Project Proposal

For

Book My Space

Version 1.0

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- ## PROBLEM STATEMENT

As customers, the major problem we face today while looking for a parking slot wherever we go either a mall, theatre, sports event, hospital or any public place is availability of parking spots. Even if we get an available parking spot in the parking lot we plan to go to, there is always lack of proper management. Most common scenario in today's parking Lot is when we walkin asks the security person if there is any spot available then he checks his register. If there's no spot then we have just wasted our 20 - 30 minutes driving there. In case there is a spot available the security person cuts a ticket give it to us and tells us the floor number(in case of big structured parking lots) or points us randomly to free area(in case of small parking lots) from there on it's our problem to look for the space, park our vehicle and get to our work.

Let's imagine a scenario where we have a medical emergency. We went to JNMC straight to the emergency block, dropped our patient, now next thing instead of being with our victim and doctors first we have to deal with parking slot availability, parking ticket and all that mess.

Let's say we are going to the theatre, railway station or any such public place where there is always rush and humongous traffic and we are really late, again first we have to deal with the same mess.

Lastly, let's imagine we are going to the famous Aligarh numaish now we all have dealt with the vehicle parking crisis where we don't have any idea whether we are going to find any available spot or not or we have to risk the security and park our vehicle randomly on roadside and eslate the already traffic crisis.

As the parking lot manager/owner the major problem they face is the proper management of parking booking. Of Course they could install something like a smart parking booking system but neither many of them can afford the expenditure nor do they have the infrastructure (Even when they do install such systems the hardwares have a life span, and in India it's most common when we install something even as small as a CCTV camera once they get out of service mostly they don't get replaced so sooner or later these technologies are merely a showpiece). And another major issue the parking lot owner faces is the credibility of security person appointed at parking lots, it's not like the owner comes in every day to check the register for total income of the day, and the security person may as well be deceiving and not entering all the records to save some money off the book.

- ## PROPOSED SOLUTION

Earlier when had to book a train ticket or a bus/flight ticket first we had to go to the railway station / bus stand / airport inquire about the trains available, seats available and then we were able to book tickets and we should not forget the long lines / hours we had to wait to get the our answer and ticket. But then with changing times came the online reservation and now we can book tickets / look for available seats from the comfort of our home and also we don't need to hear the constant nagging "Are jaldi karo bhaiya". Similarly came the online ticket booking for theatres, public rides, amusement parks and what not.

So if there was any trustworthy platform to book parking slots online whenever and wherever we want, wouldn't that be nice. With a platform like this we can deal with the most common problem of finding available parking slots. And we can just search for the place/address where we want a parking lot and it can show the results of all parking lots within a radius. And then we can just look for an available slot for the duration, date, time we want and book it. It can reduce that hassle and mess of finding a parking spot. We won't need to deal with the security person. All we need to do is show him the booking details and move our vehicle to our spot directly since we already have the details about the spot (like floor number, spot number). It will be just like a train ticket, we have already booked the ticket and show it to the TTE on our mobile phone. And for those parking lots that have better infrastructure we can just scan QR generated at the time of booking like we do in smart toll service and even make the customer experience faster and effortless.

Now lets again imagine the first scenario now on our way to JNMC we can just look if there is a spot available in JNMC or any other parking lot nearby we book it(within 2-3 minutes) while we are still on our way and just park the vehicle on arriving and be with our patient, no mess of looking, purchasing tickets finding spot.

Now the second scenario we are really late to catch the train but this time we can book our spot while on our way and not just reduce the mess of finding spot we can even find and book the closest spot to the railway station entrance and hopefully we will be able to catch the train which we most likely would have missed if we had to deal with the mess.

For the last scenario mentioned above, we don't need to wait for the suspense of whether we will get a spot or not or we have to park on the roadside if we don't. Let's say we planned to go to numaish tomorrow evening, then we will book the spot today itself or the earliest and enjoy our evening tension-free.

As per the parking lot manager/owner they can either spend the money and install a smart parking booking system (if they can afford it) or they can just register their business on a free web platform and fill in all the details (such as number of parking slots, parking charges, time and duration..etc). Now whether it be a parking lot for numaish, hospital, university, theatre, railway station, bus stop, airport or public place they can all register and have managed their bookings in a more automated and optimised way with maximum profit. The owner no longer needs to check the register, they can just login anytime they want and see all the bookings done till date and price received and they can deal with security personnel in case of any discrepancies. If they have the infrastructure and they can afford it they can just install a QR scanner and a payment receiving machine (for those who don't make payment online) at the entrance and fully automate the whole parking lot (like smart toll services). Parking lot managers can still have both options for their customer either they can book online or they can walk in and book like they used to do earlier with a ticket and all the mess. But here we will need them to update the data regularly.

