



# Onboard Monitoring System Field Operational Test

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Third International Symposium On Naturalistic Driving Research  
August 28, 2012



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Office of Research and Information Technology

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# Contents

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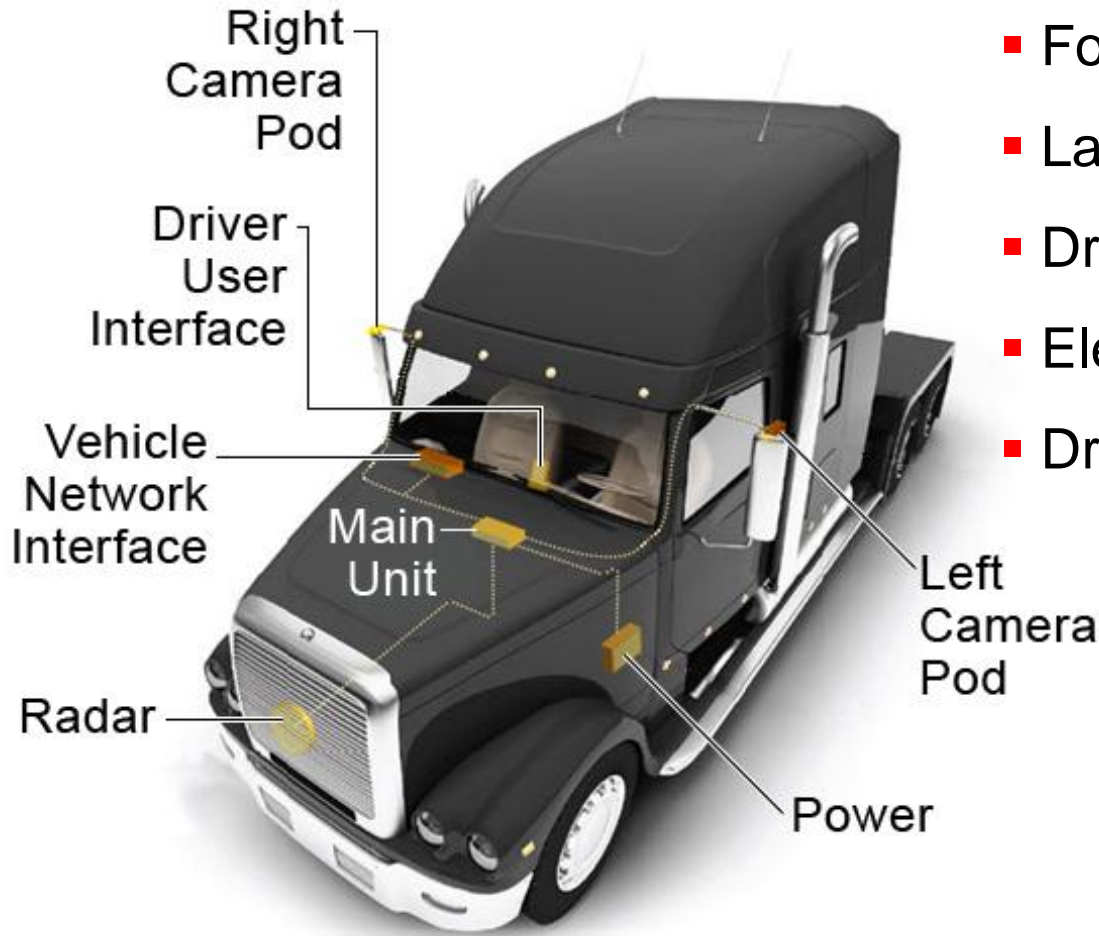
- Introduction
- Overview of Onboard Monitoring System (OBMS) Technology Suite
- Evaluation and Data Analysis Plan
- Continuous Data Collection Effort
- Project Status

# Study Objectives

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- To examine the effectiveness of onboard monitoring in improving driver safety performance with:
  - Real-time feedback
  - Coaching from safety supervisors
- Collect millions of miles of naturalistic large truck driving data to support future CMV safety research efforts.
- Project Team: Virginia Tech Transportation Institute and the University of Washington

