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SOLAR POWERED ELECTRIC CYCLE

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ABSTRACT :

With the increasing demand for sustainable transportation, the Solar-Powered Electric Cycle emerges as an innovative and eco-friendly alternative to conventional bicycles and electric vehicles. This system ensures effective energy use for both urban and rural mobility by combining photovoltaic (PV) solar panels, an electric motor, a control unit, and a rechargeable battery. The cycle lowers reliance on outside power sources, which lowers carbon emissions and electricity costs by utilizing solar energy.

Sunlight is captured by solar panels attached to the cycle or an external solar charging station, which then transform it into electrical energy that is stored in a lithium-ion battery. A brushless DC (BLDC) motor, which is powered by this stored energy, improves propulsion with little effort. Including a battery management system (BMS) increases overall efficiency, avoids overcharging, and optimizes charging cycles.

INTRODUCTION

An electric bicycle that boosts performance and range by combining conventional pedaling with solar energy is known as a solar-powered electric cycle. These bicycles have solar panels that absorb sunlight and transform it into electrical energy. The panels are usually integrated into the design or mounted on the frame. This energy lessens the need for traditional electrical sources by either immediately charging the bike's battery or supplying additional power to the motor.

METHODOLOGY

The Cycle has four main parts i.e. the PMDC motor, solar panels x2, lithium ion battery and controller , assembling all these four units with proper guide manual , We made this a reality.

WORKING

The working of our solar powered electric cycle is simple because the only motto of the cycle is to travel from one place to another i.e. the motor powered by the battery rotates the rer wheel of cycle resulting in the forward motion of the cycle and the battery chrges by the solar panels itself

PROBLEM STATEMENT

As we know the pollution nowadays is at its peak, our project can be a small contribution towards reducing air pollution, noise pollution, traffics etc. Shifting towards electric vehicle is a need of humans now

PROPOSED SOLUTION

Here`s is the proposed solution of the solar powered electric cycle.
So to reduce pollution or places where traffics occurs frequently or the people who need to travel nearby can use this . This is a perfect solution for them and we have many future scopes in this.

KEY FEATURES / INNOVATIONS

Our costing is very less and economical. We can setup battery stations to replace batteries as fast as we can. We have done advancements in the batteries such as increased capacity, heat resistant etc.

IMPACT OF SOLUTION

Our model can provide a complete noise free ride to the rider and it will significantly reduce the air pollution, noise pollution and traffics. Making our air breathable and nurturing our mother earth

2D HAND DRAWN SKETCH OF SOLAR POWERED ELECTRIC CYCLE

CONCLUSION

An important step toward environmentally friendly and sustainable transportation is the solar-powered electric cycle.
It provides an effective mobility option for both urban and rural locations, lowers running expenses, and lessens reliance on fossil fuels by utilizing sola r energy.
It is the perfect choice for areas with limited access to energy because it can be charged straight from sunshine. Its lightweight and effective design also guarantees that it is appropriate for everyday commuting, deliveries, and leisure activities.
Notwithstanding the benefits, issues such restricted solar power generation and battery storage limitations still exist.
Nonetheless, improvements in battery and solar panel efficiency keep making it more feasible. The solar-
powered electric cycle is a promising invention that fits with the future of green mobility, especially in light of growing worries about the impact on the environment and rising fuel prices.

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