

Electric Scooty

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ABSTRACT: India is the second largest producer and manufacturer of two-wheelers in the world. It stands next to Japan and China in terms of the number of two-wheelers produced and domestic sales.

Indian two-wheeler industry has got spectacular growth in the last few years. The face of auto industry that was redefined with the invention of fuel-efficient technology is all set to see dawn of a new era in two-wheeler industry.

It's not petrol or diesel or any other fuel, but it is electricity that has initiated a revolution in two-wheeler industry in India.

Indian two-wheeler industry has embraced the new concept of Electric Bikes and Scooters that are very popular mode of personal transportation in the developed countries like America, Japan and China.

So, the electrically charged bikes or scooters have very bright future in area of personal transportation.

Here we introducing an Electric Scooty having three way charging mechanism. This electric scooty uses dc generator for generating power while running, uses solar panel when scooty is at rest and a charger that operates from main power supply for charging the battery. This electric scooty uses 24V 250W brushless direct current (BLDC) hub motor and Lithium ion (Li-ion) battery. The use of BLDC hub motor in the bicycle that avoids the complexity and losses while using the permanent magnet direct current (PMDC) motor. Li-ion batteries are used. Whenever the scooty is robbed or lost through GPS tracker we can easily find it if someone tries to unlock the scooty in any appropriate way, face recognition will capture the photo of the person and it will send the image of that person to our mobile. This feature helps when our scooty is lost. whenever if there is any internal problem in the scooty the accident sensor will gives us an alert, the electricity is stored in the battery, if

the battery is fully discharged then the energy of solar panel is used. electric scooty will be a big advantage to future generations, college going student's, senior citizens can easily have this scooty as this comes at a low cost when compared to other e-bikes.

KEYWORDS:DRP,RAM,ROM,RW,LCD,BCD,A DC,DAC

I. INTRODUCTION

In recent years, environmental problems caused by fuel vehicles and fuel economy become more and more serious. The vehicles of new energy, which is green, environmentally friendly and economical, is an important goal for economic and social development of many countries, but also the future development direction of the vehicle. EV is a vehicle with zero pollution emissions, mileage and fuel vehicles can be mutually comparable electric vehicles. Being an e-scooter, the electric system plays a promising role in its designing and creation. The electric system consists of battery, motor, motor controller and other electronic equipment. The most important thing that electric system does is that it gives power to the motor which helps in the running of the scooter. This energy in form of chemical or electric energy is stored in the battery which is used by a hub motor, thus the electric or chemical energy converted to mechanical energy. A proper electric system is important to ensure driver and vehicle safety in case of collision. The brushless DC (BLDC) motor is fixed to hub of rear wheel of e-scooter. The reason for choosing BLDC motor is its compactness and noiseless operation. So, our main Objectives to design or development an Escooter are as following: -

To reduce running cost of vehicle ii. To reduce the emissions iii. To overcome the draw backs of electric vehicle iv. To increase life period and efficiency of existing scooters.

2. SYSTEM DEVELOPMENT Following are the key components in Electric Scooter: - 1. Battery Charger 2. Battery 3. Motor Controller 4. Motor 5. DC-DC Converter 6. Vehicle Computer and Electronics

II. EXISTING SYSTEM

Ather 450

In a market awash with sub-par Chinese imports, one doesn't have to do much to stand out in the Indian electric two-wheeler space. But just doing the bare minimum and scraping by doesn't really fit into the ethos of Ather Energy, one of the most innovative and ambitious EV start-ups in the nation. We were mighty impressed when we first rode the 450 in Bangalore, even calling it the best e-scooter available in India. But that was just a brief jaunt. To be able to comprehensively assess an EV, you've got to spend a few days with it and see what it's like to live with. We haven't had the opportunity to do so thus far, but Ather rang up with the offer, so we've gone ahead and done it now.