# OBMS: DriveVision Pro

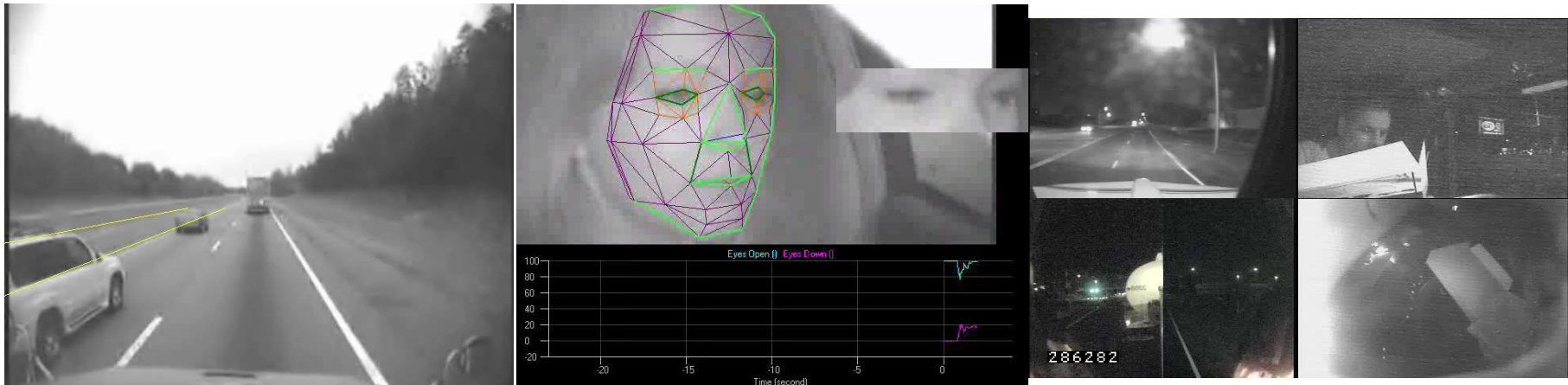


- Forward Collision Warning
- Lane Departure Warning
- Drowsy Driver Detection
- Electronic Logbooks (EOBR)
- Driver Behavior Monitoring



# Highlight of Key Technologies

- Video-based lane tracking (RoadScout)
- Video-based head/eye tracking (MASK)
- Event detection and driver behavior monitoring



# In-Cab Feedback



Driving Page



Performance Events



Safety Events



Collision Avoidance Warnings



Electronic Logs



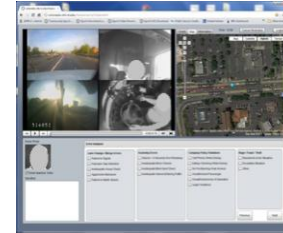
# Safety Data Flow

**Raw Event  
Video & Data**



## Data Center

Analysts validate event  
Note conditions  
Narrative  
Causal factors  
Responsibility  
Is the Event Coachable?



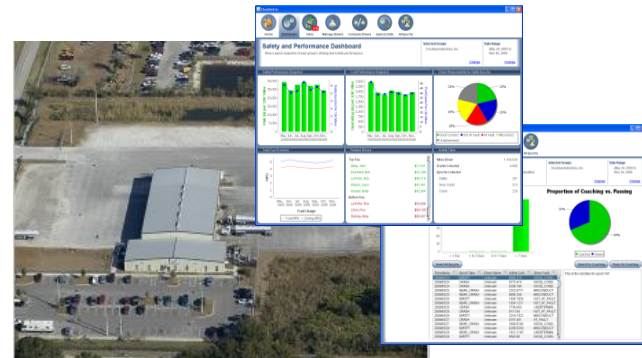
**Validated Video  
Events & Data**



**Driver  
Feedback  
& Coaching**

## Fleet Management

Driver Comparison  
Event Review  
Safety Trend Analysis  
Feedback/Coaching  
Accountability



# Study Design

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- Equip up to 270 trucks with OBMS devices
- More than 500 drivers from three participating carrier fleets
- Drivers will be randomly assigned to three experimental groups
- 18 months of data collection

