hybrid vehicle comprises internal combustion engine, a traction motor, a starter motor, and a battery bank, all controlled by a Microprocessor in accordance with the vehicle's instantaneous torque demand so that the engine is to be run on only under condition of high efficiency, typically only when the load is at least equal to 30% of the engine's maximum torque output

Working of Hybrid Automotive

A 'gasoline-electric hybrid vehicle' is an automobile which relies not only on gasoline but also on electric power source. In HEV, the battery alone provides power for low-speed driving conditions. During long highways or hill climbing, the gasoline engine drives the

vehicle solely. Hybrid electric vehicles comprise of an electric motor, inverter, battery as electric drive and an internal combustion engine with transmission connected as gasoline based drive. It is to achieve better fuel economy and reduce toxic emissions.

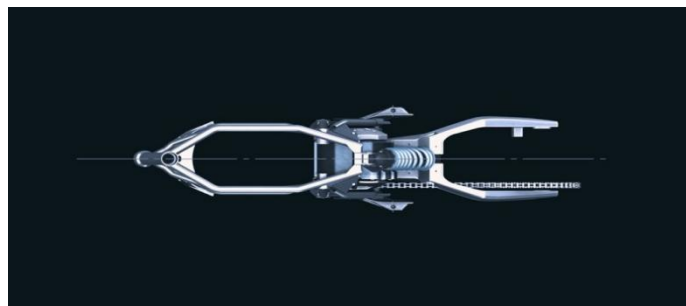
HEV consists of a throttle position sensor, i.e., hall sensor. It gives voltage as output with respect to the angle displacement in the accelerator. The analog voltage generated is converted to digital through ADC and is given to micro-controller. If the speed corresponding to the angle deviation in accelerator is less than 30km/hr then the relay is switched on. The relay switching completes the circuit of the battery, inverter and hub motor; and vehicle is motioned by electric power. If the speed directed by accelerator is greater than 30km/hr, then the engine is started by closing the circuit of starting motor through a relay. The starting motor circuit is activated for five hundred milliseconds such that the vehicle is started. Once the vehicle starts the valve of engine for gasoline intake opens by servo motor. The amount of opening is controlled by the PWM generated by the micro-controller as directed by the accelerator.

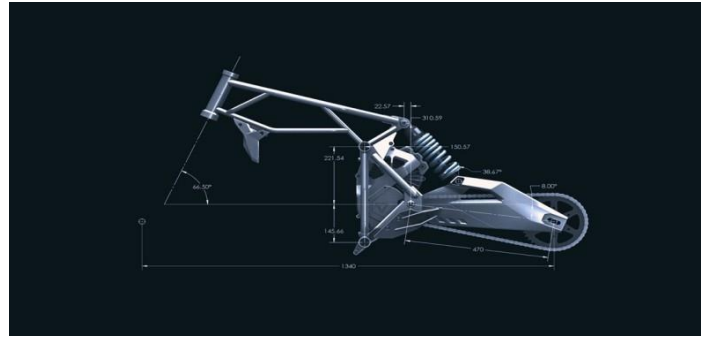
OBJECTIVES

According to the increasing competition in automobile industry making vehicle user-friendly depending on the interest of automation and making it hybrid can make it more reliable in use and causing in increasing in market demand and scope.

Objectives behind this project is to nominate the amounts of the drawbacks and maximizing the amount of automation due to which we can complete the market demand and satisfaction of customer could be possible.

BODY DESIGN TOP VIEW

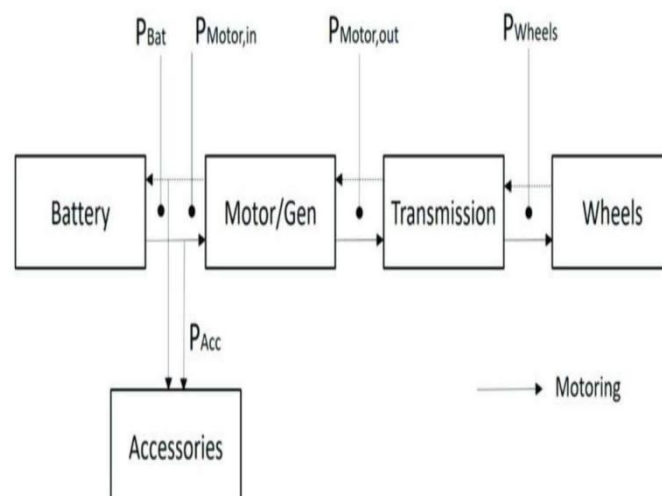


SIDE VIEW**MECHANISM****Electric automotive**

An electric automotive is vehicle which is propelled by one or electric motor using energy stored in rechargeable batteries. Compared to internal combustion engine (ICE) bikes, electric bikes are quieter, have no exhaust emission and lower emissions overall.

An electric vehicle (EV) is one that operates on an electric motor, instead of an internal-combustion engine that generates power by burning a mix of fuel and gases. Therefore, such as vehicle is seen as a possible replacement for current-generation automobile, in order to address the issue of rising pollution, global warming, depleting natural resources, etc. Though the concept of electric vehicles has been around for a long time, it has drawn a considerable amount of interest in the past decade amid a rising carbon footprint and other environmental impacts of fuel-based vehicles.

The block diagram for electric automotive is given as:



Hybrid automotive

Spark ignition automotive

A spark-ignition engine is an internal combustion engine, generally a petrol engine, where the combustion process of the air-fuel mixture is ignited by a spark from a spark plug. This is in contrast to compression-ignition engines, typically diesel engines, where the heat generated from compression together with the injection of fuel is enough to initiate the combustion process, without needing any external spark.

