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Objective:

Finding parking has been an inconvenience for all drivers since the automobile was invented. Anyone who drives knows the aggravation after circling a parking lot or deck looking for an open spot, only to find there either isn’t any left or to finally find a spot, but not until after you’ve been made late. A parking deck offers many spots usually in a convenient location. For example, in urban areas like New Brunswick, NJ street parking is almost impossible to come by and drivers are forced to pay for parking in a parking deck or garage. A popular parking deck sits down-town between the hospital, a grocery store, and the train station. Users range from hospital employees and commuters who use the train and may leave their cars unattended all day, to shoppers and people enjoying a night out. This gets expensive for regular users like employees and commuters who still have to pay the hourly fee. Currently, the management of parking spaces requires a garage keeper to keep track of open spaces and an outdated ticketing system. It does not allow for reservations to be made ahead of time, so customers hoping to make their train or be on time for work will be inconvenienced, to say the least, if there is not sufficient parking available. Because of lacking a computerized system, congestion occurs a lot inside the garages. Especially during peak time, the garages could have free spots but would have no way to check the availabilities instantly.

Goal:

The goals of this project include resolving the issues with present-day parking decks mentioned above, as well as optimizing profits for the garage owner. Together our team will do this by designing and implementing a parking management system. Once our system is implemented, customers will be able to count on the garage to have a parking spot available just for them, walk-ins will know if the garage is full upon arrival instead of endlessly searching, and regular users will be able to pay for their spot on a monthly basis. Ultimately, our team aims to take the annoyance out of parking and instead transform it into the epitome of ease.

Solution:

The system will be comprised of a user interface for both the customer and the garage keeper, hardware devices in the garage such as sensors, license plate detectors, and an elevator with digital displays, and lastly a website for online reservations and registration. Since parking garages are often in urban areas, cars will not be able to line up outside of the garage as they will hinder traffic. Customers will just drive away if this is the case, so it is important to make the user interface fast and painless in order to maximize profits. The online registration will attract daily users to use the garage as they will enjoy a discounted monthly fee instead of hourly, no cancelation fees, and a guaranteed free parking spot available when they arrive. They will only have to drive up to the entrance, their license plates will be detected and they will be allowed entry to their pre-reserved spot. Reservations can be made by any user who wants to reserve a spot for any amount of time. Our system proposal is innovative because it will also include charging stations in prime location in the garage which will draw more customers as this is a new and rare commodity to come by. While the “eco-charging” spots are not in use they can be used for convenient parking, afforded by a small extra fee, and can be used in the rare case that a reserved spot is taken and there are no remaining spots in the entire garage. Users are assigned specific places to park their vehicles, also their vehicle plates are recorded in order to calculate parking time. Payment is made on website or mobile application by credit cards or PayPal.