TRUCK PLATOONING 101

Freight Movement Task Force Meeting

3/29/2018
TRUCK PLATOONING 101

- What?
- Why?
- How?
- Who?
- Where?

WHAT IS PLATOONING?
Several trucks form an automated convoy – with the lead truck sending out acceleration, braking and steering signals in order for the following trucks to react accordingly.

HOW DOES PLATOONING WORK?
Trucks communicate directly with each other using wireless technology. The following vehicles autonomously measure distance, speed and direction and adjust to the vehicles in front.

WHY? WHAT ARE THE BENEFITS?
Safety; Fuel Savings; Increased Traffic Capacity / Reduced Congestion; Convenience; Labor Implications

WHO ARE THE PLAYERS IN TRUCK PLATOONING?
Daimler (Inspiration), Volvo (partnering with Peloton), Tesla (Tesla Semi), Uber (Otto), General Motors (GM SURUS), U.S. Military, U.S. Postal Service,

WHERE IS PLATOONING HAPPENING?
Las Vegas, Colorado, California, Texas, Wyoming, Michigan, Florida, Virginia
WHAT IS PLATOONING?

Video: https://vimeo.com/155164547

Source: http://peloton-tech.com
HOW DOES IT WORK?

Equipment:

**Allowed drivers to see views from the other vehicle on the in-cab system display when platooning.**

**Identifies platooning opportunities. Helps see blind spots from the back driver’s perspective.**

**A radar mounted to the front bumper of every truck tracks dozens of objects simultaneously 50 times per second, constantly monitoring the road ahead.**

**Allows the Peloton system to maintain a steady gap between two platooning trucks by controlling the speed of the rear vehicle to match the front vehicle. Allows for closer platooning distance.**

**Highly accurate GPS provides precise location data enhancing vehicle control safety and location-based functionality.**

**Uses 5.9 GHz DSRC for a reliable truck-to-truck link. Ensure security through a variety of strong encryption protocols.**

**Cellular and WiFi modems connect vehicles through an encrypted channel to Peloton’s cloud-based Network Operations Center (NOC). NOC tells trucks where and when they can platoon and under what conditions. Peloton minimizes cost of transmission by only sending high-priority data over cellular. Low priority is retained on truck until it reaches a WiFi hotspot.**

**http://peloton-tech.com**
WHY PLATOON? WHAT ARE THE BENEFITS?

PLATOONING BENEFIT #1: SAFETY

Almost 4,000 people die in trucking accidents each year in the USA alone. Accidents caused by driver action and driver fatigue could be greatly reduced by platooning.

PLATOONING see the full infographic on 2025AD.com

PLATOONING BENEFIT #2: FUEL SAVINGS

With reduced safety distance and a more constant driving speed, air drag decreases for the following trucks – lowering fuel consumption and CO₂ emissions by up to 15 percent.
WHY PLATOON? WHAT ARE THE BENEFITS?

PLATOONING BENEFIT #3: TRAFFIC CAPACITY

*High tech sensors enable the trucks to react within 0.1 seconds - 1.3 SECONDS (OR OVER 90%) FASTER THAN HUMANS. The safety distance between two trucks can be lowered from 50 METERS TO 15 METERS - thus reducing traffic congestion.

PLATOONING BENEFIT #4: CONVENIENCE

PLATOONING MAKES THE TRUCK DRIVER'S JOURNEY...

MORE PREDICTABLE

LESS STRESSFUL

*Shorter and more predictable journey times make the truck driver's work LESS STRESSFUL and MORE CONVENIENT.

PLATOONING see the full infographic on 2025AD.com

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WORKFORCE IMPLICATIONS

Trucks carry 70% goods shipped around US, but truckers are scarce

- Driver Shortage near 50,000 by end of 2017;
- Driver Shortage could exceed 174,000 by 2026 (American Trucking Association)
WHO ARE THE MAJOR PLAYERS AND WHERE?

• Daimler (Inspiration)
  • First autonomous truck licensed to operate on a US highway in Nevada in 2015
  • Tested at a private facility in Oregon, and will now start platooning down certain highways in Oregon and Nevada

• Uber (Otto)
  • Traveled 120 miles in Colorado hauling Budweiser beer with no driver at the wheel in 2016
  • Retrofitting existing trucks with AV technology;

• Tesla Semi – debuted in November 2017
  • All-electric freight truck with autonomous vehicle (lane keeping, automatic emergency braking, and forward collision warning)

• Volvo (Partnering with Peloton)
  • 9 states confirmed allowance of commercial deployment of platooning technology (AK, GA, MI, NV, NC, OH, SC, TN, TX)
  • Demonstration in Virginia in 2017
  • Logged over 1,000 test miles in Florida in December 2017

• Embark
  • Using automated trucks to haul refrigerators from warehouse in El Paso, TX to distribution center in Palm Springs, CA since October 2017
  • Made a coast to coast trip from LA to Jacksonville FL in February 2018

• Other key players: US Military, US Postal Service
WHERE?- SAMPLE OF ACTIVITY ACROSS THE COUNTRY

• Wyoming DOT CV Pilot Program
  • Along I-80 - major freight corridor with challenging mix of weather and road conditions
  • Deploying ITS infrastructure and developing applications geared towards commercial vehicles

• I-10 Corridor Coalition
  • Arizona, California, New Mexico and Texas
  • TTI “Concept of Operations Report” - Platooning, Permitting, Parking

• Virginia
  • 3-truck platooning on I-66 in conjunction with FHWA

• Maryland
  • Truck platoon testing at Aberdeen Proving Ground
  • MDOT CAV Freight Sub-Group
QUESTIONS?

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