CAPSTONE PROPOSAL

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Preview

A research project to analysis food insecurity and digital divide indicators in the city of Philadelphia to inform and spatially identify the potential locations for establishing food and wi-fi network.

According to the Philly government nearly “17% of trash sent to the landfill is wasted food This adds up to around 116 million pounds of food waste coming from commercial properties such as restaurants and other food service establishments. ”[[1]](https://www.phila.gov/2021-08-11-a-philadelphia-business-guide-to-reducing-food-waste/) While on the other hand this enormous population suffers from food insecurity. It’s reported that in one in four (22.4%) households are facing food insecurity in Philadelphia which is well above the national average of 16.5% for all households with children. [[2]](https://drexel.edu/hunger-free-center/research/briefs-and-reports/philadelphia-hunger/)The project will make sure people have basic internet access to improve their digital literacy, which will help people to browse and access various Governmental programs and promote the awareness of various smart cities initiatives.

In the first step, three main datasets will be collected. The first one is wi-fi resources datasets. That will help in identifying the location of existing internet locations and the conditions. The second one is food supply resources datasets. This dataset mainly comes from supermarkets, cafeterias, food hubs etc. The restaurants data will be scarped from yelp and maps, which will help in establishing the proximity and density of food collections points. The third one is census datasets, it will give us demography data and let us know the information about the community. Various indicators like, median household income, women and children population, homeless shelters, poverty to name a few would help identify our target users. Building on the analysis of the source, users and infrastructure is analysis, we would be drawing data on a host of public spaces, like parks, public libraries, churches, public parking lots to name a few to organize these drives.

As the project develops and collects data from these sites, it would be able to produce a community-level grid that can be reproduced into many other areas and also and also be able to predict the extent of usage of the sites and if these any site is under serving or overcrowded or in case of natural calamity, the network can easily adjust itself to suit the needs.

Data processing

All the considered datasets are first checked if they minimum requirement of locations and the data which is scrapped from websites like parking locations and wifi hot spots are drawn using google APi and selenium to make a data set consistent with the rest of the data sets, primarily important columns being latitude and longitude locations.

Once the data sets are all wrangled, each park and rec data points if filtered and rated to with the highest ranking to its proximity to Wi-Fi locations and parking space availability and farthest to existing meal site locations. Once all the park data points are ranked, this data set would be over laid on census indicators like poverty, median household income, bachelors’ degree etc, ….

Problem:

1. How to overlay the census data with flex network data set?
2. Trying to figure out how to locate the optimal locations in tracts that need these locations?