

# ONLINE PARKING SYSTEM

## END TERM REPORT

*by*

Section:

Roll no :



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# Objectives of the project

Artificial intelligence based smart parking systems can analyse data such as vehicular traffic, vehicle type, peak hour timings and frequency to predict future trends and provide a seamless parking experience over time.

Smart parking system plays a significant role in saving fuel too as the vehicles can be guided directly to the vacant parking space compared to the current scenario where a visitor has to search for a parking space suited to his needs.

## **Need for Artificial Intelligence – Based Smart Parking :**

- It uses hardware and software to analyse and measure parking vacancy.
- It can be helpful for efficient management of parking systems saving time and avoid congestion.
- Ai based smart parking system can transform the parking industry with advancement in technology.

## **Project Description :**

- This project is beneficial mostly for car parking areas in the public places, most of the places in the cities and public places are facing a big issue regarding with the vehicle parking system.
- This project could be helpful to the various public places as the complete process gets automated through implementing various techniques and devices.
- The central controlling team will be having the governance to the whole unit through sensors and tracking devices.
- As being completely automated system, it does not require any kind of human surveillance. The software system allows the vehicles to allot the vacant parking slot and it displays all the occupied and vacant parking slots in the whole parking area.
- The central controlling system has overall rights over the system and can moderate the entire signals to the parking slots if something happens wrong by some technical issues. The system handles entirely the allotment of parking slots by knowing the Occupied and vacant slots.
- Also, the system displays total parking slots, occupied parking slots and available parking slots along with the respective charges.
- The best part about the system is that it automatically keeps track of the vehicles got entered into the parking slots and is able to auto generate the receipt with charges to the customer according to the time with respect to the charges

## **Motivation:**

- The increase in city traffic is one of the major effects of population growth especially in urban areas.
- Due to this searching for a vacant parking area during peak hours is not only time consuming but also results in wastage in fuel.
- The drivers keep on searching for suitable parking slot which leads to increase in traffic and wastage of fuel.
- Increasing vehicular volume exhaust creates a negative impact on environment.
- Hence reservation-based- smart parking has become the need of the day.
- The Main motivation is to reduce the fuel, reduce impacts on environment, time saving for drivers, reduce the unwanted traffic, avoid congestion, etc.

## **Outcome of the Project:**

- The Online parking system hence improves the whole vehicle parking as well as traffic issues making it easier for the vehicle owners not to disturb the entire vehicles in the traffic by having proper parking slots with the smart management system.
- Online Parking system helps to reduce fuel consumption, saves time, avoid increase in traffic, avoid congestion.
- Online Parking system is created.
- Users can create accounts on the system through registration.
- System Administrator can manage the Clients by creating the account.
- Clients are able to book the parking slot for the user.
- Users can view parking available and reserve parking slot online.
- System Administrator can manage the parking slot, transaction.

## **Concrete Goals and Objective:**

- Utilization of vehicles has expanded in today's world. The accessibility for parking slots has created heavy traffic, congestion, wastage in fuel and difficulty to plot the parking slot.
- The primary purpose to avoid this difficulty and reduce the traffic.
- There will be no need of a person for guidance to the vehicle parking lots, its arrangement and surveillance. Customers will come to know themselves about the parking slots.
- The software system automatically detects the vacant or occupied slots and then assigns the vacant slot to the customer at its entrance.
- Providing an online system for parking vehicles.
- Online system allows to choose parking slots.
- Reduce traffic increase in peak hours.
- Avoid Congestion.

## **Description:**

### **MODULES:**

**This system comprises of 8 Modules**

1. Admin login
2. User Registration and Login
3. View Parking Slots (Nearby or User Specific)
4. Parking Booking Online

5. Automatic Cost Calculation
6. Parking Cancellation
7. Email Sent on Successful Parking
8. Feedback

### **Descriptions of Modules:**

#### **1. Admin Login**

The system allows admin to login and manage the web application and perform various tasks as follows:

- a. Add Slots (With Google Maps to Plot location)
- b. View Booking
- c. View Feedback
- d. View User

#### **2. User Registration and Login**

To access the system, the user needs to first register themselves by providing required details and may continue with login.

