

Adaptive Harvesting Cart

ID: 2024-051

Executive Statement:

An innovative self-driving cart designed to improve efficiency and reduce worker fatigue in crop collection tasks.

Technology Overview:

The Adaptive Harvesting Cart is a self-driving, solar-powered agricultural invention that allows workers to perform tasks such as planting, transplanting, weeding, pruning, and harvesting with minimized physical strain. Workers lie prone on a platform, controlling the cart's navigation with hand positions, while the cart's machine vision and feedback control system adjust its position to optimize task performance.

Key Advantages:

- Significantly reduces worker fatigue by minimizing the need for walking and bending
- Enhances task speed and simplicity through automatic navigation controlled by hand positions
- Uses solar power, reducing operational costs and environmental impact
- Includes weather protection and adjustable racks for increased comfort and efficiency
- Fills a market gap for crops requiring intensive labor, such as saffron and asparagus

Problems Addressed:

- Physical exhaustion from constant bending and walking in agricultural tasks
- High operational costs and complexity of fully autonomous harvesters
- Lack of efficient harvesting solutions for certain labor-intensive crops

Market Applications:

- Agricultural technology sectors, particularly for small to mid-size farms
- Robotic trade shows to showcase innovation and practicality
- Commercial farming sectors across the US, Europe, and Asia, with a focus on labor-intensive crops