Finding a Parking Spot in the City

Analysis Problem:

Nowadays, many cities have addressed parking problems associated with educational institutions, commercial activities, special events, and most recently the opening of metros or rail services.

With the high percentage of vehicle ownership in different cities, parking has become a conflicting and confusing situation for several people.

Whether at an airport, bus stations and shopping centres, problems with parking are an everyday occurrence. Lack of accessible parking can hurt local business and decrease the quality of life for residents. Due to the importance of parking, cities study and analyse parking programs and performance on an ongoing basis. The following list identifies the kinds of problems that typically occur in a community.

Inadequate information for motorists on parking availability and price: Motorists are likely to be frustrated if they expected abundant and free parking but find limited or expensive parking, or if they must spend excessive time searching for a parking space.

Inefficient use of existing parking capacity: Local zoning ordinances, building codes, and other development practices can result in an oversupply of parking spaces and an inefficient use of existing parking.

Excessive automobile use. Automobile dependency imposes many costs on society: User costs include reduced travel choices, increased vehicle and residential parking costs, and increased accident risk. External costs include increased road and parking facility costs, congestion, uncompensated accident damages, environmental degradation, negative land use impacts, and reduced mobility for non-drivers.

Economic, environmental and aesthetic impacts of parking facilities: Businesses ultimately bear the costs of unpriced parking, directly or through taxes that they must pass on to customers. Generous parking requirements can constrain businesses in other ways.

Parking spaces that are an inconvenience to nearby residents and businesses: Businesses may have trouble in retaining customers and residences may have a problem finding parking close to their homes.

Demand for handicapped parking spaces: These spaces are generally located, in both garages and surface lots, as close to access ramps and curb cuts as possible. Impact of additional parking spaces on area traffic and residents.

Existing, severe, spill over problems: When all of the parking demand generated by a certain use (or group of uses) is not being accommodated on the site of those uses or within the adjacent on-street spaces.

Out-of-town parking: The majority of vehicles parked in a residential area are from outside of the neighbourhood.

Loading and unloading zones: Scarce parking for commercial vehicles to load or unload will cause them to block travel lanes.

Inconvenient parking options: Parking within a reasonable walking distance (3 blocks) is hard to find during specific times of the day.

Inadequate pricing methods: Many require motorists to prepay based on the maximum amount of time that they may be parked, and the price structure used at a particular parking space. As a result, motorists often end up paying for time they don't actually use, and if they guess wrong they face a fine.

Confusing parking policies: Regulations and fees may apply at certain times but not others. Parking subsidies may be provided to some users but not others.

Difficulties with parking regulation and pricing: This problem can cause problems, including traffic congestion as motorist cruise for parking or stop in a traffic lane to wait for a space, and parking congestion in nearby areas.

Lack of sufficient parking at event site: Special events can potentially disrupt traffic flow and require crowd management. Each event can generate its own unique transportation issues.

Low parking turnover rate: This can occur when cars are parked in the same space for at least 4 hours (on average).

Data to Solve the Problem:

_id	identifier	name	spaces	free_spaces	opening_times	notes	latitude	longitude	date	price	h
1	1	Paul Street	749	485	Monday - Saturday 07.30 -00.00, Sunday 11.30 - 00.00		51.900542	-8.475415	2018-10-04T09:59:00.716000	€2.30 per hour; Flat rate €3.50 from 18.30-24.00	2
2	2	North Main Street	330	186	Monday - Saturday 07.30 - 21.30, Sunday 11.30 - 21.30		51.901008	-8.477804	2018-10-04T09:59:00.716000	€1.70 per hour; Flat rate €2.00 from 18.30-21.30	2
3	9	Black Ash Park & Ride	935	550	Monday - Saturday 06:45 - 20:00		51.878279	-8.466956	2018-10-04T10:00:09.772000	€5 per day	2.

Methodology:

The system is about 80 percent accurate even if only a relatively small number of subscribers happen to be in the area, said director of product management Mark Pendergrast. The picture below indicates what a driver might see in Munich: the colour coding indicates probable availability.

It can't guarantee you a spot. Still, that's enough to help you narrow down your search, he added.

The other advantage is that it doesn't require embedding physical sensors in pavement. It's a pure software play for analysing real-world information.

Anyone who has driven around in a fruitless search for a spot can understand the efficiency benefits right away. Inrix further adds that industry experts estimate up to 30 percent of traffic in congested urban areas where street parking is in high demand results from drivers looking for parking. Nearly six out of ten drivers have abandoned their search for a parking space at least once and drivers often spend an average of nearly 20 minutes in pursuit of a spot.

Result:

Discussion:

I had made some changes with the algorithms to work with this data and find the necessary information. New IOT sensors were likely to be installed to get accurate data from the places and can explore more places.

Conclusion:

Hence, this kind of service is very much useful for people who are travelling from faraway places.