

Geovisuals User Manual

Please note, all the data used in this test software is synthetic. While actual narratives were consulted to provide a “real world experience” – the actual text, and corresponding locations have been created. Therefore, do not think that any pattern, any association, or any meaning gleaned from data supplied with this software is “real”.

Prerequisites

1. Install Node.js JavaScript runtime (<https://nodejs.org/en/download/>)
2. Windows Users Only: you might need to install Git (<https://gitforwindows.org/>)

Installation

1. Download Geovisuals source code (<https://figshare.com/s/b69f0db44c6a37d800a8>) as a .zip file and extract it.
2. Open Git (Windows) or Terminal (Mac OSX), and navigate to the Geovisuals folder.
3. Type the following commands (the example below assumes that the folder is stored in the D: Drive):
 - a. Navigate to the d: drive where the software is stored – Type “cd d:”
 - b. Locate the Geovisuals source code – Type “cd source_code”
 - c. Once we are inside the source_code folder, download all library and plug-ins – Type “npm install”
 - d. Next, we need to connect and build our system with those plug-ins – Type “npm run buildDev”
 - e. To begin Geovisuals type “npm start”
 - f. Open internet browser (Chrome is recommended) and open this URL link: <http://localhost:3000/>
4. The following figures show these step-by-step commands on a Windows Machine
Locate the folder directory and install all libraries and plug-ins.

```
sjamonna@visstation2 MINGW64 /c
$ cd d:

sjamonna@visstation2 MINGW64 /d
$ cd source_code

sjamonna@visstation2 MINGW64 /d/source_code
$ npm install
```

Connect and build installed plug-ins to Geovisuals software

```
sjamonna@visstation2 MINGW64 /d/source_code
$ npm run buildDev
```

Start Geovisuals software

```
sjamonna@visstation2 MINGW64 /d/source_code
$ npm start

> geovisuals@1.0.0 start D:\source_code
> node ./dist/server.js

App listening to 3000 ...
```

Finally, go to <http://localhost:3000/> using an internet browser (Chrome is recommended)

Navigating Geovisuals

1. Geovisuals Software consists of 2 modes including "Trip" mode and "Spatial" mode. You can switch between these modes by clicking on the top right corner.

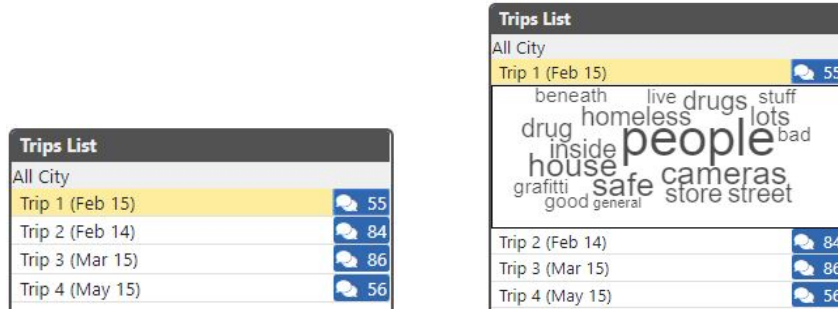
Click on "Trip" Mode

The screenshot displays the Geovisuals software in Trip mode. The main map shows a street grid with an orange route. The left sidebar includes a 'Trips List' with entries for Feb 15 and a 'Keywords Filter' with a search bar and a list of terms like 'people', 'cameras', and 'safe'. The right sidebar shows a vertical timeline of photos with timestamps and street names. Below the map, there are two photo thumbnails labeled 'Left' and 'Right', and a 'Play' button at the bottom left.

