Software Of Predictive Scheduling For Crop-Transport Robots Acting As Harvest-Aids During Manual Harvesting

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ABSTRACT

Researchers at the University of California, Davis have developed an automated harvesting system using predictive scheduling for crop-transport robots, reducing manual labor, and increasing harvesting efficiency.

FULL DESCRIPTION

The technology is designed for more efficient fruit harvesting. It is composed of mobile robots, instrumented carts, and a predictive scheduling server. The mobile robot system transports filled harvesting containers from pickers on the field to collection stations, while providing pickers with new empty containers. Pickers' container needs are predicted by the scheduling server, which optimizes coordination of the robot fleet. The carts send real-time location and harvested crop weight data to a field computer. The system increases harvesting efficiency by reducing pickers' non-productive walking times.

APPLICATIONS

- Agricultural field harvesting, specifically for fresh market fruits.
- Logistics and transportation for other types of field operations.
- Possible adaptation for use in other industries that require real-time data transmissions and predictive scheduling.

FEATURES/BENEFITS

- Significantly reduces non-productive walking time of pickers.
- Enhances harvest efficiency with limited resources. Eliminates the need of 'teaching' or training the robots.
- Autonomous robot operation with real-time data transmission.
- Simulator included for testing and visualizing the system's performance.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

labor, harvest, collaborative robots, transport, scheduling

CATEGORIZED AS

- **Agriculture & Animal Science**
  - Processing and Packaging
- **Computer**
  - Other
  - Software
- **Transportation**
  - Other
- **Engineering**
  - Robotics and Automation

RELATED CASES

2022-504-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Programmable System that Mixes Large Numbers of Small Volume, High-Viscosity, Fluid Samples Simultaneously

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