

AUTOMATED TRICYCLE FOR HANDICAPPED: A REVIEW (New Approach)

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1. ABSTRACT:-

In a customer based nation like India, where individuals are brimming with exercises there are a few people who are abandoned unaided. Out of the aggregate World populace, 15% individuals are physically crippled. As need is the mother of creations, in addition with a want to help the physically impaired individuals, we headed towards building up a multipurpose double power working tricycle. The tricycle would chip away at electric power alongside sun oriented power. India is the principal nation to set up service of non-ordinary vitality assets and getting a normal force of sun oriented radiation 200KW/km². It is an achievable other option to non-renewable energy sources like Petrol and Diesel. The outline objective is to build up a basic and reasonable plan with Physical Energy, Electric Energy and Solar Energy, it is dependable, maintainable, eco-accommodating, simple to deal with, convenient and utilitarian. The objective of the Smart Tricycle is to convey expanded versatility to crippled Persons. Hand-controlled tricycles utilization of huge numbers of the debilitated in our group, yet some present clients of the hand-fueled tricycles don't have the physical quality or coordination to push themselves on the tricycle with their arms and hands. The point of this task is to include an electric power prepare and control framework to the present hand-fueled tricycle to give tricycle clients enhanced levels of versatility, encouraging flexibility in movement and commitment to the group.

2.INTRODUCTION:-





For the developing number of individuals utilizing individual portability gadgets, advancement of gadgets that address their interesting needs are major to their personal satisfaction. Electric vehicles, which utilize 100% electric power, utilize electric engines rather than an inward burning motor to give the thought process constrain. Sun powered fueled vehicles (SPVs) utilize photovoltaic (PV) cells to change over daylight into power. The power goes either straightforwardly to an electric engine driving the vehicle, or to a unique stockpiling battery. PV cells create power just when the sun is sparkling. Without daylight, a sunlight based controlled auto relies upon power put away in its batteries. In condition of utilizing an auto or bike that is expensive, individual will be liked to utilize tricycle as their vehicle. There a few sorts of tricycle that can be picked, for example, paddle tricycle, mechanized tricycle and electric tricycle. The present clients of the hand-fueled tricycles don't have the physical quality or coordination to push themselves on the tricycle with their arms and hands. This undertaking will build up a superior tricycle. As India is situated in the subject of Capricorn zone, this undertaking will make utilizing the vitality of the sun that once in a while utilized as a part of India to create the tricycle. In the event that we observe on the traditional tricycles, to begin with, paddle tricycle needs a great deal of vitality to paddle the tricycle. The client will without a doubt be drained in the wake of utilizing the tricycle. Next, mechanized tricycle that utilized fuel as its prime mover.

The tricycle utilizes fuel that is expensive. Other than that, mechanized tricycle will make contamination that can be terrible for our condition, particularly in this period that an unnatural weather change happen to the earth. Ultimately, electric tricycle that creates by battery can be just be adequate for around 60 minutes. The client needs to discover a power supply to energize the battery or else they have to paddle the tricycle that utilized more vitality contrast with the typical tricycle on account of the weight. The objective of the Solar Electric Tricycle Project is to convey expanded versatility to debilitated people. The point of this task is to include an electric power prepare and control framework to the present hand-controlled tricycle to furnish tricycle clients with enhanced levels of portability, encouraging flexibility in movement and commitment to the group. The outline goals required a straightforward and reasonable plan for the power prepare and controls, a plan that should have been dependable, supportable, and utilitarian. As Solar vitality is the main wellspring of sustainable power source which can be an achievable other option to petroleum product.

In this work a sunlight based power tricycle is created by adjusting every outfitted bike. This sun based base tricycle is convenient. It is simple for impeded individuals. This impaired tricycle is absolutely eco-accommodating, diverse electronic control framework, simple to deal with and convenient.

Enumeration 2001 has uncovered that more than 21 million individuals in India as agony from either sort of incapacity. This is proportional to 2.1% of the populace. Among the completely handicapped in the nation, 12.6 million are guys and 9.3 million are females.

3.MARKET REVIEW: - Details according to the Census, India 2011

Disabled Population by Sex and Residence

India, 2011

Residence	Persons	Males	Females
Total	26,810,557	14,986,202	11,824,355
Rural	18,631,921	10,408,168	8,223,753
Urban	8,178,636	4,578,034	3,600,602

Table No. 1.

Percentage

Proportion of Disabled Population by Type of Disability India : 2011			
Type of Disability	Persons	Males	Females
Total	100.0	100.0	100.0
In Seeing	18.8	17.6	20.2
In Hearing	18.9	17.9	20.2
In Speech	7.5	7.5	7.4
IN MOVEMENT	20.3	22.5	17.5
Mental Retardation	5.6	5.8	5.4
Mental Illness	2.7	2.8	2.6
Any Other	18.4	18.2	18.6
Multiple Disability	7.9	7.8	8.1

Table No. 2.

TARGET IS THE DISABILITY IN MOVEMENT

4. PROPOSED PROJECT:-

With a specific end goal to help the physically crippled individuals we have composed a multipurpose tricycle. The tricycle accessible in the market has a ring or a handle to be pivoted for its development. There is electric and mechanized wheelchair alongside sun powered wheelchair. Our tricycle takes a shot at DUAL POWER triple mode, i.e. Sunlight based and also

electric power alongside the oar. The handle slowing mechanism and foldable sun based board is connectable separable. The size is variable/customizable as per the prerequisite with a rough cost 20000 INR. It is light in weight and weighs 40kg barring individual's weight. It goes with a speed of 30 Km/hour.