Example: Let's say I have a parking Lot with a capacity of 400 slots with both booking options, up until 11:26 a.m 126 bookings has been done online and 45 have done walkin bookings so the security person or who is managing the parking they will have to login(from manager account) and enter the data that these 45 spots have been booked offline and we will automate the rest 126

bookings so when someone look for a spot at 11:26 a.m he sees there are 229 spots available. This way the user gets the live and correct details about the availability.

This is a drawback or we can say an extra work needed to be done from the user side. But there are also extra side gains like the cost of ticket production, material wastage of the register can be minimized, the booking data will never get lost, with online exposure they parking lots will have more customer retention and income from more booking than they used to get earlier.

- **PROJECT DESCRIPTION**

    Book My Space is a web application for online vehicle parking slot booking and its management. It is a web based platform where people can just search for the area, address they are going and want a parking spot to park their vehicle and get results of all parking lots within a radius and they can book a spot in any one of them based on their availability and users choice for distance, price, duration, time, date.
Any parking lot manager/owner will be able to register their parking lot and automate the current manual effort of booking, payments, and management of parking spots.

- **TYPES OF USERS**
1. Customer: one who is looking to book a slot.
2. Parking Lot Manager: one who owns/manages the parking lot.

- **FEATURES**

    Here are the overview of features we are looking to implement in this project

1. PARKING LOT SEARCH: users looking to book a slot can search for nearby parking lots using the address or name of place they are/will be going or they can use their device's location feature to enter the location using map and they can filter the search result based on price, availability, timing, duration, distance, rating...etc.
2. BOOKING PARKING SPOT: after customer have made their choice they can book the spot for desired date and time and also make payment online(optional) and after the booking is successful the parking spot booking details(such as spot number, floor number, time, date, charges to pay/paid) with be available to the customer and a QR will be generated for faster customer experience. And the same details regarding the booking will be sent to the parking lot manager with automated data entry in their database.
3. REGISTER PARKING LOT: parking lot owner/manager will be able to signup and register their parking lot with all the details (such as number of slots, operation timing, parking charges, security details, address...etc).
4. MANAGE PARKING LOT: parking lot manager will be able to see all the details such as number of bookings done today/ this week/ this month, total earning...etc. They will be able to manage and update their data if bookings are also done offline, new spots constructed, parking charges changed, security personnel changed...etc

5. PAYMENT GATEWAY: the customers will be able make online payment beforehand for faster parking, the parking manager will be able to add their payment modes available like credit card, debit card, paytm or any such ways.
6. FEEDBACK MECHANISM: we can implement an option for customers to give feedback after service in the form of ratings with which can optimise search results using algorithms like ELO rating algorithm or something similar.

1.2   Technologies to be used

- FRONTEND: HTML, CSS, JavaScript (we can also use reactJS if there's a need)
- BACKEND: python, MySQL, django(for framework) (and anything else if there's a need)

- **Definition, Acronyms, and Abbreviations**

- JNMC- Jawaharlal Nehru Medical College is the constituent medical college of Aligarh Muslim University, located in Aligarh, in the indian state of UttarPradesh.

- CCTV - Closed-circuit television (CCTV), also known as video surveillance, is the use of video cameras to transmit a signal to a specific place, on a limited set of monitors.

- TTE - Train Ticket Examiner checks and ensures that the seat has been rightly allotted to the passengers in the train.

- QR - A QR code (abbreviated from Quick Response code) is a type of matrix barcode (or two-dimensional barcode). A barcode is a machine-readable optical label that contains information about the item to which it is attached.

- HTML - The HyperText Markup Language is the standard markup language for documents designed to be displayed in a web browser.

- CSS - Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.

- MySQL - "SQL", the abbreviation for Structured Query Language. A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database.

- ELO rating algorithm - The Elo rating system is a method for calculating the relative skill levels of players in zero-sum games such as chess.

1.0   References

- https://www.planyo.com/car-parking-booking-system.php
- http://synopsis.nevemtech.com/index.aspx?Id=S270
- This is not exactly same as our project, it is actually a smart parking booking system needed to be installed individually for parking lot ([Link]())