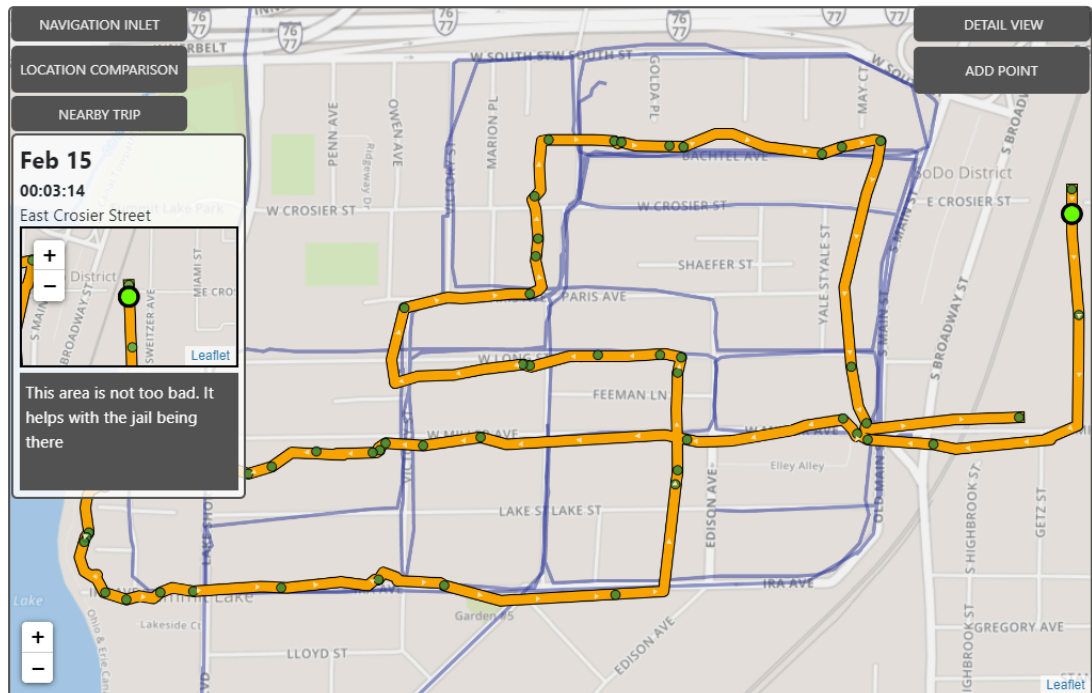
Click on "Spatial" Mode

The screenshot displays the Geovisuals software in Spatial mode. The main map shows a city street grid with an orange route. The left sidebar includes a 'Geo-object List' with street names and counts, and a 'Keywords Filter' with a search bar and a list of terms. The right sidebar shows a legend for 'Street SDPs' with color-coded circles and a series of word frequency charts for different streets. The charts show words like 'inside', 'boarded', 'house', 'people', 'store', 'safe', 'shelter', 'buildin', 'police', 'good', 'grocery', 'safer', 'dealing', 'guy', 'lots', 'drug', 'bad', 'commun', 'people', 'houses', 'ignore', 'drug', 'bad', 'houses', 'dealing', 'guy', 'lots'.

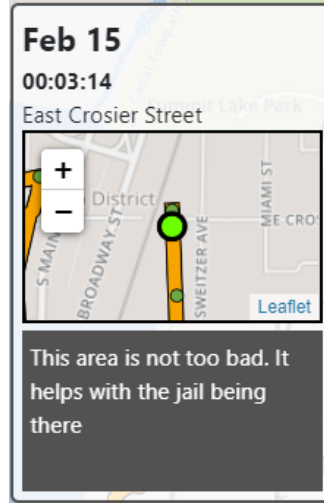
2. Trip Mode consists of 5 Panels: (a) Trips list, (b) Map view, (c) Detail view, (d) Video player, and (e) Keyword filters.
- a. Trips List – list individual trips followed by the number of comments (e.g., Trip 1 (Feb) – 55 comments). Clicking on the button will show the associated word cloud which is a summary of important word frequency in that narrative.



