Int. J. Sci. R. Tech., 2026 3(5)
A Multidisciplinary peer-reviewed Journal
www.ijsrtjournal.com [ISSN: 2394-7063]

Original Article

Design And Devlopment Of Motorized EV Sprayer Cart

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ABSTRACT

The Motorized EV Sprayer Cart is an creative land support system created to boost the effectiveness, safety, and ease of poison and manure spraying movements. Traditional manual spraying methods are labor-exhaustive, behind, and frequently reveal farmers to hurtful projectiles for weaponry. This project intends a battery-stimulate energetic car (EV) cart integrated accompanying a power-driven spraying device to reduce human exertion and increase sprayinginclusion. Bureaucracy exists of a rechargeable battery, energetic drive engine, framework-mounted spray container, pour, nozzle congregation, and control part. The energetic motor capacities the cart for motion across land fields, while a separate tap engine drives the spraying process. The fine mist can distribute pesticides, herbicides, or fertilizers evenly over crops, guaranteeing persuasive plant protection and fiber childbirth. The use of electric capacity create bureaucracy eco-friendly, economical, and appropriate for limited and medium-scale farmers.

Keywords: Sprayer Cart, Bureaucracy, childbirth, eco-friendly, economical.

INTRODUCTION

Farming is the determination of many developing countries. Ranchers must automatically spray chemicals in the way that pesticides and fertilizers to assert athletic crops. Traditional spraying systems include manual knapsack sprayers that demand laborers to accomplish tanks weighing 15-20 kg on their shoulders.Manual spraying has various hurts:High hard workBehind process Spotty spraying of chemicals Strength risks on account of chemical uncovering Accompanying the happening of electric instruments and computerization technologies, narrow power-driven carts maybe designed to assist producers. The power-driven EV sprayer cart is an creative answer that reduces manual labor and betters spraying effectiveness.This arrangement consists of a narrow energetic cart powered by DC gear motors and a assault pack. The cart bears the fine mist tank and moves certainly by way of wheels. The farmer can guide the cart while the engine supports campaign.The system is devised expected simple, inexpensive, and smooth to claim so that narrow ranchers can easily select it.

LITERATURE REVIEW

Many investigators have studied land computerization and electric cabs for farming purposes. Energetic fine mist systems have happened developed to help spraying adeptness and reduce manual exertion.Earlier arrangements for the most part used manual pumps or oil engines. Oil motors produce noise, contamination, and require frequent sustenance. Energetic motor methods are becoming more favorite cause they are quieter, detergent, and energy-effective.

1.2 Objective of the project 2

The main aims of evolving the motorized EV fine mist cart are:To lower the hard work necessary for agricultural spraying.To enhance spraying adeptness and inclusion.To develop a cheap energetic jeep for laborers.To design a compact and lightweight land cart.To supply a artillery-stimulate eco-friendly resolution.

2. ADVANTAGES

Reduces producer fatigueSaves period and laborEnvironment companionable (no fuel necessary)Low sustenance costSmooth to run

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

parameter	specification
Vehicle type	Motorized electric sprayer cart
Drive system	Electric motor driven
Battery voltage	12 v 14 ah
Total load	45 kg
Spray range	3-5 meter
Battery capacity	10ah-14ah
Wheel size	12 inch to 14 inch

Table -1: specifications of motorized ev sprayer cart

DC tools motor is a kind of electric motor that combines a general DC motor with a gearbox. This integration allows for extended torque output and reduced rational speed, which makes it appropriate for programs that require excessive torque and specific output.

DC tools motor consists of a permanent magnet or electromagnet stator and a matu wound with the coil. while an electric powered curre flows thru the armature coils, it creates magnetic area that interacts with the stator and generates torque that reasons the armature to rotate.

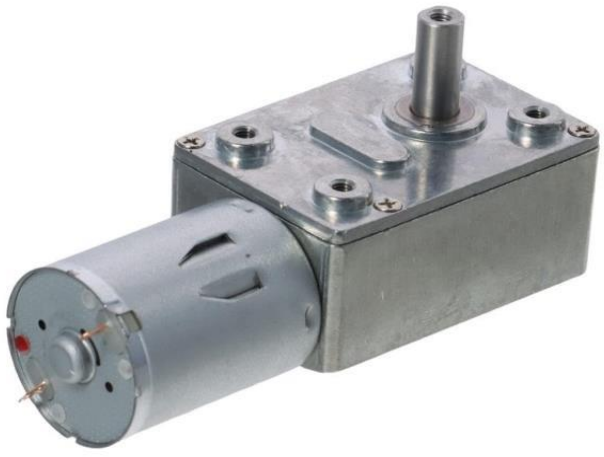

Chart -1: Dc gear moter

A 12-volt battery in a motorized electric powered car (EV) sprayer cart acts as the primary electricity source for the electric pump, which converts electric energy into the mechanical strain had to propel liquid through a nozzle. these systems usually use both Sealed Lead-Acid (SLA/VRLA) or Lithium-ion batteries to offer constant, continuous spraying without the guide physical stress of conventional pump sprayers.

Fig -1: **Battery 12 volt**

Sealed Lead-Acid (SLA/VRLA): these are the same old, budget-friendly alternatives. they're robust and vibration-resistant however substantially heavier than lithium options.

Lithium-ion (Li-ion/LiFePO4): favored for professional or frequent use, those batteries are a lot lighter (~1.2 kg in comparison to ~four-five kg for lead-acid) and offer up to 3x longer lifespan. additionally they charge faster, normally in 3-four hours.

Absorbent Glass Mat (AGM): A specialised, spill-evidence lead-acid version that is fantastically proof against surprise and vibration, making it ideal for rough terrain.

CONCLUSION

The power-driven EV sprayer cart is a beneficial change for farmers. It reduces physical labor and improves effectiveness in spraying movements. The system is inexpensive and environmentally intimate. It can be surely manufactured utilizing plain mechanical and energetic components.Accompanying further betterings such as

cosmic taxing and remote control movement, the system can enhance even more effective.

APPLICATION

Land pesticide sprayingManure and herbicide requestGarden and plantation sprayingFlowers and nursery supportPublic sanitization spraying.

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HOW TO CITE: Gaurav Ganesh Tibile*, Aditya Sardar Patil, Tejas Arvind Powar, Rushikesh Uday Kumbhar, Vajad Mullani, Design And Devlopment Of Motorized EV Sprayer Cart, Int. J. Sci. R. Tech., 2026, 3 (6), 1075-1077. https://doi.org/10.5281/zenodo.20733085