ONBOARD SENSING, ANALYSIS, AND REPORTING (OSAR)

A CONSORTIUM OF ACADEMIA, INDUSTRY & GOVERNMENT PARTNERSHIPS

The OSAR Consortium will collaborate to develop:

- Next-generation on-board sensors, analysis, and reporting algorithms for capturing the real impact from mobile sources
- Optimal mechanisms for real-time emissions reporting that considers proprietary information, privacy, data uncertainty, and economic considerations

Next-Gen Sensor Development

- Investigate technical development needs such as operating temperature range, cross sensitivities between NOx and ammonia, wide range load performance, and overall durability
- Overcome technical limitations to install sensors aboard every vehicle
- Revolutionize regulatory strategy and compliance costs

Systems Verification

- Prove reliability, accuracy, and efficacy of new systems architecture

Data Analysis and Modeling

- Examine needed elements of data analysis and modeling structure
- Emission factor reporting algorithms other than pass-fail vehicle criteria
- Modeling pollutants for emission species where measurements do not exist
- Integrate sensors and reported data analysis into the onboard sensing system
- Develop a real-time analysis and reporting system using vehicle connectivity acceptable to the manufacturer, user, and regulatory agencies

KEY QUESTIONS

- Do sensors exist for all emission species, and if not can they instead be modeled?
- Are the sensors accurate and reliable enough for regulatory purposes?
- How will the measurement data be quantified for compliance verification?

"In-use" regulations need to evolve to a consistent, fair, and reliable on-board continuous measurement and reporting system

- Academia, industry, and regulatory agencies

Championing improved public health and environment sustainability

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MEMBER BENEFITS

- First access to technology and intellectual property
- Multidisciplinary innovations via workshops and research reviews
- One-on-one collaborations with faculty, researchers and graduate students
- Company branding and opportunities to network with leaders in industry, government, and academia
- Advise on the direction of consortium research projects

OBJECTIVES

- Generate cutting-edge research
- Cultivate innovation with industry through the intersection of roadmaps and exploration of key questions with the intention of creating cutting edge technology
- Develop a pipeline of Graduate Student Fellowships to create and meet talent industry needs
- Direct policy engagement and education of our future leaders
- Fast track individual research agreements
- Host Visiting Industry Fellows (VIF)

YEAR ONE PROPOSED RESEARCH PROJECTS

- Evaluate sensor quality, interferences, ions, velocity, water interferences; Investigate new materials resistant to these interferences
- Evaluate analytics for quantifying emissions (future regulatory method designed for local fairness) related to such applications as traffic management toward reducing emissions and improving GHG
- Create a robust sensor modeling system with adaptive elements to preheat based on real activities

OSAR TEAM

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