

Equipment

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Project Title:
Investigating Teleoperated Equipment
for Use in Caltrans Operations

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Investigating Teleoperated Equipment for Use in Caltrans Operations

Investigating the operations of non-line-of-sight remote control technology for Caltrans operations.

WHAT IS THE NEED?

Advances in the field of teleoperated / autonomous vehicles has shown potential for new and innovative applications that could change how State Departments of Transportation (DOT's) maintain roadways and roadside vegetation, and roadway and roadside construction, among other operations. Mowing of medians and right-of-way is an important vegetation management practice for Caltrans, but it is labor intensive and requires expensive and specialized equipment.

With the advent of teleoperated/ autonomous vehicles, it may be possible to reduce worker's exposure and risk by utilizing driverless tractors for mowing operations. In addition, cost savings are also possible by utilizing one operator to control more than one mower.

WHAT ARE WE DOING?

The research will assess ease of use, safety, and appropriateness of non-line-of-sight, remote control/autonomous technology for Caltrans maintenance operations. The project tasks include:

1. Literature Review
2. Draft Specifications/Requirements
3. Assess and Verify Industry Capability
4. Caltrans demonstration

WHAT IS OUR GOAL?

The goal of this study is to demonstrate in the field, a vehicle capable of meeting the requirements for teleoperated / autonomous vehicles as requested by the Division of Equipment.



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California's transportation system

WHAT IS THE BENEFIT?

The benefit of this research to California is increased worker safety. Implementation of this technology would allow a maintenance worker to control the vehicle (i.e., mower in this instance) from a safer location while mowing “steep” grades along the state right of way. Furthermore, labor costs may be reduced by having one operator controlling multiple mowers.

WHAT IS THE PROGRESS TO DATE?

A Preliminary Investigation has been completed which found that little if any work was on-going to benefit the Division of Equipment requirements. In response to an RFP, the decision was to fund a research project as described above to assess the potential for Industry to deliver an implementable solution for the Division of Equipment.

The project officially began in December 2021. The kick-off meeting was held on January 6, 2022.

IMAGES



Image 1: Autonomous CaseIH Magnum tractor at the Farm Progress Show in Boone, Iowa



Image 2: Farmer with digital tablet controls an autonomous tractor

How a drone tractor works

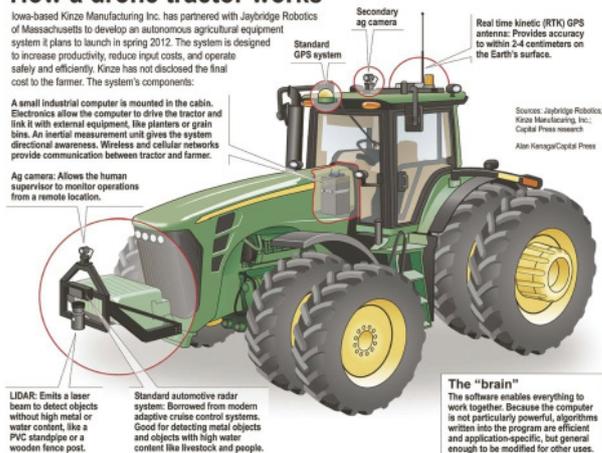


Image 3: Teleoperated remote control tractor

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