



RESEARCH PROJECT CAPSULE [16-4ST]

July 2016

TECHNOLOGY TRANSFER PROGRAM

Over Height Impact Avoidance and Incident Detection System

JUST THE FACTS:

Start Date:
July 1, 2016

Duration:
24 months

End Date:
June 30, 2018

Funding:
SPR: TT-Fed/TT-Reg

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POINTS OF INTEREST:

*Problem Addressed / Objective of
Research / Methodology Used
Implementation Potential*

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PROBLEM

During the construction and repair of bridges, work platforms or construction-related containment may result in restricted vertical clearances at a work location. Some tractor-trailer combinations are prone to over-height collisions at these locations. Collisions are a hazard to all drivers, and repair of the damage typically causes traffic delays. Appropriate solutions to this problem will focus on prevention of collisions by detecting over-height vehicles and directing the drivers to take an alternate safe route.

OBJECTIVE

This project will investigate and pilot detection/alert systems that can be set up well in advance of a known vertical clearance restriction to detect over-height vehicles and alert the driver to take appropriate action before reaching locations with restricted vertical clearance. The goal is to eliminate or at least minimize the occurrence of accidents and incidents caused by over-height vehicles in the state of Louisiana.

METHODOLOGY

Initially, the research team will perform a thorough literature search to identify available over-height impact avoidance and incident detection systems. Based on any findings, the team will perform a comparative study to identify and recommend at least two practical and cost-effective systems. It is expected that the Project Review Committee will review the proposed systems and make a recommendation regarding acceptability and location for their installation.

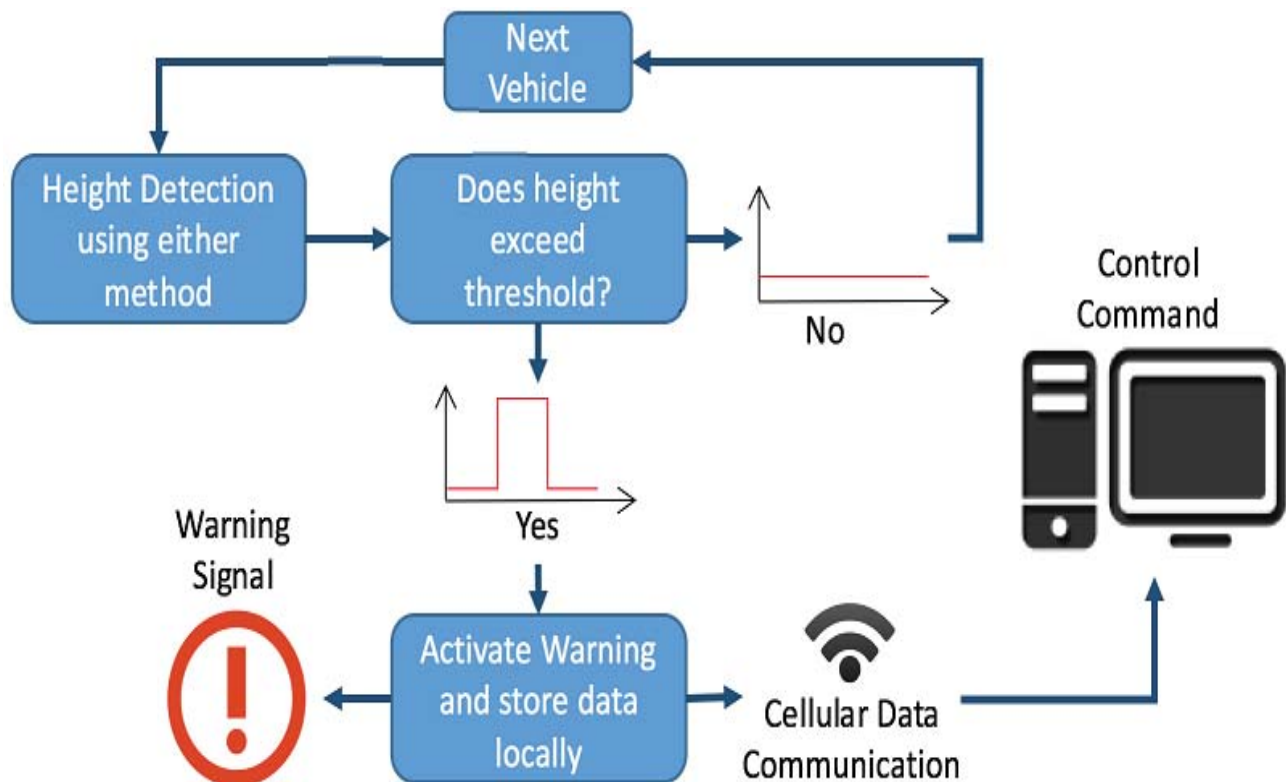
An impact avoidance and incident detection system involves two subsystems: one to determine whether an incoming vehicle is clear to pass (based on height), and one to properly advise the driver of an over-height vehicle. Alternative methods for determining the vehicle height include distance sensors placed directly above the travel lanes and an array of laser sensors placed on both sides of the roadway at specific heights. Establishing a link between these sensors and the driver of an over-height vehicle is the goal of the second subsystem. Options for this advisory link include cellular data transmission and radio frequency communication.

The research team will assess the performance of the detection/alert systems through monitoring and collecting data after installation. The wireless data that

is collected from the system will be accessible for analysis and development of a performance index. The behavior of over-height vehicle drivers will be an indicator of the overall performance of each system.

IMPLEMENTATION POTENTIAL

The project will evaluate reliable, economic, and practical systems for detecting an over-height vehicle, alerting the driver of an upcoming height restriction, and safely directing them to take an alternate route. The findings from this project may lead to the development of standards for implementation of these detection/alert systems.



Overview of design