Report On

Smart Parking System

Submitted in partial fulfillment of the requirements of the Cloud Computing Mini project in Semester VI of Third Year Computer Engineering

by

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(A.Y. 2022-23)

Vidyavardhini's College of Engineering & Technology

Department of Computer Engineering

CERTIFICATE

This is to certify that the Mini Project entitled **"Smart Parking Sysytem"** in the subject Cloud Computing is a bonafide work of **Kshitij Shetty (Roll No. 62)**, **Nikita Mundaye (Roll No.64), Pooja Naskar (Roll No.65), Khanjan Joshi (Roll No. 61)** submitted to the University of Mumbai in partial fulfillment of the requirementfor the award of the degree of **"Bachelor of Engineering"** in Semester VI of Third Year **"Computer Engineering" .**

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Department of Computer Engineering

Course Project Approval

This Mini Project entitled **"Smart Parking System"** in the subject Cloud Computing by **Kshitij Shetty (Roll No. 62)**, **Nikita Mundaye (Roll No.64), Pooja Naskar (Roll No.65), Khanjan Joshi (Roll No. 61)** is approved for the degree of **Bachelor of Engineering** in Semester VI of third year **Computer Engineering .**

Examiners

1.....
(Internal Examiner Name & Sign)

2.....
(External Examiner Name & Sign)

Date:

Place:

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Abstract

The challenges of traffic congestion, limited parking, and road safety are being tackled by the Internet of Things (IoT) in today's world. To overcome these issues, a Smart Parking System Web Application has been developed. This system monitors and indicates the availability status of each parking space through a web application.

Additionally, a mobile application allows users to check the availability of parking spaces and reserve a slot, thus eliminating the need for searching for a spot. Occupied parking spaces are stored virtually in the cloud for centralized access and to direct incoming cars to empty spaces. The system is fully automated, reducing the need for human intervention and improving the appearance of the parking area. The primary objective of this project is to enhance user convenience and save time in a parking system.

Acknowledgement

Our team members have put in great efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend our sincere thanks to all of them.

We are very thankful to our project guide **Prof. Sunil Katkar** for his constant supervision and guidance as well as providing us with the necessary information relating to the project and his full support in completing this project.

We would also like to express our gratitude towards our seniors for their kind cooperation and encouragement which helped us add to the project.

We are thankful to each and every member of the team for their intense work input and helping each other with their abilities.

We would like to express our special gratitude and thanks to industry persons for giving us such attention and time.

Our thanks and appreciation also go to our colleague in developing the project and people who have willingly helped us out with their abilities.

1.1 Introduction

The "Smart Parking System" was created to solve the difficulties that plagued the manual parking system. This application is designed to remove or, in some circumstances, mitigate the difficulties that this system now faces. Furthermore, this system is tailored to the company's specific requirements for smooth and efficient operations. To eliminate data entry mistakes, the software is kept as simple as feasible. When inputting inaccurate data, it also displays error messages. The user does not require any formal expertise to utilize this system. As a result, it demonstrates that it isuser-friendly. As previously said, a smart parking system may lead to an error-free, secure, dependable, and rapid management system.

It might let the user focus on their other tasks rather than maintaining track of their records. As a result, it will assist the organization in making better use of its resources.Every business, large or small, faces issues in handling information about parking, customers, and parking fees. Because each Smart Parking System has unique car requirements, we create custom employee management solutions that are tailored to your managerial demands. This is intended to aid strategic planning and guarantee thatyour business has the correct degree of knowledge and specifics for your long-term objectives.

1.2 Problem Statement

Parking services in the transportation industry are currently outdated, as finding a parking spot in the city can be a challenging task. Waiting in line for slot allocation can also be time-consuming. Our system aims to address these issues by providing a means for end-users to check parking space availability while assisting managers in efficiently managing customer records. Our objectives include allowing users to park in their own designated spots by paying, which eliminates the need for towing and ensures secure parking. Vehicle owners can park their cars with confidence as there is no risk involved, and any damages or issues with the vehicle will be covered by the parking management. The system also facilitates quick record maintenance and helps determine if the parking area is full or not. Overall, this system aims to enhance the visitor's experience and improve the parking service.

1.3 Objectives

- The objective of a smart parking system is to utilize technology and data-driven approaches to optimize parking management and enhance the overall parking experience for users.
- This involves leveraging real-time data and analytics to dynamically manage parking availability, automate payment processes, reduce congestion and traffic, improve safety and security, and enable efficient and convenient access to parking facilities for users.
- Smart parking systems may also aim to reduce the environmental impact of parking by promoting the use of alternative transportation modes, such as public transit or carpooling, and by adopting sustainable parking infrastructure designs and practices.
- Ultimately, the goal is to maximize the efficient use of parking resources and improve the quality of life for users and the surrounding community.

