

Commercial Truck Platooning (Level 2 Automation)

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on the behalf of:

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Smart Transport Symposium
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Agenda

- Project Abstract
- Project Work Plan
- Task Status
- Next Steps

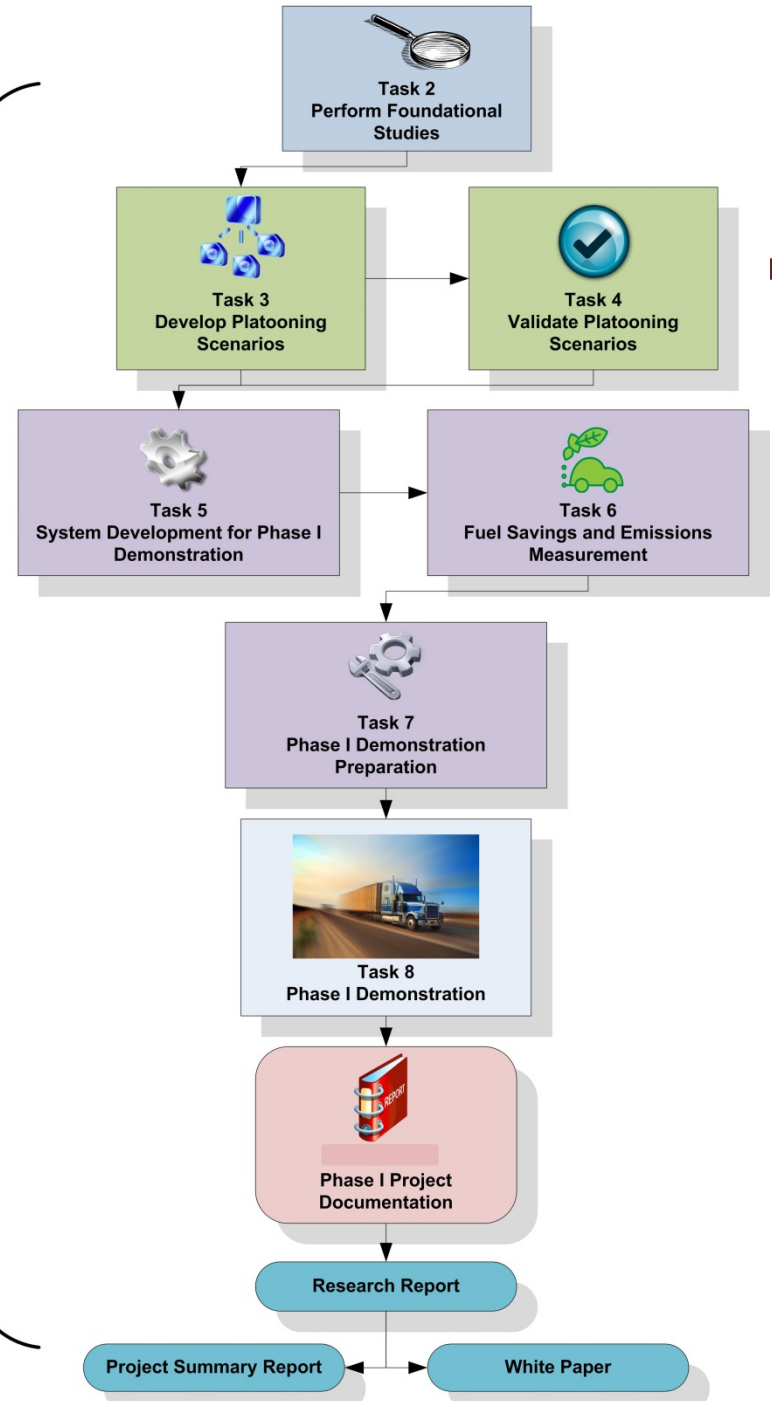
Project Abstract

- Commercial Truck Platooning will perform the most practical commercial vehicle platooning effort in the U.S. Existing studies indicate platooning offers major safety and fuel saving benefits that are two critical issues for fleet operators. Truck Platooning, defined as electronically coupling two or more trucks [or vehicles] where the following trucks' longitudinal and lateral functions are automated to mimic the leading truck while maintaining a tight distance. Texas is one of the key trucking hubs in the national supply chain, making it a perfect test bed for developing and implementing this technology.

Work Plan



PHASE 1



Literature Review (Task 2)

Goal: Assess the legal framework related to platooning

Primary Tasks

- Review Texas existing and/or pending legislation, rules, and regulations for impediments to long-term implementation
- Review relevant federal regulations that may impact truck platooning
 - FMCSA
 - NHTSA
 - FMVSS
- Investigate liability issues
 - Engagement of industry representatives
 - Support of TAMU School of Law



Literature Review (Task 2)

Current Status

Policy areas that could potentially impede truck platooning

- Standards on vehicle equipment and functional requirements promulgated in the FMVSS
- Requirements restricting hours of service and handheld phone use in the FMCSA
- Minimum following distance requirements in the Texas Transportation Code

