Catching the Bus:

Identifying Multi-passenger Vehicles with Bluetooth Sensors

The Data:

- Austin’s “Hack the Traffic” dataset.
- Collected data from 193 Bluetooth sensors around Austin.
- Available at: https://data.austintexas.gov/
- Project available at: https://git.txstate.edu/gma23/cs-7311

Restatement of the Problem:

- The city of Austin would like to know what portion of their traffic is single-occupant, what portion is multi-occupant, and what portion of the traffic is public transportation.
- **The Problem with the Problem:** Bluetooth sensors can't distinguish between several devices in one vehicle and several devices in several vehicles.

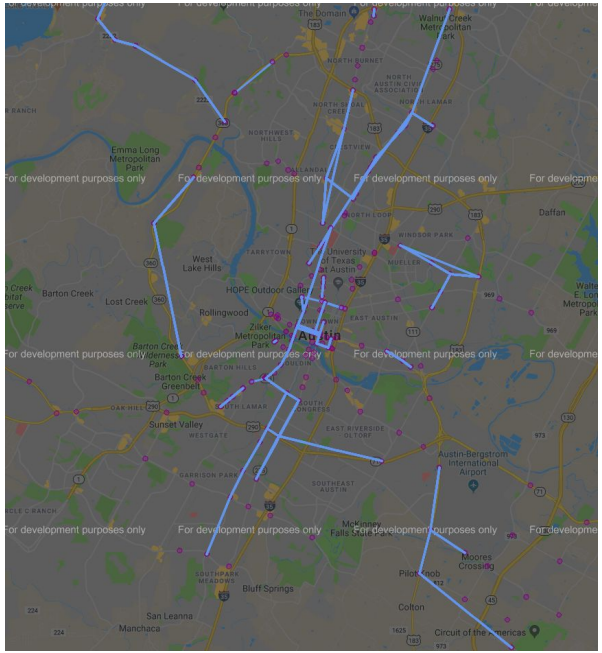
Refinement of the Problem and Scope:

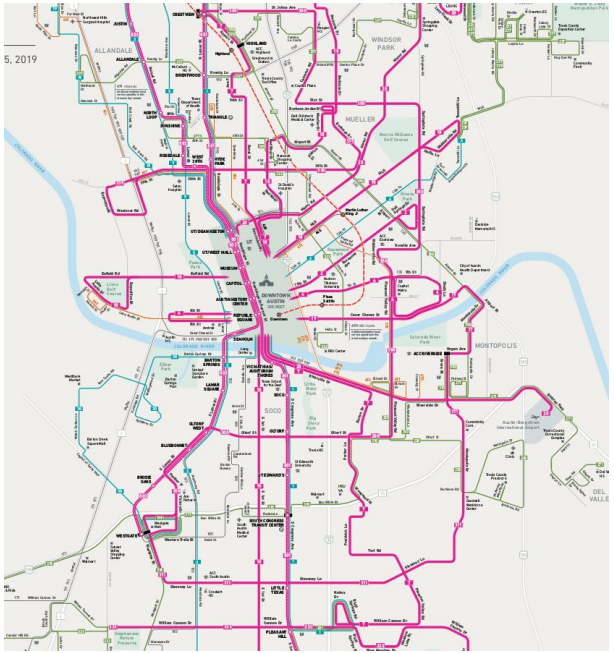
- Rather than distinguishing all traffic as single or multi-passenger, just try to find a bus since this is the extreme case of multiple occupancy.
- Rather than looking at all available data, only analyze trips along known bus routes.

Possible Outcomes:

- I **can** find a bus: then a solution to the general problem is possible and the work can be expanded.
- I **cannot** find a bus: the problem is unsolvable with this data.

Plotted Trips vs. Bus Routes:





Corridors to Focus On: Lamar (22 sensors) and Riverside (6 sensors)

Next Steps:

- Generate tuples of Place and Time and focus on motion of devices from point to point as represented by edges on graph.
- Proceed to batch processing on LEAP
- Continue with more general problems on the data set.
- Develop infographic for Austin.
- Reach out to other cities with Bluetooth sensors.

Questions or comments?