1.4 Scope

It may be useful in obtaining detailed information on flawless management. The collection will be evident, easy, and rational in a very short time. It will assist a person in comprehending the management of the previous year in a clear and vivid manner. It also aids in the existing Smart Parking System projects. The cost of collecting the management will also be decreased, and the collection operation will run smoothly.Our project intends to automate business procedures, which means we've attempted to computerize numerous Parking System activities.

- It satisfies the user requirement.
- Be easy to understand by the user and operator.
- Be easy to operate
- Have a good User interface
- Be expandable

2.Literature Survey

2.1 Survey of Existing System/ SRS

The parking system has evolved over time to accommodate the increasing number of vehicles and urban dwellers in cities and towns. The current smart parking system automates the parking process and provides consumers with a seamless experience from parking occupancy status to ticketing, parking, and fee settlement. The efficient, real-time, and cost-effective management of the parking process is necessary for the smooth functioning of the city.

The collaboration between technology and parking center companies is crucial in providing a comprehensive parking solution and saving time and energy for drivers. The smart parking system can also provide valuable insights for malls, shop owners, and federal institutions in planning affairs related to parking spaces. The adoption of a smart parking system by federal institutions can help detect and register parking violations, issue tickets, and notify violators. Automation reduces manpower and enhances the aesthetics of the parking area. This project aims to enhance the user's convenience and time value in the parking system.

2.2 Limitation Existing system or Research gap

i) The system does not have a feature that prioritizes slot booking, therefore multiple users cannot book slots simultaneously.

ii) There is no provision for pre-booking of slots to alleviate traffic issues.

2.3Mini-Project Contribution

- **Less fuel is wasted**

  Drivers are directed straight to an available parking spot. Therefore they waste fewer kilometers driving around in circles looking for vacant parking space.
- **Save money**

  Obviously, by driving more efficient when in search of parking space, you will save on fuel waste. Resulting in spending less money on petrol.
- **Save time**

  Additionally, by driving fewer kilometers when in search of parking space, you will save valuable time which can be spent on work, fun or hobbies. Resulting in spending less money on petrol.
- **Lowering individual environmental footprint**

  Another benefit of wasting fewer kilometers by searching for a parking spot is that you reduce individual pollution. Fossil fuels, petrol, diesel, and most alternative fuels all produce emissions, especially carbon dioxide (Co2). This pollution will not directly harm human life. However, Co2 is the most significant contributor to greenhouse gases and therefor contributor to climate change.
- **Increase in safety.**

  Drivers are less distracted looking around for a spot because they know where they can park their car. They will have their full attention on the road. By having their eyes on the road, accidents will decrease and safety will increase for themselves, other drivers and pedestrians.
- **Smart parking reducing stress while searching for a parking space**

  Driving through the same street over and over again, cars breathing down your neck and no parking spot to be seen. Having uncertainty and pressure to find a parking spot near your destination can be very stressful. With the use of smart parking, you know where the available parking space is located. You can drive straight to an open parking spot, stress-free.
- **Smart Parking takes away the unpredictability of finding a parking spot**

  Not visiting a particular (part of a) city because you do not want the hassle of finding an available parking spot. Knowing you are going to drive around for many minutes and probably are going to find a place far, far away from your destination can be very discouraging. Smart parking will allow you to see where you can park your car, and at what time it is the busiest.

- **Smart parking will reduce search traffic on the streets.**
  Smart parking will make sure there are fewer cars on the streets that drive slowly, circling for ages, looking around for a spot. This will benefit traffic flow and will reduce congestions in neighborhoods with an under capacity in parking space. Therefore there are fewer traffic jams, and drivers will benefit by having less traffic on the streets.

3. Proposed System

3.1 Introduction

The "Smart Parking System" was created to solve the difficulties that plagued the manual parking system. This application is designed to remove or, in some circumstances, mitigate the difficulties that this system now faces. Furthermore, this system is tailored to the company's specific requirements for smooth and efficient operations.

To eliminate data entry mistakes, the software is kept as simple as feasible. When inputting inaccurate data, it also displays error messages. The user does not require any formal expertise to utilize this system. As a result, it demonstrates that it is user-friendly. As previously said, a smart parking system may lead to an error-free, secure, dependable, and rapid management system. It might let the user focus on their other tasks rather than maintaining track of their records. As a result, it will assist the organization in making better use of its resources.