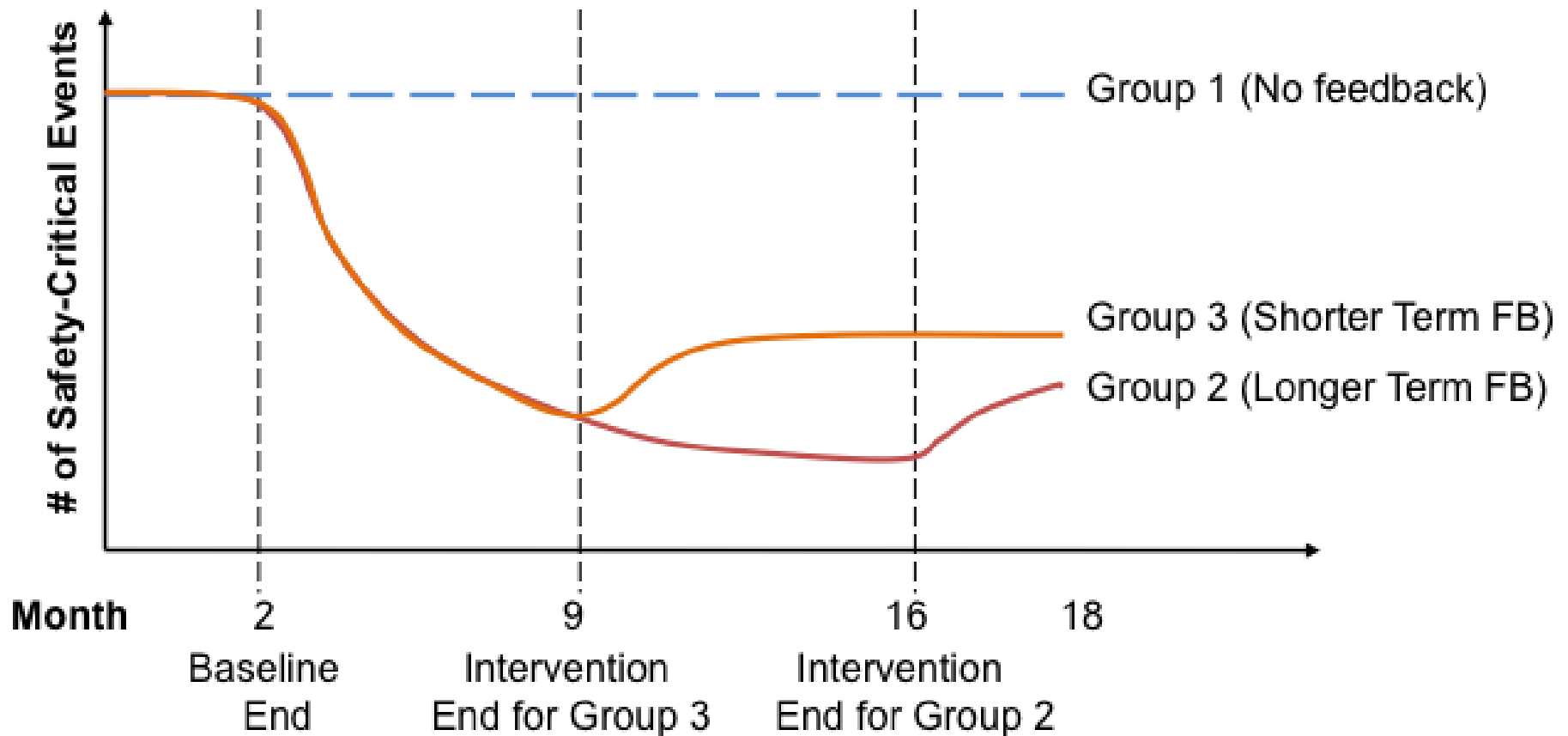


# Experimental Design

- Three experimental groups
  - Group 1: Baseline group
  - Group 2: Longer-term adaptation group
  - Group 3: Shorter-term adaptation group

	Months																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>Group 1</b>	Baseline (no feedback)																	
<b>Group 2</b>	Baseline	Feedback (14 months)														WD		
<b>Group 3</b>	Baseline	Feedback (7 months)					Withdrawal (WD)											
	Q1	Q2	Q3					Q4									Q5	Q6

# Potential Outcome



# Research Questions

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- **Research Q1:** Can driver performance and safety improve over time with OBMS feedback and coaching?
- **Research Q2:** If driving performance improves, does it remain improved over time?

# Research Questions

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- **Research Q3:** How do the drivers' opinions and attitudes towards the OBMS system and program change over time?
- **Research Q4:** What are the costs and benefits to the carriers/drivers of system implementation?

# Continuous Data Collection

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- Collect more than 35 million miles of naturalistic truck driving data over 18 months
- Data will support future commercial motor vehicle research efforts
- Protection of drivers (human subjects) and participating fleets
- Access to naturalistic data

# Project Status

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- Carrier Participation
  - 1 carrier committed and collecting full study data
  - 2 carriers completed pilot, determining if they will continue with full study
  - 2 carriers currently in pilot

# Questions?

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