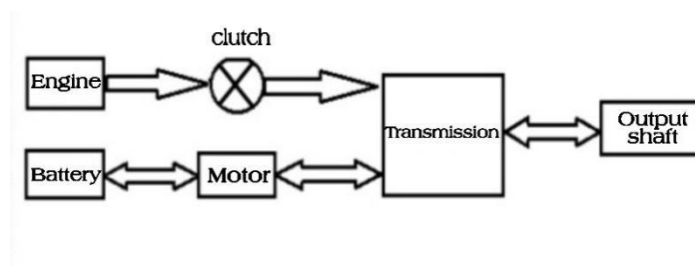
Spark-ignition engine (SI engine) is an internal combustion engine, generally a petrol engine, where the combustion process of the air-fuel mixture is ignited by a spark from a spark plug. In the spark ignition engine, fuel and air are mixed before initiating combustion with fuel introduced either in the intake manifold or now commonly in cylinder with direct injection technologies. In either case the fuel vaporizes and mixes with the charge gases to an ignitable mixture

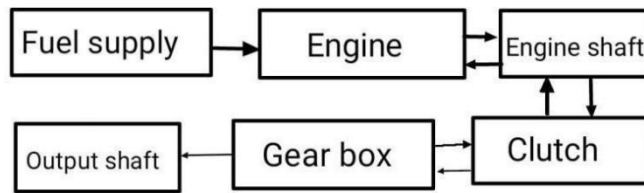
The block diagram for spark ignition automotive is given as

A hybrid electric vehicle (HEV) is a type of hybrid vehicle that combines a conventional internal combustion engine (ICE) system with an electric propulsion system. The presence of the electric powertrain is intended to achieve either better fuel economy than a conventional vehicle or better performance. There is a variety of HEV types and the degree to which each function as an electric vehicle (EV) also varies. The most common form of

Hybrid electric vehicles (HEVs) combine the benefits of gasoline engines and electric motors and can be configured to meet different objectives such as improved fuel economy, increased power, or additional auxiliary power for electronic devices and power tools.

The block diagram for hybrid automotive is given as





Componants

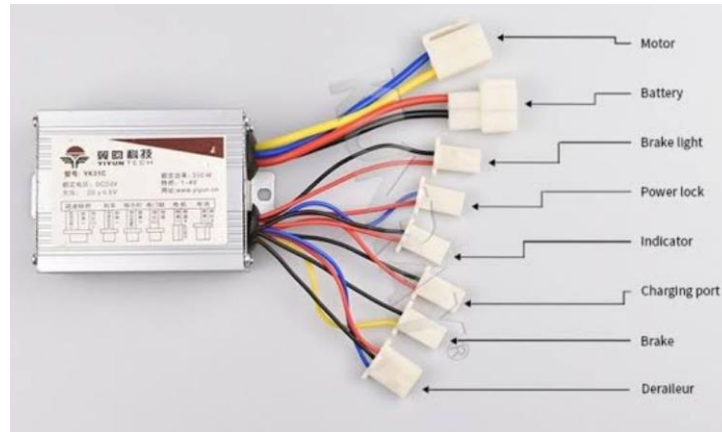
Hub motor

Hub motors are an interesting development which could offer benefits such as compactness, noiseless operation and high efficiency for electric vehicles. These motors have stators fixed at the axle, with the permanent magnet rotor embedded in the wheel. The traditional exterior rotor design has the hollow cylindrical rotor spinning around a stator axle. There is a radial air gap between the stator and rotor. The stator consists of stacked laminated steel plates with wound coils. Pulse width modulated current is used to supply current to the stator.



DC Controller

The controller connects the power source to the motor. It controls speed, direction of rotation, and optimizes energy conversion. While batteries produce constant voltages which decrease as they are used up, some controllers require a DC to DC converter to step down this changeable voltage to the motor's expected constant operating voltage, but other controllers incorporate a DC-to-DC converter and can accept a varying voltage.



Accelerator

The accelerator mode is similar to how a motorcycle operates. When the accelerator is engaged the motor provides power and propels you and the bike forward. It allows you to kick back and enjoy a free ride. Most accelerators can be fine-tuned like a volume dial between low and full power.



Digital Odometer

Digital odometer which will have the google maps for two wheeler mode, it will have fuel switch which will helps it to switch it from petrol to electric and wise versa. As it will also show all the primary functions of odometer like speed, fuel indication and battery percentage.

Micro tyre-inflator

The electric tyre inflator features a 12V electric compressor which efficiently inflates air into the tyre through a knob. The inflator is also provided with an easy to read digital or analog screen which displays the pressure reading.



CONCLUSION

We truly believe after looking at the advantages obtained in terms of economy and reduction in fuel consumption, this kind of vehicle has a scope to be the next generation of two wheeler bikes. by obtaining more data from research done on various sectors consisting of technology such as thermal power plant (in which the main aim is to obtain maximum output in terms of electricity by consuming minimum amount of fuel) and other electric generation systems which are economic and highly developed technology we can derive a better system to be implemented in this kind of vehicle.

The segment of petrol-electric bike is likely to replace the segment of electric bike to reduce the effort of charging the vehicle when parked only. As this vehicle can be charged any time anywhere due to presence of inbuilt internal combustion engine and alternators which act as mini generator.

By fabricating this by bike with low weight alloy body, modern forms of batteries consuming small space with similar backup to the present kind of batteries utilized in automobile and using of specially constructed ic engine with small size, small torque and huge rpm., A more efficient version of Petrol-electric bike can be construed.

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