Every business, large or small, faces issues in handling information about parking, customers, and parking fees. Because each Smart Parking System has unique car requirements, we create custom employee management solutions that are tailored to your managerial demands. This is intended to aid strategic planning and guarantee that your business has the correct degree of knowledge and specifics for your long-term objectives

DETAILS:

Web application: The web application would provide users with a real-time view of parking availability. Users could view a map of the parking lot and see the availability status of each parking space. The application would also allow users to reserve a parking spot and make payment online.

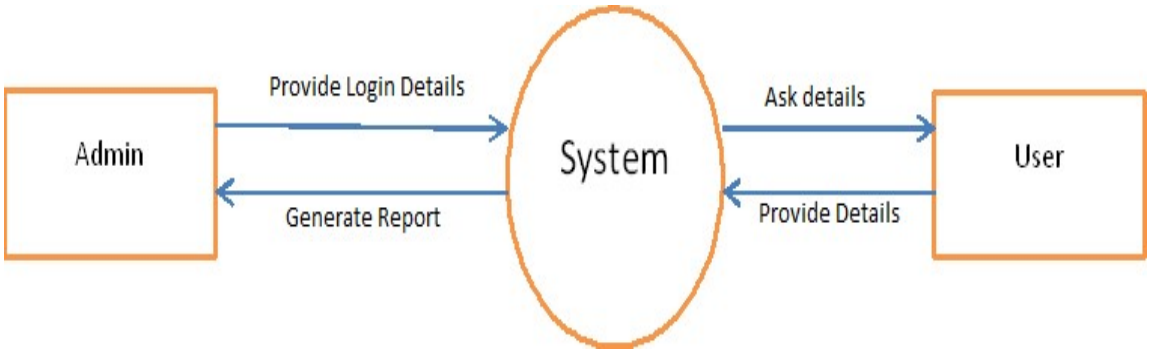
Cloud storage: The system would store the data from the parking sensors in the cloud. This would enable parking operators to monitor parking availability and occupancy rates in real-time, as well as perform analytics and reporting to optimize the use of parking resources.

Automated system: The system would be fully automated, minimizing the need for human intervention. The parking sensors would automatically detect the presence of a vehicle and update the parking availability status in real-time. Payment and reservation processes would also be automated, reducing the need for manual payment collection and spot allocation.

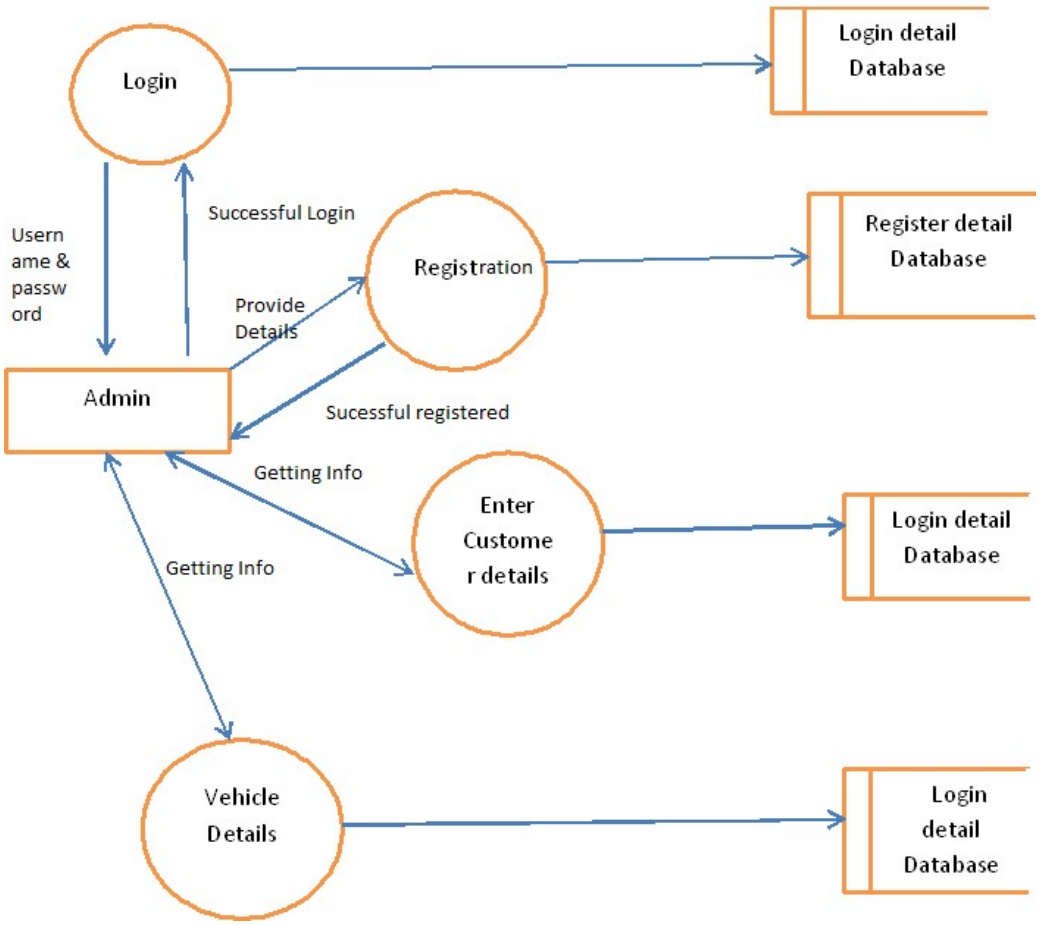
Analytics and reporting: The system would provide analytics and reporting capabilities to parking operators, enabling them to optimize parking resources and quickly address any issues or incidents that may arise. The system would provide data on occupancy rates, revenue, and usage patterns, among other metrics..

