

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 have shown potential for new and innovative applications that could change how State Departments of Transportation (DOTs) 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 is labor intensive and requires expensive and specialized equipment.

With the advent of teleoperated/autonomous vehicles, it may be possible to reduce worker 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 Caltrans Division of Equipment.



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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. In addition, labor costs may be reduced by having one operator controlling multiple mowers.

WHAT IS THE PROGRESS TO DATE?

The researchers completed the assessment of industry capability. Discussions were completed with vendors interested/available to participate in the demonstration. Demonstration occurred at the California Highway Patrol (CHP) Academy in West Sacramento on June 20, 2024, to showcase an autonomous mower developed by Industry. Attendees included representatives from CalSTA, CHP, DMV, and associated Caltrans Divisions. The purpose of the demonstration was to educate and support the dissemination of information on the importance of the future use of such technologies. The researchers are working to complete the final report, the expectation is to be completed by the end of this year.

Website: https://www.youtube.com/watch?v=X9stc_5hAJs

IMAGES



Image 1: Autonomous Mower



Image 2: Example of Vulnerable Road User Obstacle at Demonstration