Smart City – Parking Data Analysis Report

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Data backed decisions in our day to day lives are becoming are more common and are helping us confidently make decision to improve our lives. With the introduction of the Internet and access to smart phones the world is connected which gives us freedom to manage our lives in better way through better planning and ease. Smart Phones have practically taken over every aspect of our life. Right from planning our day to entertainment to being socially connected the smart phone has it all. If we can use the same analogy of the smart phone to a city it will introduce us to the concept of smart city. A Smart City in simple terms is an urban development vision where we integrate multiple information with communication and technology in a secure way to manage city’s assets which include local departments, schools, libraries, parking systems, transport systems and other community services.

Parking is the second or third highest revenue source for a city. With a rapid growth rate in the registration of new cars worldwide. Analyzing the parking needs of a city will be critical to manage the transport system of a city. It also gives us the insights of the parking behavior take action accordingly. Parking systems analysis will help us understand the parking arrangements in the city and help us plan our infrastructure better. There are a number of advantage of parking analytics. They are 1. With data available we can analyze the parking behavior such as parking occupancy and the help us identify the peak parking hours and help in planning our systems better.2. With a lot of importance given to the environment these days we can avoid unnecessary carbon dioxide emissions and other pollutants into the environment 3. If the parking behavior of motorist the administration will be able to regularize the prices of parking 4. This will also help the establishment to search the pattern in resolving the issues like parking tickets disputes 5. This help in increasing the efficiency of traffic monitoring and improved planning driving a good return of investment and savings. Further for the law enforcement establishment there are a number of advantages which the smart parking systems can provide. They are a) Real time monitoring and updates on traffic violations b) improve workforce management based on the amount of work which was involved and c) better use of time and effort in maintaining the traffic discipline in the cities. Further building a smarter system can actually can actually help in that roads make walkable, bikeable and serviceable public transport.

A city in Denmark named Aarhus is declared a smart city. This is city is setting new goals for cities across the world to meet the challenges which the cities are facing in an effecting and secure way. The collaboration of public and private sector, citizens and the business community the Aarhus is creating opportunities for digitalization across all the sectors of establishment. The digitalization helped the citizens of this city to come up with the rational and practical solutions for the problems which it faced on regular basis. Aarhus promotes national and international collaboration across cities and regions to ensure that the efforts are coordinated in a secured way. One of classic example for the transport system is where the chips in bicycles which helps make the light at the traffic signal green which helps in the easy passage to the city. Further Aarhus favors sustainable solutions for all the challenges the city faces in a prompt and secure way. And further it also encourages collaboration across cities and regions to ensure that the efforts are coordinated in a proper way.

In this section we analyze the parking data for Aarhus for May 2014 –December 2014. In Aarhus there are told eight parking lots which are constructed for the public. The data set consists of fifty five thousand two hundred and sixty four data points. The data was analyzed for six month period to give us a trend to analyze the parking behavior of the citizens. The data points were divided into six fields. They are vehicle count, update time, identification number, total spaces, and garage code and stream time. The various data fields define different aspects of the parking management system. Vehicle count gives the number of vehicles parked at a particular time. Update time gives us the information about the time the vehicle entered the parking area. Identification number gives the identification number of the data points. The total space available gives the number of spaces available for parking at that particular time. Garage code gives the unique code for the garage where the vehicles are parked. The stream time indicates the time when the data is captured.

We now perform an initial analysis of the data we observe that some parameters which doesn’t not impact the analysis for studying the parking pattern of the city. For example there data fields such as stream time does not impact the analysis in any way. The update time will not add any value in the final analysis. Hence we have the key performance indicators which impacts the final analysis of the parking arrangements of the city. The Key performance indicators are vehicle count, total spaces, garage code and id. The vehicle count will be critical to identify the number of vehicles parked at a given time. The garage code is the unique identification number for various parking in the city. From the initial analysis suggest that the highest number of vehicles parked in the garage is 1014 and least number of vehicle parked if zero. Based on the data, during the peak office hours the number of the vehicle parked are the highest. The Scandcenter garage has the highest number of parking. The total number of spaces available will give us the number of parking spaces available in the garage. These parameters will allows us to analyze the parking analysis better. This will help us plan our infrastructure better.