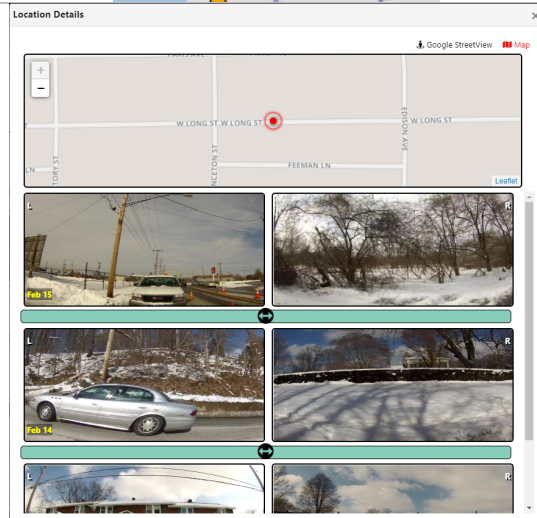
- b. Map view – this illustrates your trip trajectory (orange line) and comments (each green point is the beginning of a comment). This view consists of 5 toggle buttons:



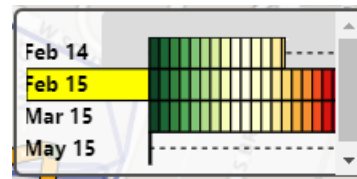
NAVIGATION INLET – Click on “NAVIGATION INLET” button will zoom you into the current location.



LOCATION COMPARISON – Clicking on the “LOCATION COMPARISON” button will show how the visual of that location appears in any other trip that intersects that location. This allows for an easy comparison of how a building has changed over time for example.



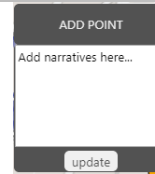
NEARBY TRIP – Clicking on the “NEARBY TRIP” button opens a popup with a bar chart with distance value corresponding to the current trip’s location (highlighted in yellow color). For example, the trip on May 2015 is geographically the most distant to the current location on the Feb 2015 trip. In contrast, the trip on Mar 2015 is the nearest to the current trip.



DETAIL VIEW – Clicking on the “DETAIL VIEW” button opens the Detail View Panel (see c. Detail View for more detail).

		<p>Date: Feb 15 at 00:04:36 Street: West Miller Avenue Its also important for the homeless not to have restrictions on when they can come in</p>
		<p>Date: Feb 15 at 00:05:02 Street: West Miller Avenue Its good that this grocery store is here now. People will come from West Akron to go to the store.</p>
		<p>Date: Feb 15 at 00:05:37 Street: West Miller Avenue There used to be another grocery store here -- over a decade a go</p>

ADD POINT – Clicking on the “ADD POINT” button will allow you to add in other comments, for example the user’s perspective of that location. An example might be noting that broken windows are visible.



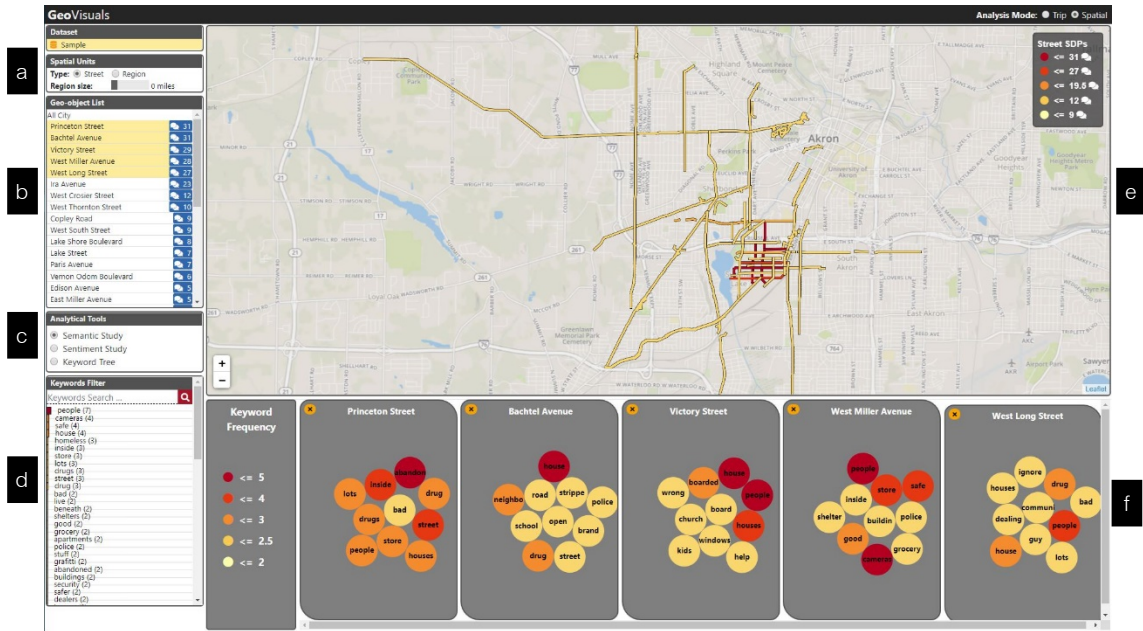
- c. Detail View – this displays the current trip’s narratives and events list. Each row contains the image, date time, and geography for the comments contained in the narrative. By clicking on any row will take the user to that part of the video clip.



