

Planning the construction of car-sharing parking areas in Milan

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1 Background and problem statement

Milan is located at the center of the so-called Po Valley, one of the most polluted areas in Europe. Recently, the mayor of Milan Giuseppe Sala stated that “around one million vehicles enter the city every day”. This fact constitutes a serious environmental problem. Moreover, the traffic in the city is often very intense, also causing problems to the circulation of ambulances and firemen vehicles. Car sharing can be seen as a possible solution. In Milan this service started a few years ago and has multiple advantages. The most obvious one being the reduction of the number of vehicles in the city. In addition, many cars have electric engines and might limit air pollution. This project simulates the study of car-sharing parking areas in the city, trying to rationalize their position and suggest how to build eventual new areas.

This task will be accomplished comparing the position of the existing parking areas with the venues nearby. The identification of popular places close to these areas will be used to make hypotheses concerning the typical car sharing users, and several areas will be grouped according to the type of venues they are close to. Finally, the position of the parking areas will be compared to the position of the subway stations. This comparison will point out the necessity to strongly increase the number of parking areas in certain zones of the city.

2 Data acquisition and preparation

To perform this study a lot of data is needed, the first being the position of the parking areas in the city. This data is freely available at the Milan Comune website through this link. The table also comprehends the number of parking places for each area, allowing a deeper study. Another useful information contained in the data set is the zone of Milan the different parking areas belong to.

To visualize the number of parking places of each area it is also necessary to have the geojson data of the nine zones of Milan. This file is available at this Github repository.

The last data source required is the table containing the positions of all the subway stations in Milan. This data is provided by datiopen.it at this link. This data set contains the position of all the Italian stations. However, it is possible to filter the results directly from their website to gather only the data concerning the city of Milan.

To explore the venues near the parking areas, the Foursquare data set will be used. This data will be employed to understand and group different parking areas according to the venues they are close to. The number of venues retrieved for each parking area will be restricted to 10, so that a free foursquare account will be sufficient for data acquisition.