5. PROJECT OBJECTIVES and SPECIFICATION:-

- To build up a vehicle that utilizes Renewable Energy.
- To propel the Tricycle that can be energized notwithstanding when going by utilizing sunlight based boards.
- To outline a Tricycle that deals with throttle to limit the human exertion.

$$\text{Tricycle Weight} = 40 \text{ Kg}$$

$$\text{Individual's Weight} = 100 \text{ Kg (Approx)}$$

$$\text{Add up to Weight} = 40+100= 140 \text{ Kg}$$

$$\begin{aligned} \text{Ordinary response on each wheel} &= \text{Weight of Tricycle/Number of Wheels} \\ &= 40/3 \\ &= 13.33 \text{ Kg} \end{aligned}$$

$$\text{Power Requirement} = 326 \text{ W}$$

$$\text{Battery Voltage} = 24 \text{ V (12 Volts, 2 Nos.)}$$

$$\text{Power} = V * I$$

$$I = P/V$$

$$= 326/24$$

$$= 13.58 \text{ Ah}$$

Electrical

$$\text{A.C. Adapter} = 12 \text{ V, 12 A}$$

Add up to Time required for finish battery charging

$$P = V * I$$

$$= 12 * 12$$

$$\begin{aligned} &= 144 \text{ W} \\ \text{Time} &= 288/144 \\ &= 2 \text{ Hrs.} \end{aligned}$$

6. INPUT and OUTPUT SPECIFICATION:-

Battery Charging Time through A.C. Mains-2hrs.

Braking Mechanism-

At the point when Brakes are connected yield to the engine 0V

When Running-24V

Throttle

Throttle at Normal position= 0V

Throttle at full speed= 24V

Head Lamp = 12V

Horn = 12V

Framework Specifications

Mechanical Specifications

Most extreme speed: 28 km/HR.

Weight: Chassis 40 Kg.

Load Capacity: 90 kg.

7. PROPOSED DESIGN:-

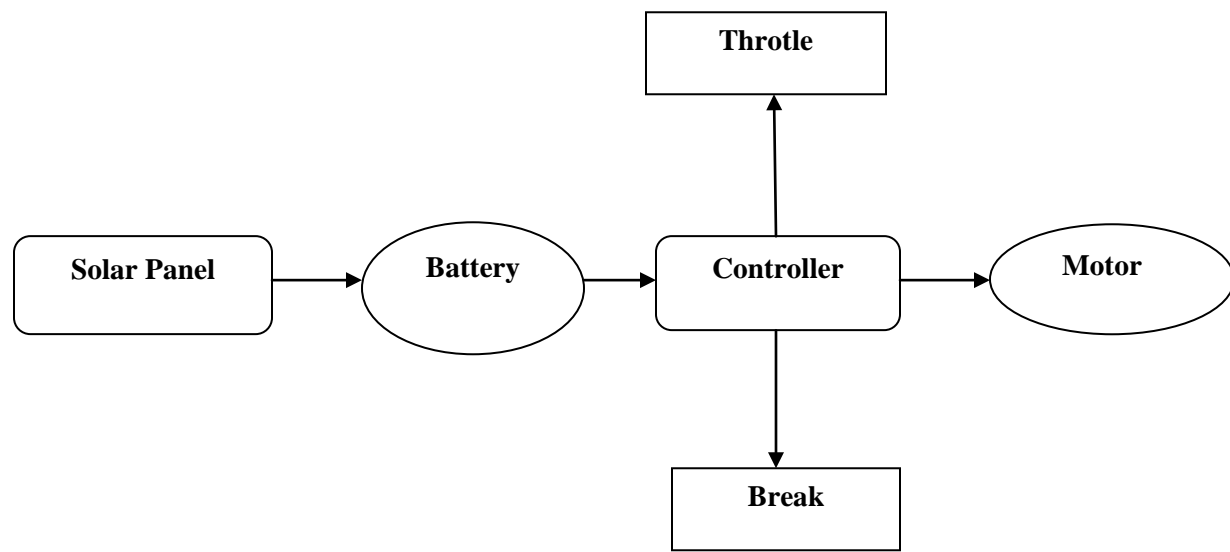


FIG.NO. 2. Piece DIAGRAM OF AUTOMATED TRICYCLE

8. ADVANTAGES:-

- 1) Use of Renewable Source of Solar Energy
- 2) Eco benevolent Model
- 3) Attachable and separable course of action of sun powered board and handle.
- 4) Use of throttle course of action to decrease manual endeavors.
- 5) Use of assistance declaration framework, when in trouble.
- 6) Dual Power utilization, i.e. sun based and in addition electrical
- 7) Comfortable
- 8) Cost compelling.
- 9) Efficient
- 10) Flexible
- 11) Light in weight
- 12) Easy to work

9. APPLICATIONS:-

- 1) Travel for nothing with the energy of the sun.
- 2) Provides free, 'green' transportation for short separations (<10 miles), along these lines it should never connect to a divider attachment, produce any toxins.
- 3) Charges while at work
- 4) Is shoddy, basic and low upkeep.

5) Draws consideration regarding the training.

10. CONCLUSION:-

The general planning of the Smart Tricycle is finished with the view to give greatest conceivable offices to its client the incapacitated individuals. Robotization by Solar Power, solace and wellbeing get most extreme need in outlining. Different attractions of this Smart Tricycle are adaptable and particular planning. In light of adaptability and seclusion in configuration, wanted adjustment (change of wheels, handle, and sun based board) if necessary, can be effectively done to get together any individual prerequisite. Despite the fact that it is sun powered worked however it can likewise be accused of network power if wanted. We have chipped away at the circuit graph and segment choice in the task. At last, it is critical that Smart Tricycle isn't just condition well disposed transport for crippled individuals yet in addition keep the auxiliary handicaps as auto control transport. Thus, it is an entire answer for portability of the impaired individuals of the Society.

11. REFERENCES:-

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