Problem Statement and Motivation

- Rise of e-commerce with same day delivery promise pushing the retail businesses to explore innovative delivery methods for meeting the variable express demand.

Research questions:
1) What is the success percentage for the crowdsourced delivery requests received and the probable reasons behind the fulfillment/unfinished of these requests?
2) Who are the regular users (customers and couriers) of a crowdsourced delivery system and what are their characteristics?
3) Which are the package sizes and delivery distances which are popular among the customers and the couriers respectively?
4) What are the features of the pricing model and the virtual platform provided by the company to match the customers with interested couriers?
5) How can the current crowdsourced delivery system be improved?

Key Achievements and Future Goals

- Of 30,090 requests received, 73.18% delivery requests fulfilled in the past 24 months.
- More than 90% of the deliveries are within 50 miles accounting for 75% of revenue.
- The large package size accounts for 54% of deliveries and 45% of the total revenue.
- On average, small, medium and large package sizes travel less than 100 miles and are cheaper to deliver as compared to extra-large and super-large package sizes.
- Majority of the active customers are registered as businesses and drivers - individuals.
- Routing algorithms to be developed to improve the efficiency of the delivery system.
- The company can increase its revenue per delivery by focusing on long-haul shipping and by targeting business customers.
- Poster presented at the Transportation Research Forum (TRF) 2017.
- Accepted for presentation at the ‘10th International Conference on City Logistics 2017’.
- Paper in progress for submission for TRB 2018.

Technical Approach

- Delivery attributes – Analysis of all delivery requests to identify the share of successfully completed deliveries, averages for price per delivery, per mile travelled and the respective share of various package sizes.
- User characteristics – Analysis of the delivery data to identify user preferences and attributes (eg. age group, pick up and drop off locations requested etc.) associated with successful deliveries.
- Identifying market opportunities and performing qualitative assessment of the crowdsourced delivery service.
- Routing algorithms (future work) - Developing collaborative and real-time delivery routing algorithms.