#### **3. View Parking Slots (Nearby or User Specific)**

The user can click on spaces to view the availability. If space is already booked it will be marked yellow and the available ones will be seen in normal colour.

#### **4. Parking Booking Online**

The users can book parking space for them required date and time.

#### **5. Automatic Cost Calculation**

The system calculates the total cost incurred for parking based on the time that user has asked for booking.

#### **6. Parking Cancellation**

The user may even cancel their bookings by login into the system anytime.

#### **7. Email on Successful Parking Booking**

When the user is successful in parking the space, the system sends a confirmation and 'thank you' email regarding the space booked.

#### **8. Feedback**

The system has a feedback form, where the user can provide feedback into the system.

### **Benefits of the System:**

- ♣ Users can get to learn about parking areas for particular locations.
- ♣ It saves the user's time for search the parking space availability in a huge parking area.
- ♣ The application provides a graphical view of the parking spaces.

- ♣ The user can pay an online for the parking slot and confirm their space.
- ♣ It doesn't need much of human efforts for managing the parking spaces.
- ♣ The system generates an online bill for requested time and sends an email.
- ♣ This system is Cost-effective.

### **Functionalities of the Project:**

**These are the functionality performed by the admin users:**

- Manage Parking Spaces
- Manage Parking Slots
- Manage Assign Parking Spaces for Vehicles
- Manage System User
- Manage Parking
- Manage Vehicle in Parking
- Manage Space

**For All the above-mentioned functionalities will have functions like Added, Edited, View Details, Listing All.**

- **Report of the Online Parking system**
  - All Parking Spaces
  - All Parking Slots
  - All Assign Parking Spaces for Vehicles
  - All System Users
  - All Parking
  - All Vehicles in Paring
  - All Spaces.

## **Implementation:**



#### PARKING MANAGEMENT



#### AREAS MANAGEMENT



#### SLOTS MANAGERMENTS



#### TARRIFS MANAGEMENT



#### CAR PARKING MANAGEMENT SYSTEM



##### Parking Management System

Today people are accustomed to accessing meaningful information from a huge array of sources. The reality is that workplace learning happens continuously in lots of different ways.



##### Slots Management System

The Employee Management System runs online, which allows you to access any information from anywhere in the world at any given time, as long as you have Internet access. Manage your employees from anywhere.



##### Areas Management System

Many UW employees have multiple records in this database, either because they hold more than one job title or because their salary is paid out of multiple funding sources.

Home Page Screen



#### PARKING MANAGEMENT



#### AREAS MANAGEMENT



#### SLOTS MANAGERMENTS



#### TARRIFS MANAGEMENT



#### CAR PARKING MANAGEMENT SYSTEM



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Slider Page Screen



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### About Car Parking System

A car parking system is a mechanical device that multiplies parking capacity inside a parking lot. Parking systems are generally powered by electric motors or hydraulic pumps that move vehicles into a storage position.

There are two types of car parking systems: traditional and automated. In the long term, automated car parking systems are likely to be more cost effective when compared to traditional parking garages. Automatic multi-storey automated car park systems are less expensive per parking slot, since they tend to require less building volume and less ground area than a conventional facility with the same capacity. Both automated car parking systems and automated parking garage systems reduce pollution – cars are not running or circling around while drivers look for parking spaces.

Automated car parking systems use a similar type of technology to that used for mechanical parcel handling and document retrieval. The driver leaves the car inside an entrance area and technology parks the vehicle at a designated area. Hydraulic or mechanical car lifters raise the vehicle to another level for proper storing. The vehicle can be transported vertically (up or down) and horizontally (left and right) to a vacant parking space until the car is needed again. When the vehicle is needed, the process is reversed and the car lifts transport the vehicle back to the same area where the driver left it. In some cases, a turntable may be used to position the car so that the driver can conveniently drive away without the need to back up.

Over the years, car parking systems and the accompanying technologies have increased and diversified. Car parking systems have been around almost since the time cars were invented. In any area where there is a significant amount of traffic, there are car parking systems. Car Parking systems were developed in the early 20th century in response to the need for storage space for vehicles.