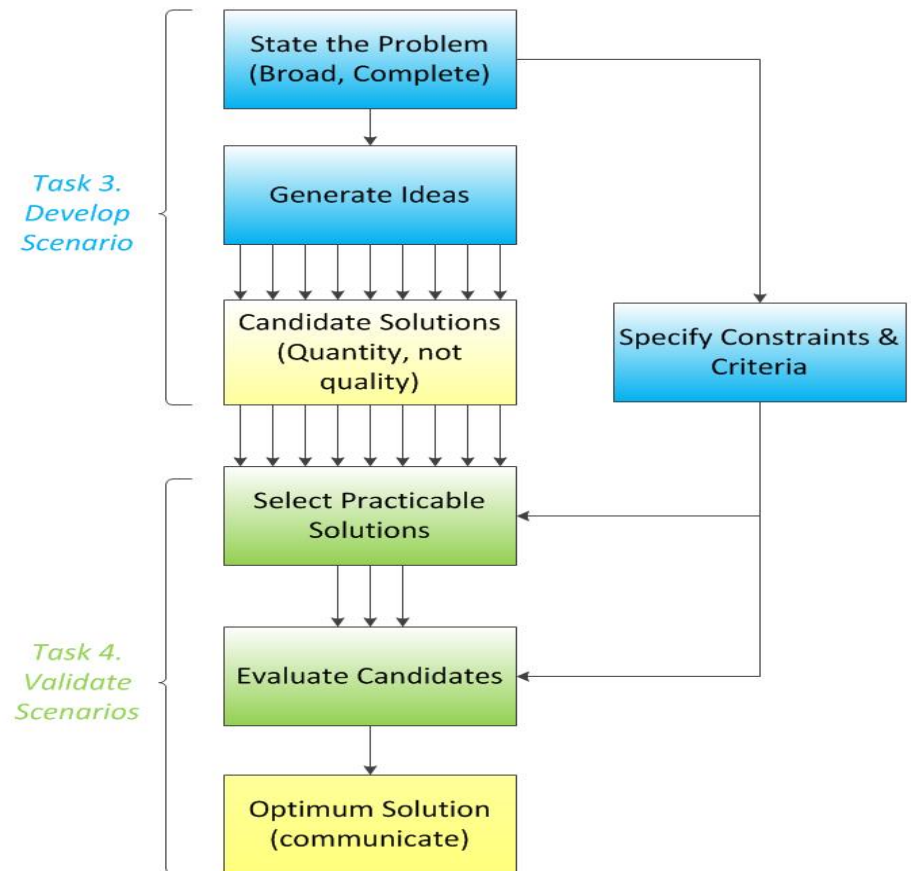
The research team is also interviewing subject matter experts about liability concerns the industry faces regarding truck platooning.

Expected completion August 2015

Feasibility Study and Concept Exploration Process (Tasks 3 & 4)

Overview of Tasks 3 and 4

- Identify a broad range of alternative strategies for deploying level 2 truck platooning in TX in 5 – 10 years
- Assess the strategies using performance measures for benefits, costs and risks
- Select most viable scenario
- Stakeholder review and input
- Provide a recommendation to TXDOT for the deployment of prototype system, including:
 - Recommended concept
 - Feasibility study



Adapted from: *Systems Engineering for Intelligent Transportation Systems*

Develop Platooning Scenarios (Task 3)

Goal: Identify viable truck platooning scenarios that can be implemented on Texas highways in the next 5 to 10 years.

Primary Tasks

- Identify Alternative Concepts
- Define the Performance Factors for evaluation of alternatives
- Identify suitable sites / corridors for potential deployment in TX
- Perform stakeholder interviews to identify organizational issues

Develop Platooning Scenarios (Task 3)

Current Status

- Identified five alternative concepts
 - Under revision to incorporate project team input
- Developed an initial draft of performance factors
- Developed an initial draft of operational and performance constraints and criteria
- Finalized stakeholder interview questions related to organizational issues
 - IRB approved
 - Identified potential stakeholders

Validate Platooning Scenarios (Task 4)

Goal: Evaluate the alternative concepts for deploying a level 2 truck platooning system in TX and recommend a viable concept and potential deployment corridor(s)

Primary Tasks

- Develop a framework for assessing the alternative scenarios
- Identify suitable applications of the alternatives w.r.t. the sites/corridors
- Perform simulation to model the impact of the application (alternative) on the environment
- Perform a high-level cost-benefit analysis for the candidate scenarios
- Choose the most viable deployment scenario
- Capture the end-user requirements
- Investigate the potential business-case

Status: To be initiated in Sept 2015

System Development (Task 5)

Goal:

Define operational requirements/parameters to guide system specifications and development

Primary Tasks:

- Define Operational Requirements
 - Preliminary Safety Analysis
 - Vehicle / Infrastructure BOM Cost Estimate
 - System Specification Document
 - Source and Obtain Equipment
 - Define Technical and Operation Demos
 - Validate Requirements
-
- Initiated in August 2015
 - Current Status: All sub-tasks under progress

Fuel Savings and Emissions Measurement (Task 6)

Goal:

This is to measure the impact of two-truck platooning on emission and fuel consumption.

Primary Tasks

- Identification of Data and Test Procedures
- Vehicle Instrumentation
- Establishing the Baseline
- Capture Data under Platooning Scenarios
- Data Analysis and Comparison

Current Status: to be initiated in late April 2016

Demonstration Preparation (Task 7)

Goal:

to build and prepare the vehicles for the demonstration

Primary Tasks:

- System Design and Implementation
- Perform Vehicle Integration
- Perform Initial Safety and Operational Testing

Current Status: To be initiated in Dec. 2015

Phase 1 Demonstration (Task 8)

Goal:

Perform the demonstration of two-truck platooning and hold a close-out meeting.

Primary Tasks:

- Host Demonstration
- Attend Close-out Meeting

Current Status: to be initiated in late April/early May 2016

Final Questions



Contact Information

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