**Introduction:**

Recent economic growth and the advent of affordable cars have made cars accessible to any average middle-class citizen, which is a good thing however It leads to severe traffic jams, pollution, and limited driving spaces. One of the important concerns, which is to be considered, is the problem of parking those vehicles. Even if you have a space to park your car, you will waste a lot of time looking for that parking spot, which leads to higher fuel consumption and is not environmentally friendly.

It is possible to suffer unseen emotional and mental issues due to sometimes maddening searches. A lack of parking spaces can harm local businesses and reduce the quality of life for residents. On-street/off-street parking during traffic is dangerous and one of the most influential factors in the delay. Many parking spaces on the main roads of cities affect the operation of local transport, especially during peak hours.

**Requirement & Justification**

The development of a parking app targets one of the largest headaches in urban traffic: finding vacant parking spaces and curbing illegal parking. According to one article, drivers spend about 17 hours searching for empty spaces each year, wasting $345 in fuel, time, and pollution. As the number of vehicles in the city continues to increase, it becomes difficult to find a parking space and parking spaces are limited. The Mobile application allows users to find the parking spot by just entering the current location or destination location where he wants to park their vehicle. With Smart Parking, parking spots are monitored through real-time data and applications that enable users to make informed decisions. Our goal is to automate and reduce the time spent manually searching for the ideal parking floor, spot, or lot. There are some solutions that include a complete suite of services such as online payments, parking time notifications, and even search functions for very large parking lots. Parking solutions can be highly beneficial to both users and owners of parking lots.

**Functional Requirements:**

**FR1: Sign in and Log in-** Contain Username and Password field text box. Also contain Login button, Forgot password field.

**FR2:** **User profile –** Users personal information detail like FirstName, Last Name, Phone Number, Address, DOB and Email-id fields

**FR3:** **Search –** Search field text boxto search for specific locationintegrated with google maps.

**FR4:** **Newsfeed –** A news feed (newsfeed) list of newly published content on a website. End users can receive push updates for new content on a site by subscribing to the site's news feed.

**FR5:** **Live Chat (Custom)** – Contain live chat bot window (immediate assistance) to resolve the user queries

**FR6**: **Push Notifications –** Contain the Live Notification and Reminders

**FR7**: **Billing Cart** – To pay the money for using the parking

**FR8**: **Payment Gateway Integration** – Integrate with third parties (payment providers)

**FR9:** **Facebook Integration** – Integrate with Facebook and other social media sites

**FR10**: **Google Maps Integration** - Integrate with Google Maps and Maps for iOS

**FR11**: **Admin Panel** – Add the admin panel page

**FR12**: **Product Details Page –** Identify the Parking availability

**FR13**: **Menu & Options** – Introduce Menu and Options in iOS and Android

**FR14**: **Saved Places and Promo Code** – Integrate with the Database to save the places. Enable the Promo Code option when applicable

**Non-Functional Requirements:**

**NFR1:** Parking inspection data must be displayed in real-time.

**NFR2:** Application Booking should not take more than 7 seconds.

**NFR3:** A booking confirmation email should arrive within 5 minutes.

**NFR4:** If it is impossible to reserve a parking space, the user must be informed.

**NFR5:** If multiple users have access to the computer, it should not be old.

**NFR6:** This system should not allow multiple users to reserve a parking space at the same time.

**NFR7:** The system should not allow reservation of occupied (unreserved) parking spaces.

**Solution and cost estimation**

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| --- | --- |
| **Resources** | **Cost** |
| Requirement Analysis | 5K CAD |
| Planning and Design | 20K CAD |
| Environment Setup (Servers, Software License, Infrastructure setup) | 25K CAD |
| Development | 30K CAD |
| Testing | 20K CAD |
| Deploy | 10K CAD |
| **Total Estimated Cost = $110,000 CAD** | |

**Benefits for Company of investing in this solution**

* Reduce Traffic
* Reduce pollution
* Increase Company Revenue and Profit
* Future Opportunities for the Company
* Expand the Parking Business in all Provinces
* Increase the Customer Base

**Benefits for Users of investing in this solution**

* Convenience for people to reserve a parking slot beforehand.
* Save time and Money

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