### About Us Screen

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### Login Form

Username \*

Password \*

Login

Cancel

### Login Screen

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All Available Parking Spaces

Space Name		Total Capacity
 First Floor Parking		200
 Basement Parking Space		120
 Second Floor Parking		250
 Outer Parking		50

Parking Spaces List Screen

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All Parking Slots (Click on slots to assign it to car)







































































































































































































 : Available  : Occupied

Search car parking :

Car Number\*

Search Car

Click on available slots to assign it to car

 Slot - 1	 Slot - 2	 Slot - 3	 Slot - 4	 Slot - 5	 Slot - 6	 Slot - 7	 Slot - 8	 Slot - 9	 Slot - 10	 Slot - 11	 Slot - 12
 Slot - 13	 Slot - 14	 Slot - 15	 Slot - 16	 Slot - 17	 Slot - 18	 Slot - 19	 Slot - 20	 Slot - 21	 Slot - 22	 Slot - 23	 Slot - 24
 Slot - 25	 Slot - 26	 Slot - 27	 Slot - 28	 Slot - 29	 Slot - 30	 Slot - 31	 Slot - 32	 Slot - 33	 Slot - 34	 Slot - 35	 Slot - 36
 Slot - 37	 Slot - 38	 Slot - 39	 Slot - 40	 Slot - 41	 Slot - 42	 Slot - 43	 Slot - 44	 Slot - 45	 Slot - 46	 Slot - 47	 Slot - 48
 Slot - 49	 Slot - 50	 Slot - 51	 Slot - 52	 Slot - 53	 Slot - 54	 Slot - 55	 Slot - 56	 Slot - 57	 Slot - 58	 Slot - 59	 Slot - 60
 Slot - 61	 Slot - 62	 Slot - 63	 Slot - 64	 Slot - 65	 Slot - 66	 Slot - 67	 Slot - 68	 Slot - 69	 Slot - 70	 Slot - 71	 Slot - 72
 Slot - 73	 Slot - 74	 Slot - 75	 Slot - 76	 Slot - 77	 Slot - 78	 Slot - 79	 Slot - 80	 Slot - 81	 Slot - 82	 Slot - 83	 Slot - 84
 Slot - 85	 Slot - 86	 Slot - 87	 Slot - 88	 Slot - 89	 Slot - 90	 Slot - 91	 Slot - 92	 Slot - 93	 Slot - 94	 Slot - 95	 Slot - 96
 Slot - 97	 Slot - 98	 Slot - 99	 Slot - 100	 Slot - 101	 Slot - 102	 Slot - 103	 Slot - 104	 Slot - 105	 Slot - 106	 Slot - 107	 Slot - 108
 Slot - 109	 Slot - 110	 Slot - 111	 Slot - 112	 Slot - 113	 Slot - 114	 Slot - 115	 Slot - 116	 Slot - 117	 Slot - 118	 Slot - 119	 Slot - 120
 Slot - 121	 Slot - 122	 Slot - 123	 Slot - 124	 Slot - 125	 Slot - 126	 Slot - 127	 Slot - 128	 Slot - 129	 Slot - 130	 Slot - 131	 Slot - 132
 Slot - 133	 Slot - 134	 Slot - 135	 Slot - 136	 Slot - 137	 Slot - 138	 Slot - 139	 Slot - 140	 Slot - 141	 Slot - 142	 Slot - 143	 Slot - 144
 Slot - 145	 Slot - 146	 Slot - 147	 Slot - 148	 Slot - 149	 Slot - 150	 Slot - 151	 Slot - 152	 Slot - 153	 Slot - 154	 Slot - 155	 Slot - 156
 Slot - 157	 Slot - 158	 Slot - 159	 Slot - 160	 Slot - 161	 Slot - 162	 Slot - 163	 Slot - 164	 Slot - 165	 Slot - 166	 Slot - 167	 Slot - 168
 Slot - 169	 Slot - 170	 Slot - 171	 Slot - 172	 Slot - 173	 Slot - 174	 Slot - 175	 Slot - 176	 Slot - 177	 Slot - 178	 Slot - 179	 Slot - 180
 Slot - 181	 Slot - 182	 Slot - 183	 Slot - 184	 Slot - 185	 Slot - 186	 Slot - 187	 Slot - 188	 Slot - 189	 Slot - 190	 Slot - 191	 Slot - 192
 Slot - 193	 Slot - 194	 Slot - 195	 Slot - 196	 Slot - 197	 Slot - 198	 Slot - 199	 Slot - 200				

