CPS: Small: Intelligent Prediction of Traffic Conditions via Integrated Data-Driven Crowdsourcing and Learning (Award ID: 1932482)

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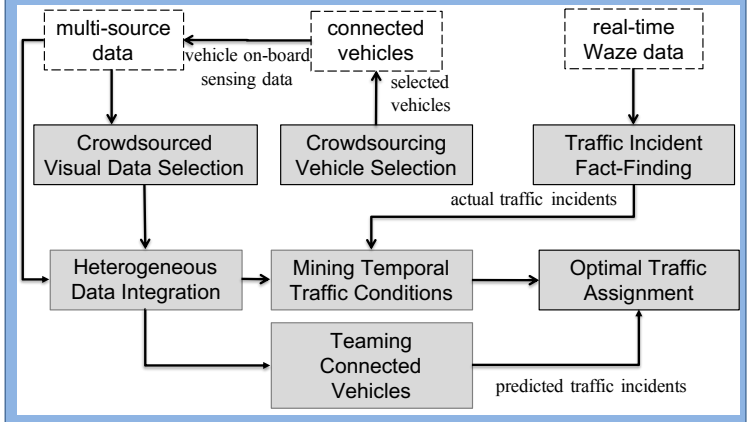
Challenges:

- Road safety and congestion
- Current practices: **reactive**

Solution:

- Transform traffic management via predictive analytics on rich data streams
- Enable proactive management of traffic incidents
- Couple machine learning techniques with crowdsourcing

System Architecture



Scientific Impact:

- Integration of crowdsourcing and intelligent learning can be extended to enable other smart and connected communities

Broader Impact:

- Cities could **proactively** deploy assets and manage traffic
- Reduce emergency response time,
- Inspire, train, and prepare next-generation scientists to tackle challenges in smart and connected communities

Recent Progress Highlights

- Designed data ingestion and inspection techniques for smart city applications, with a specific focus on how heterogeneous data is represented, how its quality is inspected
- Designed a new method for simultaneously learning a projection from multi-sensory input data to a latent representation of the activities of individual vehicles and a projection from this representation to the overall activities of a swarm of teamed vehicles