INDUSTRIAL PROPERTY ACT CAP. 224

Utility Model

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(54) Title of invention **CHAINLESS DUAL SOLAR AND ELECTRIC TRICYCLE**

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(56) Documents cited

(58) Field of search

(57) **Abstract**

Disclosed herein is a hybrid energy chainless electric tricycle comprising a rigid structural chassis base [3], a cargo cabin [6] with a secure back door, and a direct-drive powertrain that completely eliminates mechanical chains. The vehicle is powered by a hybrid energy system comprising a rooftop photovoltaic solar panel array [2], a lithium-ion battery pack[4][4], and an electronic controller [8]. The electronic controller dynamically samples energy data metrics at a frequency of 10 Hz. It automatically switches system operations between a solar charging priority state, a dual battery-solar supply delivery state, and a closed-loop regenerative braking recovery state using a rear transaxle brushless direct-drive motor [7]. An aerodynamic solar mounting frame secures the rooftop solar panel array [2] at a fixed downward angle of 12°

relative to the horizontal roof plane to reduce drag. The tricycle achieves a maximum payload capacity of 1000 kg, a forward velocity of 76 km/h, and an operational driving range of 250 km through continuous solar tracking replenishment and programmed electronic torque-map calibrations. Illumination for night operations is provided by a front light bulb [1].

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