

## Capstone Project Proposal: Predicting electric scooter trip usage

### Problem Statement:

Now, ubiquitous, the electric scooter cruises through bike lanes and sidewalks of every major US city. In order to stay competitive, operating companies need to ensure their scooters or e-bikes are highly utilized. They must ensure that their fleets are in place to meet demand. Using data provided by the city of Austin, TX, I will create a model to predict how many scooters or e-bikes should be placed in neighborhoods on a particular day or time to optimize utilization.

### Data Description:

The city of Austin released a database of all ridership for e-scooters and shared bicycles. For privacy reasons, the latitude and longitude information was not included. However, the dataset does include the neighborhood.

- Source: <https://catalog.data.gov/dataset/dockless-vehicle-trips>
- Size: 6,848,950 rows x 16 columns (each row represents a trip)
- Timeframe: April 2018 to September 2019
- Columns:
  - ID: A unique ID for each trip (string)
  - Device ID: A unique ID for the device used (string)
  - Vehicle Type: Bicycle or Scooter (string)
  - Trip Duration: time length of trip in seconds (float)
  - Trip Distance: distance traveled in meters (float)
  - Start Time: trip start time (datetime)
  - End Time: trip end time (datetime)
  - Modified Date: datetime at which the record was last modified, typically when the data was extracted (datetime)
  - Month: Month when the trip occurred (integer)
  - Day of week: day of the week when the trip occurred, Sunday = 0 (integer)
  - Council District (Start): City council district in which the trip started (string)
  - Council District (End): City council district in which the trip ended (string)
  - Year: Year when trip occurred (integer)
  - Census Tract Start: Starting Neighborhood GEOID number from US 2010 Census Tract (string)
  - Census Tract End: Ending Neighborhood GEOID number from US 2010 Census Tract (string)

### Project Outcomes

This project will predict demand in certain neighborhoods. Micromobility companies can use this model to determine the optimum placement of units throughout the city and particular dates and times.