MODELING OF ELECTRIC SKATE SCOOTER

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Abstract : . E-Skate Scooter is a concept vehicle driven by DC Motor with 12-24 volts capacity fitted to the back wheel by using timing chain and controller with 24 volts respectively. For power we use two batteries with 7 amp 12 volts rested left and right of the foot board, we hope that this design can be very efficient, cost effective and easy way of produce more numbers.At the end, the model is tested by several people and their comments are recorded and performed some efficiency tests. After test we noticed that the speed of the skate scooter is 20kmph, and battery charging capacity 2 hours

Index Terms **– CAD, CATIA, E-BIKE, Quick Release Lever, Electric Skate Scooter, Aerodynamic Drag**

I. INTRODUCTION

A kick skate scooter or push scooter or scooter is a human powered street vehicle with a handlebar deck and wheels propelled by a rider pushing off the ground. The most common scooters today made up of aluminium titanium and steel. Some kick scooters that are made for younger children have 2 or 3 wheels and are made of plastic or don't fold. High performance racing scooters are made for adults resemble the old "penny farthing

Motorised scooters, historically powered by gas engine, and more recently electric motors, are self propelled kick scooter capable of speeds of around 30 KMPH (19mph). The electric skate scoter is an eco friendly vehicle, which is used in the city streets, shopping malls and for small distances. It is mainly used in soft areas because the tires of the scooter are made up of rubber so it is used only in the soft areas. The electric scooter is run by using a DC Motor, battery, control unit, speed controller. They are popular in urban areas, and are used as an alternative to bicycling or walking.

Fig. 1.Model Skate Scooter

II. MODELS & HISTORY

Unlike a kick scooter, a bicycle has a seat and drive train, which add speed, cost, weight and bulk. A folding scooter can be more easily carried than a folding bicycle or even a portable bicycle. Even a non-folding scooter is easier to maneuver between obstacles, as there are no protruding pedals. Thus a cyclist has advantages in longer journeys and open spaces, and a kick scooter in shorter and more crowded ones. Kick scooters seldom have a luggage rack, so the rider usually carries any cargo on their back. At low speeds a bicycle is difficult to control while pedaling, which is why cyclists occasionally kick their way through dense traffic or in other conditions where they cannot take advantage of the speed of their machine. Thanks to the superior low-speed stability of a kick scooter, it is allowed on many footpaths where riding a bicycle is forbidden.

Model of skate scooter.

Old model skate scooter

Kick Go & Space scooter

Pro Scooter

Fig. 2. Various models of Electric Skate Scooter

III. DESIGN

Design of electric skate scooter is first done by free hand drawing as per dimensions. The rough sketch of an electric skate board shown below.

