**Parking Management System**

**(Project Requirements Specifications)**

**Project Number**

#7

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# **Scope**

**Problem Overview**

Urban areas struggle with limited parking spaces and increasing vehicles. Poor parking management causes traffic jams, pollution, and frustration. A Parking Management System (PMS) can solve this by automating parking allocation, tracking availability, and reducing errors.

**Objectives and Steps  
Objectives:**

* Build an automated parking system for better efficiency and user satisfaction.
* Allow real-time parking slot tracking and booking.
* Support digital payment options.

**Steps:**

* Gather requirements through surveys and interviews.
* Design the system with key features like booking, tracking, and payments.
* Develop and test each feature step by step.
* Get feedback from users to improve usability.

**Expected Benefits  
Academic:**

* Learn how to develop real-world software.
* Understand the use of IoT, databases, and mobile apps.

**Industrial:**

* Offer businesses an efficient way to manage parking.
* Help reduce parking problems and support smart city projects.

# **Requirements Analysis**

* **Interviews**: One-on-one discussions with stakeholders for detailed insights.
* **Surveys**: Structured questionnaires to collect broad user input.
* **Observation**: Watching current processes to identify real-world needs.
* **Document Analysis**: Reviewing existing materials for gaps and improvements.

# **Business Requirements**

BR-01: The system must support real-time parking slot allocation.

BR-02: Integration with payment gateways for cashless transactions.

BR-03: Generate analytics and reports for business owners.

BR-04: The system must be scalable to accommodate multiple parking lots.

# **User Requirements**

UR-01: As a user, I should be able to reserve parking spaces through an app.

UR-02: As a user, I should be able to see available parking slots in real time.

UR-03: As a user, I should be able to make quick payment through digital wallets or cards.

UR-04: As a user, I should be able to receive notifications when the parking time is about to expire.

UR-05: As a Manager, I should be able to view parking requests.

UR-06: As a Manager, I should be able to change parking status.

UR-07: As a Manager, I should be able to notify people about their parking.

# **Functional Requirements**

FR-01: System shall provide the functionality to display parking availability status in real time.

FR-02: System shall provide the functionality to implement a secure payment module for online transactions.

FR-03: System shall generate a unique parking ID/Code for every booking.

FR-04: System shall provide the functionality of various tools like reservation, modifying or cancellation of parking spots.

# **Non- Functional Requirements**

NFR-01: Performance: The system should respond to user actions within 5-10 seconds.

NFR-02: Scalability: The system should handle up to 500 concurrent users.

NFR-03: Availability: The system should available for 24/7.

# **References**

R. S. Pressman, Software Engineering: A Practitioner’s Approach, 8th ed., McGraw-Hill

<https://www.smartparking.com>

**NOTE:**

1. Use standard IEEE practices to document requirements and give unique number to each requirement. (e.g. BR-01..., UR-01…, FR-01…, NFR-01)
2. References section should be on a last page.
3. The proposal should be prepared jointly by all the group members.