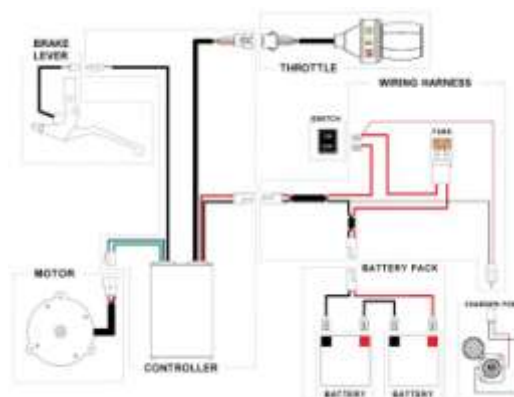


Hero Electric Photon

Hero Electric has continued innovating and developing remarkable products for the EV market in India. There is a lot of potential in India and we are ready for the EV invasion. Companies are recognizing this fact and are working on products and technologies. Keeping in mind the varied needs of customers, it has been our constant endeavor to innovate in the e-two-wheeler category, strengthening the trust of our valued customers. We are confident that the new Hero Electric High-Speed Photon will further augment our growth in the EV segment. The Photon has a high mag-flux with 46 magnetic poles for high efficiency and high torque. The water-proof brushless DC motor with low electro-magnetic interference gives a virtually noiseless ride. The scooter also has electronic controllers with 12 mosfets, 24MHz high-speed controller that gives instant response to the drive-train with minimum signal losses. The Photon's AGM VRLA battery is especially made for the harshest of Indian environmental conditions.

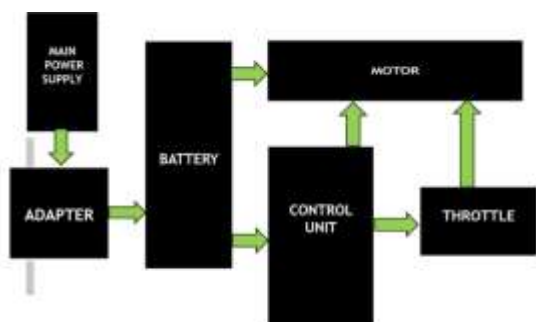


III. MODELING AND ANALYSIS

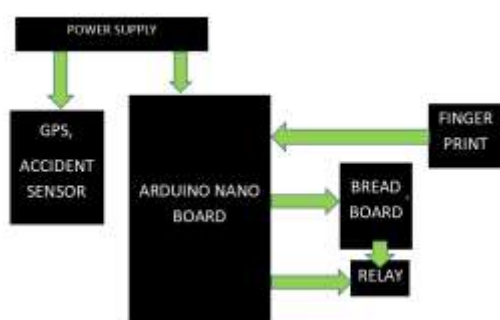


ARCHITECTURAL REPRESENTATION

S.N O.	PARAMETER	RATING	QUANTITY
1	BLDC Hub motor	48v,1000Wt	1
2	Motor controller	48v,15A	1
3	Throttle	-	1
4	Lithium ion battery	48v,10,000Mh	1
5	Battery charger	48v,6A	1
6	Connecting wires	-	60
7	bearings	Diameter=10mm	4
8	Disc brakes	Diameter=160mm, Thickness =5mm	2



BLOCK DIAGRAM I



BLOCK DIAGRAM II

IV. RESULT AND DISCUSSION

Now a days, most of the vehicles used are based of fuel ignition principle for long as well as short run work. Hence, this have been resulting into greater air pollution which is harmful to human being. Thus, proposed paper researched on design and development of EV two-wheeler. This given EV contained a lithium-ion battery of capacity 48v, 25Ah and will charge within 5 hour using charger having capacity 48v, 5A. Thus, EV can be charge up to 1150 to 1200wh using this charger, which will run up to 50 km in single charge with an appropriate speed of 35 to 40 kmph.

Electric scooty is suitable for both city and country roads, that are made of cement, asphalt, or mud. This scooty is cheaper, simpler in construction and can be widely used for short distance travelling. Using of electric scooty can reduce usage of natural resources such as petrol, diesel.

As these e-scooty are of pollution free. so, they will be definitely boon to natural environment and can reduce air pollution and can be operated free of cost.

V. CONCLUSION

Now a days, utilization of fuel vehicles is increased rapidly which result into more air

pollution. To control this, utilization of EV is must because it's several advantages like electric scooter is an eco-friendly product, it is more suitable for city as it can avoid the emission of harmful gases and thereby it can reduce the atmospheric pollution. Due to frequent increase in fuel prices, the electrically charged vehicle seen to be the cheapest one compared to the traditional vehicle. E-scooters are more suitable for rural areas where the numbers of petrol bunks are not adequate, so that the rural people can charge the vehicle with the help of electricity. To understanding the EV technology, this study helps to provide outline of EV (Scooter) and their various components. Electric scooty is suitable for both city and country roads, that are made of cement, asphalt, or mud.

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