Parking Slots Listing Screen

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### Assign Car Parking

Select Parking Space\*

Parking Slot Number\*

Car Number\*

Entry Date\*

Entry Time\*

Save Parking

### Assign Parking Space Screen

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### Add Space

Space Title\*

Parking Capacity\*

Description\*

Save Space

### Add Parking Space Screen

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### Add User

Select Role\*

Please Select

Name\*

Username\*

Password\*

Confirm Password\*

Email\*

Gender\*

Date of Birth\*

Contact Number\*

Address 1\*

Address 2\*

City\*

Please Select

State\*

Please Select

Country\*

Please Select

Description\*

Save User

### Add User Screen

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### Change Your Password

Old Password\*

New Password\*

Confirm Password\*

Change Password

### Change Password Screen

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### Car Parking Report

ID	Car No.	Entry Date	Exit Date	Slot No.	
1	4512	19 November,2016	16 November,2016	4	<a href="#">Edit</a>   <a href="#">Delete</a>
2	1234	19 November,2016	20 November,2016	8	<a href="#">Edit</a>   <a href="#">Delete</a>
3	5678	19 November,2016		6	<a href="#">Edit</a>   <a href="#">Delete</a>
4	6548	20 November,2016		5	<a href="#">Edit</a>   <a href="#">Delete</a>
5	9123	20 November,2016		29	<a href="#">Edit</a>   <a href="#">Delete</a>
6	6713	30 December,2016	31 December,2016	4	<a href="#">Edit</a>   <a href="#">Delete</a>
7	9912	30 December,2016	30 December,2016	1	<a href="#">Edit</a>   <a href="#">Delete</a>
8	1193	30 December,2016	30 December,2016	120	<a href="#">Edit</a>   <a href="#">Delete</a>
9	8761	14 December,2016	1 December,2016	120	<a href="#">Edit</a>   <a href="#">Delete</a>
10	9154	15 December,2016		3	<a href="#">Edit</a>   <a href="#">Delete</a>
11	7168	2 December,2016		6	<a href="#">Edit</a>   <a href="#">Delete</a>
12	7861	15 December,2016		119	<a href="#">Edit</a>   <a href="#">Delete</a>

### Parking Report Screen

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### Assign Car Parking

Select Parking Space\*

Parking Slot Number\*

Car Number\*

Entry Date\*

Entry Time\*

Exit Date\*

Exit Time\*

Parking Charges\*

Description\*

[Save Parking](#)

### Search Car in Parking Screen

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### Space Listing

ID	Name	Capacity	Description	
2	First Floor Parking	200	First Floor Parking Space	<a href="#">Edit</a>   <a href="#">Delete</a>
3	Basement Parking Space	120	Basement Parking Space	<a href="#">Edit</a>   <a href="#">Delete</a>
4	Second Floor Parking	250	Second Floor Parking	<a href="#">Edit</a>   <a href="#">Delete</a>
5	Outer Parking	50	Outer Parking Space	<a href="#">Edit</a>   <a href="#">Delete</a>

## Space Report Screen

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### User Report

ID	First Name	User Name	Email	Contact No.	
4	Kaushal Kishore	admin	kaushal.raahuljaiswal@gmail.com	987654321	<a href="#">Edit</a>   <a href="#">Delete</a>
6	Atul Kumar	hr	atul@gmail.com	987654321	<a href="#">Edit</a>   <a href="#">Delete</a>
7	Amit Kumar	employee	amit@gmail.com	9324324546	<a href="#">Edit</a>   <a href="#">Delete</a>
8	Suman Singh	accountant	suman@gmail.com	987654321	<a href="#">Edit</a>   <a href="#">Delete</a>
9	Arun Kumar	ece_hod	arun@gmail.com	987654321	<a href="#">Edit</a>   <a href="#">Delete</a>
10	Manasa	manasa	manasa@gmail.com	9876543212	<a href="#">Edit</a>   <a href="#">Delete</a>

## User Report Screen



## **Technologies and frame work used:**

### **HTML:**

Page Layout has been designed in HTML.