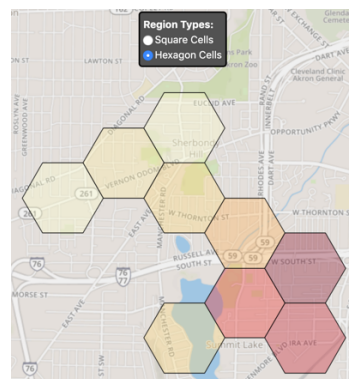
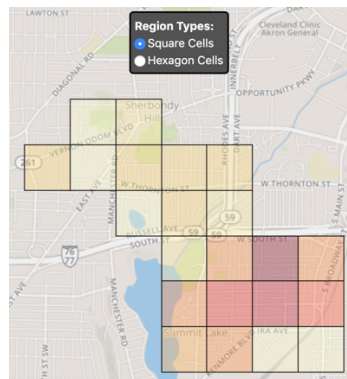
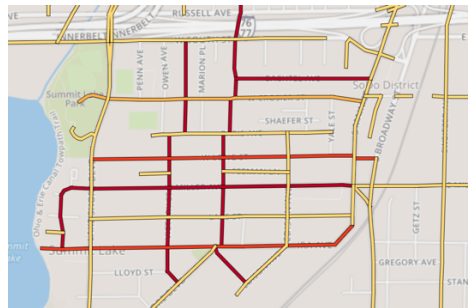
- d. Video Player – this makes it easier for the user to progress backwards and forwards along any trip video. By moving the control bar on the bottom, and then clicking “Play” will start the video at that location. Both left and right sides of the collection vehicle are synced together. Key words from the narrative are also included to help guide the user as to where to move to on the video.



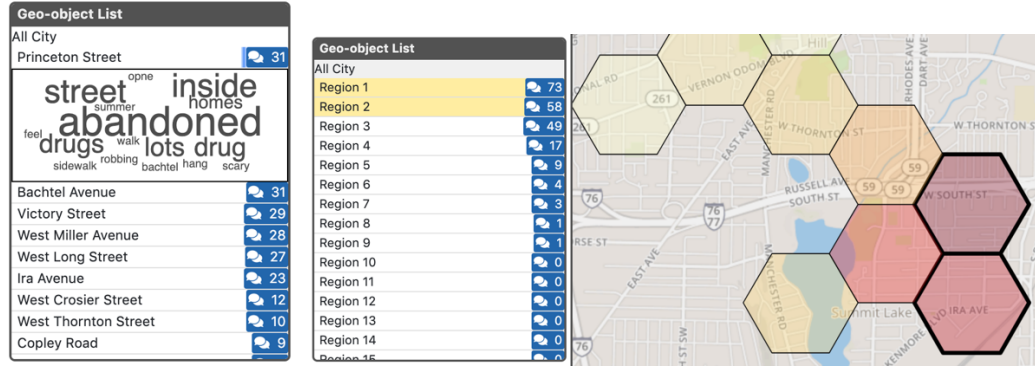
3. Spatial Mode aggregates all the trips into different spatial units such as streets and regions. This can be useful for more general comparison across a city and for multiple time periods. Spatial Mode consists of 6 main components including (a) Spatial Units, (b) Geo Object List, (c) Analytical Tools, (d) Keywords Filter, (e) Map View, (f) Visualization Panel.



