PARKING GARAGE AUTOMATION

Goal:
To maximize the occupancy of the parking garage and develop a user friendly mechanism that helps customers find and reserve the parking spots available.

Problrms Faced:

1)How can anyone find parking in a city they have never visited and open spaces are hard to find and customers need secure parking may be even on recurring basis, i.e. every day, week, month, at a certain time
2)Customers can't be sure that a spot will be available for parking when they arrive.

Solution:
An automated parking garage a web-based solution can help both the customers and owners,
1)There is ability to edit reservations on-the-fly, both before and during a reservation.
2)Online accounts that can help manage parking for single customers or corporations.
3)Since online it can be managed remotely and we need less staff or may be no staff.
4)Park vehicles quickly and more efficiently than a manual system.
5)Owner can manage system pricing,can view garage usage history and check parking lot capacity online from their homes itself.
6)Since online it is Dynamic, we can add vehicles that the garage will recognize upon arrival.

Customers can,
1)Create a user account,can make and track reservations for future parking,manage their accounts and track their parking history.
2)Create reservations quickly ahead of time from any web browser for one time or for a recurrence of times eg: every Monday for the next month.
3)View a calendar of their upcoming reservations, and cancel or extend them as necessary and can register multiple vehicles.
4)Pay bills online,since handle automated paying for parking on-the-spot is not needed but can be by collecting monthly payments from customers so no need to hire additional help.

Implementation :

1)Customers will either be recognized automatically by their vehicle's license plate or enter their customer ID and password to park.
2)If they had already reserved their vehicle's number was already registered while reservation,if they did not reserve on the spot is also accepted if slots are available,we have three kind of situations like Registered Customer with a reservation, Registered Customer without a reservation, or Walk In Customer.
3)A spot will be assigned to the customer automatically to ensure the most efficient possible parking in the garage so that maximum number of cars can fit in.
4)Each spot will be numbered and details regarding it are displayed against it i.e whether anyone is already assigned or it is free and regarding its dimensions and if it is occupied then the customers details and hours of operations are noted.
5)Capability to handle multiple garages, and if one garage is full the customer may be directed to another nearby garage.
6)Billing is done based on whether recurring reservation or one time reservation in another way monthly billing or on spot billing.

Usefull Information:

Registered Reserved customer:

If the customer is registered, he is asked for the login details. If the software detects that the user has made a reservation the software will link the current plate number to the reservation. Then it will follow the same procedure that would be used to service a reserved customer.

Registered Unreserved customer:

If the customer is registered, he is asked for the login details. If the software detects no reservation made for the user, it checks to see if there is a vacant spot.If available, the user will be asked if he accepts to the terms and conditions and be a walk-in customer. If the user accepts the software links the plate number to the user account.The database will be updated to decrement the number of available spots.If there are no spots available , the user will be asked to leave.

Unregistered customer or Walk-In Customers:

If the customer is unregistered, the software checks to see if there is a vacant spot in the ground floor. If there is a spot, the user will be asked if he accepts to the terms and conditions and be a walk-in customer.If available, the user will be asked if he accepts to the terms and conditions and be a walk-in customer. If the user accepts the software links the plate number to the user account.The database is updated .If there are no spots available , the user will be asked to leave.

Rules:

- If a user wants to cancel a particular reservation, it has to be done at least 30 minutes (decided by administrator) prior to the end of the reservation period. If it is canceled successfully then the user will not be charged anything. If not then the user will be just charged for the entire reservation period.

- Walk-in customers (unreserved registered and unregistered customers) will be charged at a higher rate than reserved/contract customers. The price ranges will be decided by the administrator.The customer will then swipe his/her credit card before driving though to park.

- Customers who do not leave the garage before the end of the reservation period will be charged at overstay rates for the time of stay after the end of the reservation period. Overstay customers will receive a text message warning them of the overstay policy.

- If the user doesn't arrive within the reserved period of time he will be charged for the entire reservation time.If a user decides to leave the garage before the reserved period of time, he will still be charged for the entire reservation period.

- Users who have made a reservation can extend their reservation anytime before the end of the reserved duration provided there are available spots.

- The minimum parking time for any type of reservation will be 30 minutes. All parking times must be in 30 minute increments.

Technologies used:

Php,Nosql,html,CSS,javascript.