

Electrical Vehicle Garbage Carrier

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Abstract: *Battery electric vehicles (BEVs) are a critical pathway towards achieving energy independence and meeting greenhouse and criteria pollutant gas reduction goals in the current and future transportation sector. Emerging connected and automated vehicle (CAV) technologies further open the door for developing innovative applications and systems to leverage vehicle efficiency and substantially transform transportation systems.*

Keywords: Lead acid Battery, controller, BLDC motor, Mechanical equipment's

I. INTRODUCTION

All vehicles that are in the market cause pollution and the fuel cost is also increasing day by day. In order to compensate the fluctuating fuel cost and pollution at large, an alternate remedy is needed in transporting system. Due to ignition of the hydrocarbon fuels, in the vehicle, sometime difficulties such as wear and tear may be high and more attention is needed for proper maintenance. Electrical vehicle is easy to handle with no fuel cost. Since the last two decades the judiciary and policy makers all over the world are deeply concerned about the urgent need for protection of the environment, ecology and humanity at large, there has been a steep rise in the accumulation of greenhouse gases particularly CO₂, which affect global changes in weather. Motor vehicle contribute at 14% of CO₂ from all sources besides, pollution due to both petrol and diesel engine driven vehicles caused by the emission of CO, unburnt hydrocarbons, particulate and oxides of tetra ethyl, Lead cause injury to health and environment. So, in this project work an attempt is made to model an ELECTRICAL VEHICLE FOR GARBAGE CARRIER is made with simple operating mechanism.

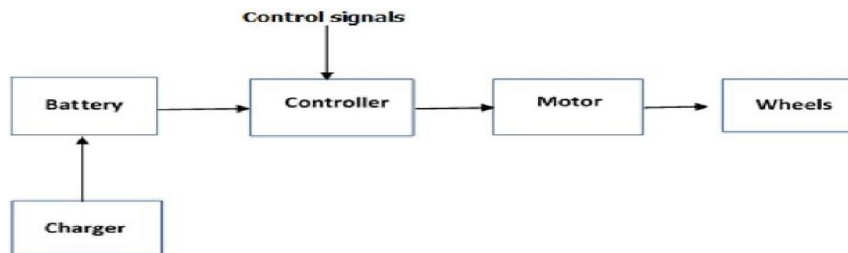
II. PROJECT CONCEPT OF ELECTRICAL VEHICLE GARBAGE CARRIER

The BLDC motor is energized by lead- acid battery. Accelerator consist of a varistor. The varistor output wills according to the acceleration and this output will fed to the controller. The signal from the accelerator is the reference signal. The hall sensors mounted on the BLDC Motor will provide the actual speed of the motor. These two signals are compared in the controller and the power output from the chopper drive is varied. The signal from the chopper is fed back to the motor. According to the power output from the chopper drive the motor speed can be controlled.

III. COMPONENTS REQUIRED

Name of the Component	Quantity
BLDC MOTOR	1
CONTROLLER	1
BATTERY (12V,9A)	5
HEAD LIGHT, HORN	1 each
ACCELATOR	1
DISC BRAKE	1
WHEELS	3

IV. BLOCK DIAGRAM AND WORKING



The BDLC motor detects the position of the rotor using Hall sensors. Three sensors are required for position information. With three sensors, six possible commutation sequences could be obtained. In the Hall sensor technique, three Hall sensors are placed inside the motor, spaced 120 degrees apart. Each Hall sensor provides either a High or Low output based on the polarity of magnetic pole close to it. Rotor position is determined by analyzing the outputs of all three Hall sensors. Based on the output from hall sensors, the voltages to the motor's three phases are switched. The advantage of Hall sensor-based commutation is that the control algorithm is simple and easy to understand. Hall sensor-based commutation can also be used to run the motor at very low speeds.



Figure 2: Output Model

V. ADVANTAGES OF ELECTRICAL VEHICLE GARBAGE CARRIER

- **Eco-friendly and Quiet:** Solar-powered vehicles have zero emission level, as they don't utilize non-renewable resources and burn fuel. The electric motors generate electricity that doesn't emit any greenhouse gases or any other pollutants. These cars are quieter than the vehicles powered by conventional fuels, which don't cause noise pollution as well.
- **Energy Availability:** Charge controller cars derive their power from the sun, indirectly, that always shines and provides endless energy. The efficient Charge controller panels can produce and store more horsepower for the vehicle.
- **No Fuel Costs:** Unlike the conventionally vehicles, Charge controller vehicles have no fuel costs and a low cost of maintenances
- **Driving Comfort:** Having aluminium and lightweight components, the solar-powered cars run faster and more smoothly than petrol and diesel engine vehicles

VI. CONCLUSION

This project is an attempt to eliminate our dependency on foreign oil and reduce the tailpipe emission from automobiles and this was an attempt to design and implement this new technology that will drive us into the future. Use of production Electric garbage vehicle will no smog-forming pollutants over the current national average. The first car on the market will cut emissions of global-warming pollutants by a third to a half and later modes may cut emissions by even more.

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