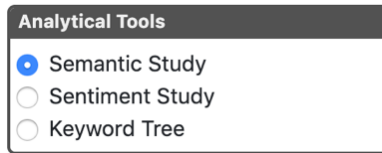
- a. Spatial Units – allow you to switch between different spatial units such as Street and Region. By toggling on any of the checkboxes will change the map view into different units. The region unit provides a range slider, dragging the slider will resize the region. You can also switch to different region types such as “Square Cells” and “Hexagon Cells”. The example below shows different region units (Streets, Square region, and Hexagon region).



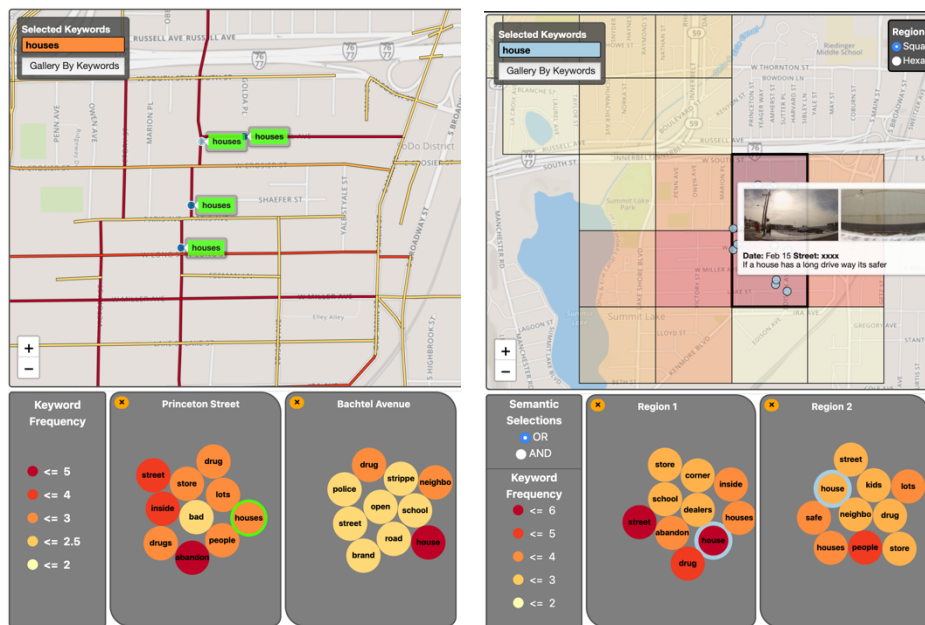
- b. Geo Object List – is similar to “Trip List” in the Trip Mode. Geo Object list all street's names or region numbers. Clicking on the narratives button will show the associated wordcloud which is a summary of important word frequency in that narrative. The example below shows a summary of all important words along “Princeton Street” (which has been user selected). Selecting “Region 1” and “Region 2” will highlight the selection over the map.



