Roads are often unacknowledged, but they are vital for a city to run smoothly, so having a robust and effective traffic control system is essential. In order to achieve this, vast amounts of data is required to manage existing road infrastructure and plan for new roads. Currently, the City of Regina uses a centralized data collection system, but as traffic systems are inherently dynamic, it requires dynamic data collection. Our solution for this is a cost effective real time distributed data collection system. Our product would send real time data including speed, location, and other metrics to the municipality for data analysis. The device would also be able to detect potholes based on a vehicle's suspension, be able to detect road conditions based on a cars traction control, and be able to communicate with receivers connected to traffic lights in order to facilitate real time traffic control. This would allow the city to analyze traffic data in order to optimize traffic flow and future traffic development. It would also make traffic lights more efficient when utilizing real time data. In order to achieve user privacy, the data sent to the municipality would be anonymized.

**Constraints**

* Power 12 volts limit
* Communication constraint
* Moving vehicle
* Size limit
* Potential privacy constraints
* Monetary constraints

**Objectives**

* Read real time data from car’s CANBUS
* Use sensor to sense pothole on road
* Use CANBUS data to determine road conditions (ice)
* Send CANBUS data to internet for data analysis
* Send CANBUS data to receivers for real time traffic control