**Description of Data on Accra’s TroTro Network:**

**Prepared for the Accra TroTro Apps Challenge**

The data described in this document is a more detailed illustration of trips for trotro routes included in the GTFS data.

The trip data described here was collected in May and June of 2015 and formatted into a GTFS database in the winter of 2016.

The data consists of a single trip for each trotro route that was part of the project. Since there are no fixed schedules, the stop timing indicated in the files just represents the timing of stops on the trip when the data was collected rather than a time the trotro is scheduled to pass.

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| **Accra Trotro Apps Challenge files** |

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| File Name | Description |
| stops.csv | List of bus stops. |
| routes.csv | List of sequence of stops along each route. |

**Description of files**

The two tables below were consolidated from the original data collected by surveyors as well as the GTFS files. In both tables, the stop\_id\_orig field uniquely identifies each record. This field is indicated by a ‘ \* ’. It can be used to link the two files together through an SQL join.

The ‘Codes used’ column describes any codes used in the file. If there are only a few codes used in a field, a description of each code is given. If there are a greater number of codes used, a description of one code is given as an example. If no codes are used, the field is left blank.

The ‘Object level’ column contains the kind of data object the attribute describes. In these files there are 4 different object levels:

1. Original Stop: A stop recorded by a surveyor during data collection
2. Aggregate Stop: A stop in the GTFS database derived by aggregating original stops with similar sounding names that fall in roughly the same geographic location and are heading in the same direction
3. Route: A route that was surveyed and included in the GTFS database
4. Original stop sequence: A sequence of two consecutive stops along a route

Because of the volume of data included here, there were errors and omissions in data collection that couldn’t be corrected for this database. As a result, there are NULL values in the records for some fields. These generally total < 100 records for a field. **NOTE:** The null values are ‘NULL’ for string fields and ‘-9999’ for numeric fields.

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| **stops.csv** |

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| Field Name | Description | Codes used | Object level |
| stop\_id\_orig\* | Original identifier for each stop. The same stop on two different routes will have different stop\_id\_orig. Uniquely identifies each stop entry made by a surveyor. |  | Original Stop |
| stop\_lat\_orig | Latitude of original stop. |  | Original Stop |
| stop\_lon\_orig | Longitude of original stop. |  | Original Stop |
| stop\_type | Type of stop. | 0 = Regular stop  1 = Boarding terminal  2 = Arrival terminal | Original Stop |
| time\_orig | Time when original stop was recorded. |  | Original Stop |
| schedule\_time | Indicates whether time\_orig is a scheduled time. | no = not a scheduled time | Original Stop |
| direction | Direction of stop. | A = heading to CBD  B = heading away from CBD | Original Stop |
| trip\_id | Trip on which stop was recorded. | XXXA\_1 = for trip heading to CBD  XXXB\_1 = for trip heading away from CBD | Original Stop |
| brd\_alt | Number of passengers boarding and alighting at this stop on this route. |  | Original Stop |
| stop\_id | Unique identifier for stops table from gtfs data. Uniquely identifies all stops with similar sounding names that fall in roughly the same geographic location and are heading in the same direction. | T = Terminal  S = Stop | Aggregate Stop |
| stop\_name | Name chosen for all stops assigned to the same stop\_id (based on those given by surveyors). |  | Aggregate Stop |
| stop\_lat | Average of latitudes of all original stops assigned to the same stop\_id. |  | Aggregate Stop |
| stop\_lon | Average of longitudes of all original stops assigned to the same stop\_id. |  | Aggregate Stop |

Extract from file:

stop\_id\_orig,stop\_lat\_orig,stop\_lon\_orig,stop\_type,time\_orig,schedule\_time,direction,trip\_id,brd\_alt,stop\_id,stop\_name,stop\_lat,stop\_lon

5622,5.58888,-0.179338,1,12:51:38,no,A,002A\_1,27,T5622,Terminal 37 Lorry Park,5.58882,-0.179427

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| **routes.csv** |

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| Field Name | Description | Codes used | Object level |
| trip\_id | Identifier for the trip. | XXXA\_1 = first trip for route heading away from the CBD  XXXB\_1 = first trip for route heading toward the CBD | Route |
| route\_id | Identifier for the route. | XXXA = for route heading away from the CBD  XXXB = for route heading toward the CBD | Route |
| direction | Direction of route. | A = for route heading away from the CBD  B = for route heading toward the CBD | Route |
| agency\_name | Name of agency that operates the route. |  | Route |
| from\_terminal | Origin terminal of the route. |  | Route |
| to\_terminal | Destination terminal of the route. |  | Route |
| fare | Cost of a trip on the route. | ex: 1.2 | Route |
| timestamp | Time when original stop was recorded on the trip. | ex:  12:51:38 = 51 min, 38 sec past noon | Original Stop |
| schedule\_time | Indicates whether timestamp is a scheduled time. | no = not a scheduled time | Original Stop |
| stop\_sequence | Sequence of stop on the trip. | ex:  1 = First stop of trip | Original Stop |
| stop\_id | Unique identifier for stops table from GTFS data. Uniquely identifies all stops with similar sounding names that fall in roughly the same geographic location and are heading in the same direction. | T = Terminal  S = Stop | Aggregate Stop |
| stop\_lat | Average of latitudes of all original stops assigned to the same stop\_id. |  | Aggregate Stop |
| stop\_lon | Average of longitudes of all original stops assigned to the same stop\_id. |  | Aggregate Stop |
| stop\_id\_orig\* | Original identifier for each stop. The same stop on two different routes will have different stop\_id\_orig. Uniquely identifies each entry made in the table. |  | Original Stop |
| stop\_type | Type of stop. | 0 = Regular stop  1 = Boarding terminal  2 = Arrival terminal | Original Stop |
| stop\_lat\_orig | Latitude of original stop. (WGS84 coordinate system) |  | Original Stop |
| stop\_lon\_orig | Longitude of original stop. (WGS84 coordinate system) |  | Original Stop |
| brd\_alt | Number of passengers either boarding or alighting at a stop on a trip. |  | Original Stop |
| to\_speed | Speed (km//h) of TroTro traveling to this stop from the previous stop in the sequence. It was calculated from attributes stop\_lat\_orig, stop\_lon\_orig and timestamp according to the haversine distance algorithm. | NULL – Applies to the first and second stops of each trip. The first stop obviously has no speed because it’s the Boarding terminal. The second stop has NULL speed because the timestamp associated with the terminal is the Boarding rather then the Departure time. | Original Stop Sequence |

Extract from file:

trip\_id,route\_id,direction,agency\_name,from\_terminal,to\_terminal,fare,timestamp,schedule\_time,stop\_sequence,stop\_id,stop\_lat,stop\_lon,stop\_id\_orig,stop\_type,stop\_lat\_orig,stop\_lon\_orig,brd\_alt,to\_speed

002A\_1,002A,A,Osu Trotro Branch of GPRTU,37 Lorry Park,Osu Blow Up,1.2,12:51:38,no,1,T5622,5.58882,-0.179427,5622,1,5.58888,-0.179338,27,NULL