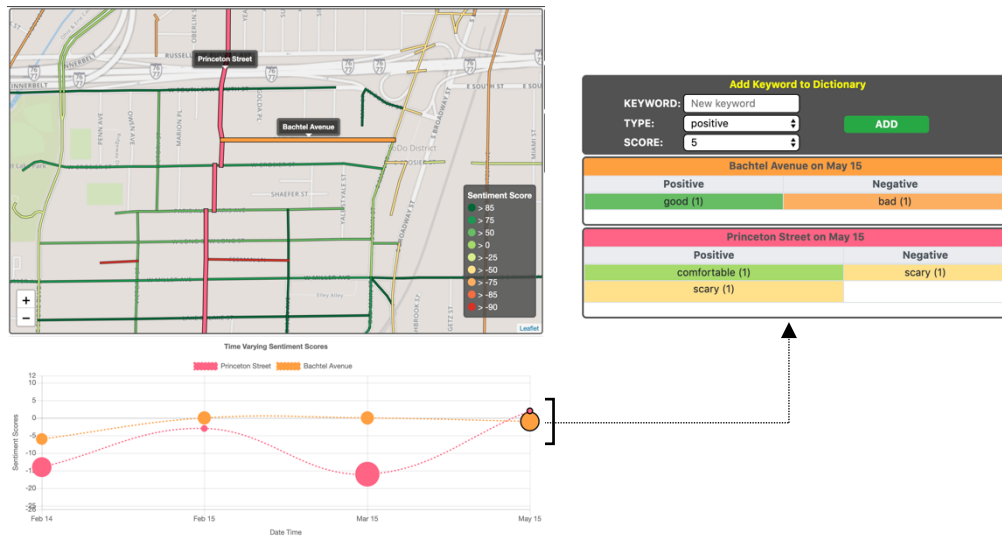
- c. Analytic Tools – provide 3 different visualization panels and studies such as “Semantic Study”, “Sentiment Study”, and “Keyword Tree”. Clicking on any of these tools will switch to different analysis and visualization.



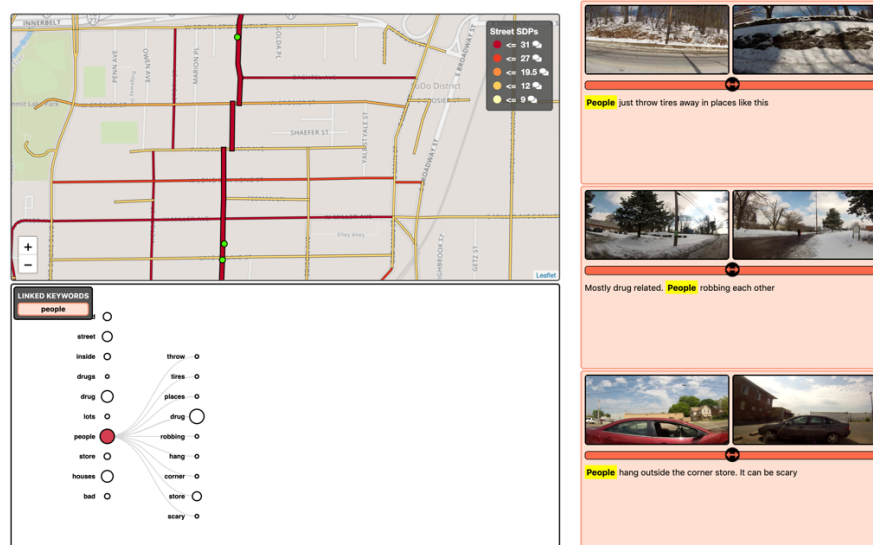
- i. Semantic Study – visualizes the top 10 keyword bubbles which are color coded by frequency. Select each any street or region from the Geo-object List will add a pile of cards with bubbles. Clicking on the “X” button will delete the selected street. In addition, clicking on any of the bubbles will show the information over the map. The example below shows clicking on bubble with keyword “houses“ will show important keyword (highlighted in green) over the map.



