**Project Proposal: CE 650C**

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**Traffic incident detection fusing multiple data streams**

There are various state-of-the-practice methods to trigger incident alarms including mobile phone calls, operator visual detection, automatic incident detection (AID) algorithms, etc. Overall efficiency of incident detection methods can be improved combining all these methods to the overall incident detection system. This project will try to combine incident information obtained from multiple data streams to trigger incident alarms. The different data streams will include incident information obtained from social data (Waze), radar based traffic data (Wavetronix) and probe vehicle data (Inrix). AID algorithms using traffic data will consider incidents as anomalies in data stream and try to find out these anomalies by comparing real time data with the historical data. This will involve analyzing large volume historical traffic data (approximately 500 GB of Inrix data and 50 GB of Wavetronix data). Hence, big data analytics (e.g., MapReduce) will be used for this purpose. Finally, incident information obtained combining all these datasets will be compared with the real incident information obtained from Traffic Management Centers to find out the efficacy of these fusion of data streams. It is expected that the overall detection rate will improve and false alarm rate will decrease due to this combination of incident information.