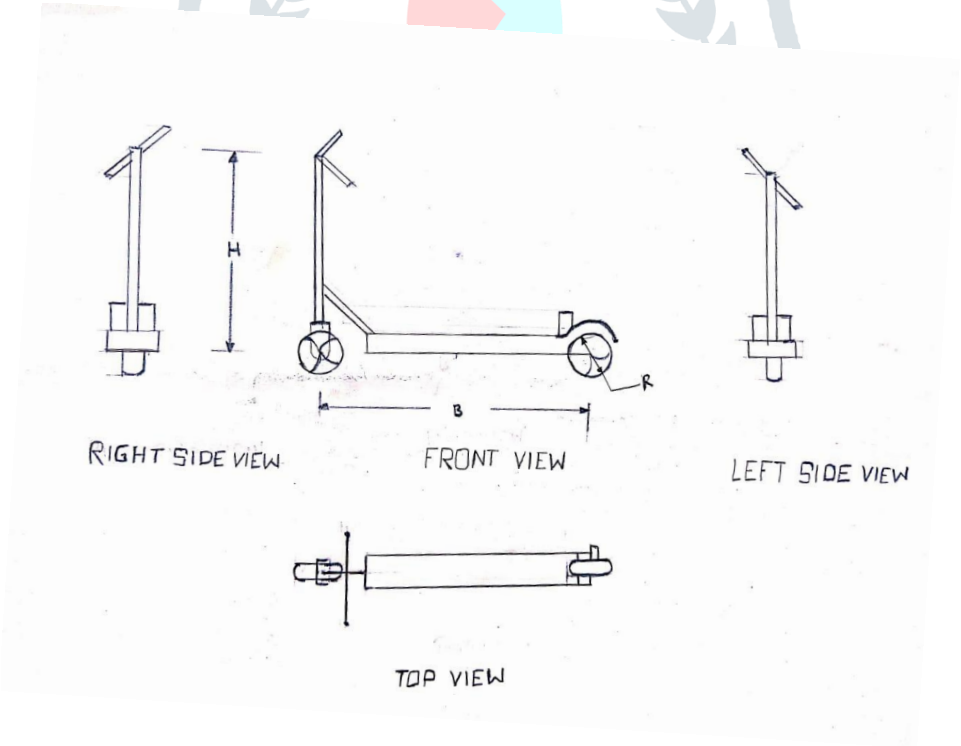

Fig. 3. Pencil Sketch of an Electrified Skate Scooter

3.1 Folding mechanism

The skate scooter folding mechanism is observed on already available skate scooter and designed the folding mechanism for easy folding and unfolding of electrified skate scooter. The designed folding mechanism shown below.

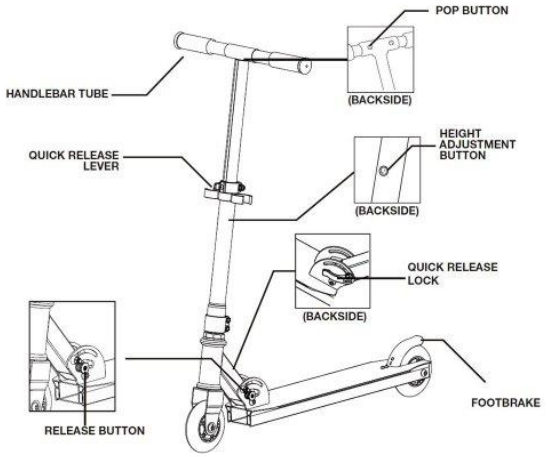

Fig.4. Folding Mechanism of an Electric Skate Scooter

3.2 CAD DESIGN

Electric skate board is designed on CATIA V5 R20. Designed orthographic views of an electric skate board are shown below.

Fig. 5. Design Views of an Electric Skate Scooter

IV. RESULTS AND DISCUSSION

Designed Electric skate scooter is able to carry a load up to 100kgs.The charging capacity of skate scooter is good because it is designed to have a less weight and less aerodynamic drag. If we keep charging to charge two batteries it can travel up to 25 to 50 kms distance easily with a speed of 20 to 30 kmph. It is easily controlled. Even small kids are also able to drive the scooter. It is able to fold and can easily carry by a single person.

V. CONCLUSION & FUTURE SCOPE

As it is beneficiary to go for electrical energy than any other non-renewable resources of energy. E-Bike plays a vital role in the system of Internal Transportation to reach short distances. The project design is the coolest and the most efficient in present e-vehicles. This is the most economical and maintenance free compared to other vehicles presently being used for internal city transportation. The fabrication time to electrify Bike is very less, using simple components. E-Bike will give its best in efficiency, load, speed, standby, durability. Be ready to ask questions to the many curious onlookers who are interested in what you are riding and how it works! "Choose an electric bike and change the way of your life".

The future of electric skate scooter looks promising in India, but the major factor that can lead to the success of such products is the cost it comes with. As said earlier, the majority of the price of such products depends on the cost of the battery pack. This battery packs used to cost at least twice of the present price, which we believe will come down in the future. Lots and lots of technologies are coming every now and then to built the future of such products

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