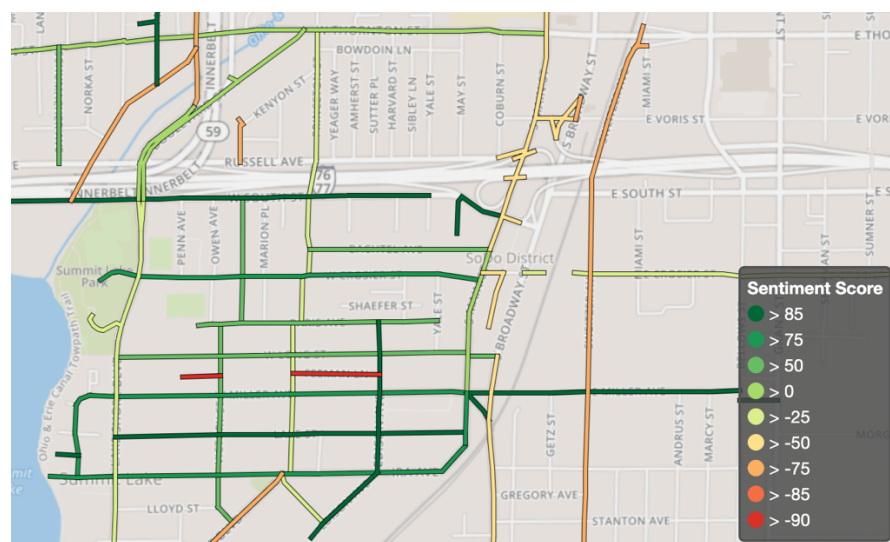
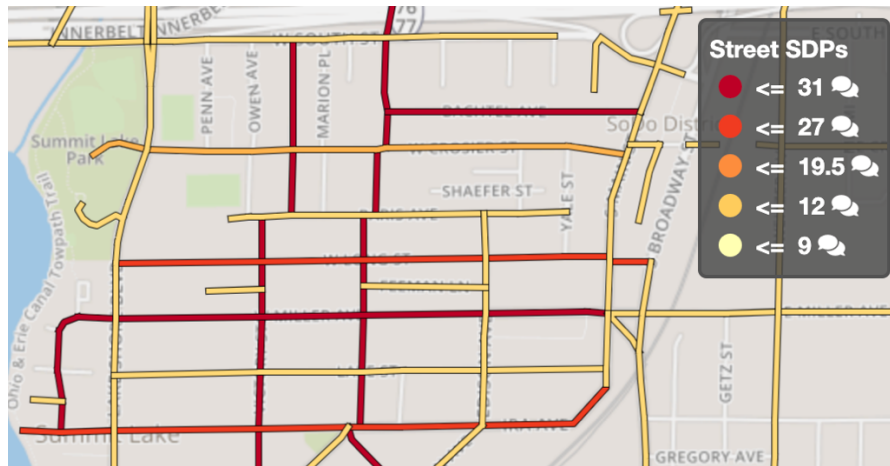
- ii. Sentiment Study – The line chart is presented to show words that are normally considered to have “good” or “bad” associations in the selection regions. The scores are sorted by trips with positive (+) scores on the X-Axis and negative (-) scores on the Y-Axis. The circle size varies according to the numbers of narratives . The example below shows the sentiment scores of the selected street “Princeton Street” and “Bachtel Avenue”. Clicking on any of the circles in the line chart will create a popup that lists the keywords (on the right). You may add your own sentiment score of each keyword if needed.



- iii. Keyword Tree – this visualizes the node-link diagram where the top words are sorted base on the frequency value with the size of the circle corresponding to the number of narratives (here “people” is mentioned the most frequently). Clicking on each node will show the top associated words with that word, along with what is said and where it is said.



- d. Keyword Filter – similar to Trip Mode, most frequently mentioned words are displayed in the chart and ranked by frequency. These should be used as a guide to the tone and subject matter of the narrative.
- e. Map view – this visualizes different streets by heat map colors such as red to yellow for number of narratives, or green to red for sentiment scores. The bottom map suggests those roads where “bad” things are mentioned, and those places where more positive mentions are made.



Please contact: sjamonna@kent.edu for any questions or feedbacks