### **CSS:**

CSS has been used for all designing part and styling part.

### **JavaScript:**

All the validation task and animations has been developed by JavaScript.

### **ASP:**

All the front-end logic has been written in ASP.

### **C#:**

All the business logic has been written in C#.

### **MySQL:**

MySQL database has been used as database for the project.

### **Visual Studio 2015:**

Project will be run over the Visual Studio 2015 Server.

## **Swot Analysis achieved in the project:**

### **Strengths:**

- Unique Service webpage.
- Can be scaled up nationally and globally.
- Innovative webpage that will make finding a parking slot quick, cheap and easy.
- Has no competitor's in the local/community/city.
- Relatively cheap service webpage.
- Trial Version will allow users to know if they want to use the service.

### **Weaknesses:**

- Inexperienced management and clients.
- High cost start-up and promotion.
- High chance of malfunctions, glitches or bugs.
- Not everyone can use this service as it is available to limited places only.

### **Opportunities:**

- Expand nationally and internationally.
- Implement social media to help and promote the service.
- In App and wen advertising (Major revenue source).
- Establish a good and reliable service app and improve it as much as possible.
- Population Growth leading to more vehicles and hence is most useful service.

### **Threats:**

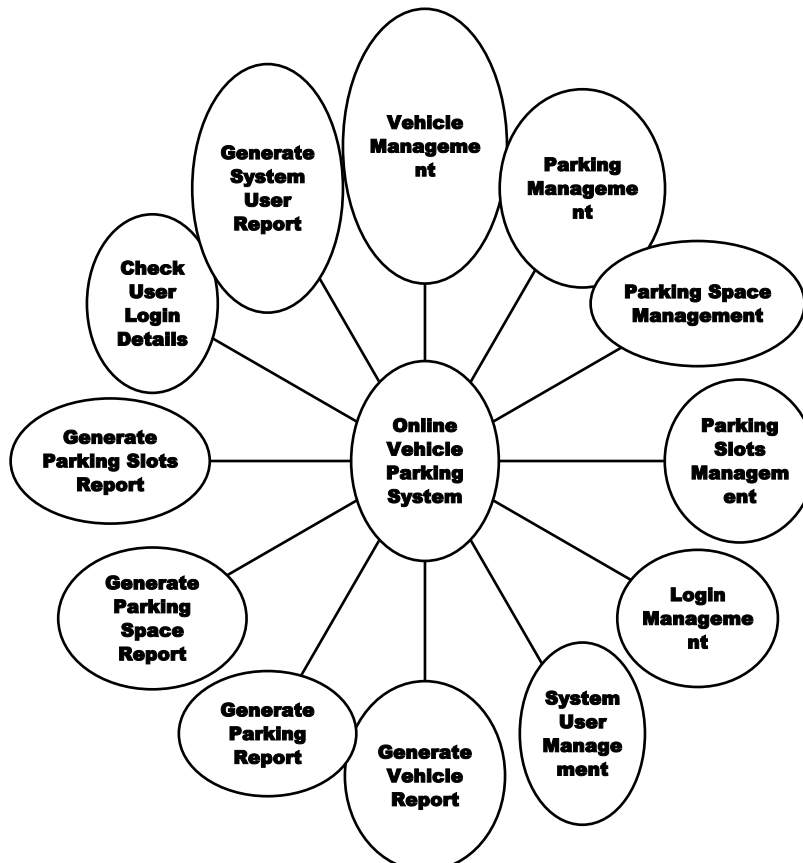
- Limited financial funding for start-up costs and launch of app.
- New competitors are likely to provide same service in other cities.
- Government and ACCC regulations.
- Lobbying groups influencing consumer perceptions.
- Parking space availability.
- System crashes/ Server issues solution.



## • ZERO LEVEL Online Vehicle Parking System DFD



## • FIRST LEVEL Online Vehicle Parking System DFD



# • SECOND LEVEL Online Vehicle Parking System DFD