3.2 Architecture/Framework/Block diagram

Level 0 :



Level 1:



Level 2:

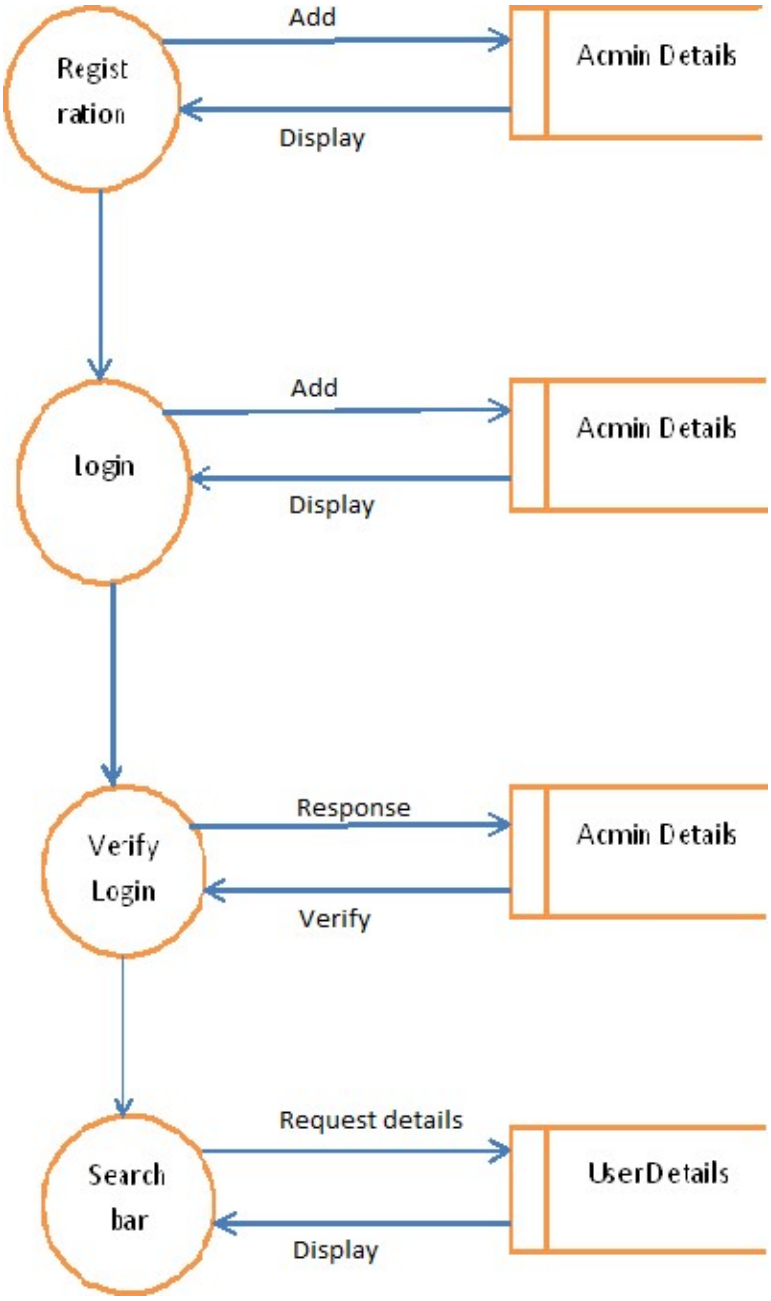

Regist
ration
Add
Display
Acmin Details
login
Add
Display
Acmin Details
Verify
Login
Response
Verify
Acmin Details
Search
bar
Request details
Display
UserDetails

Fig 1

Use-Case Diagram:

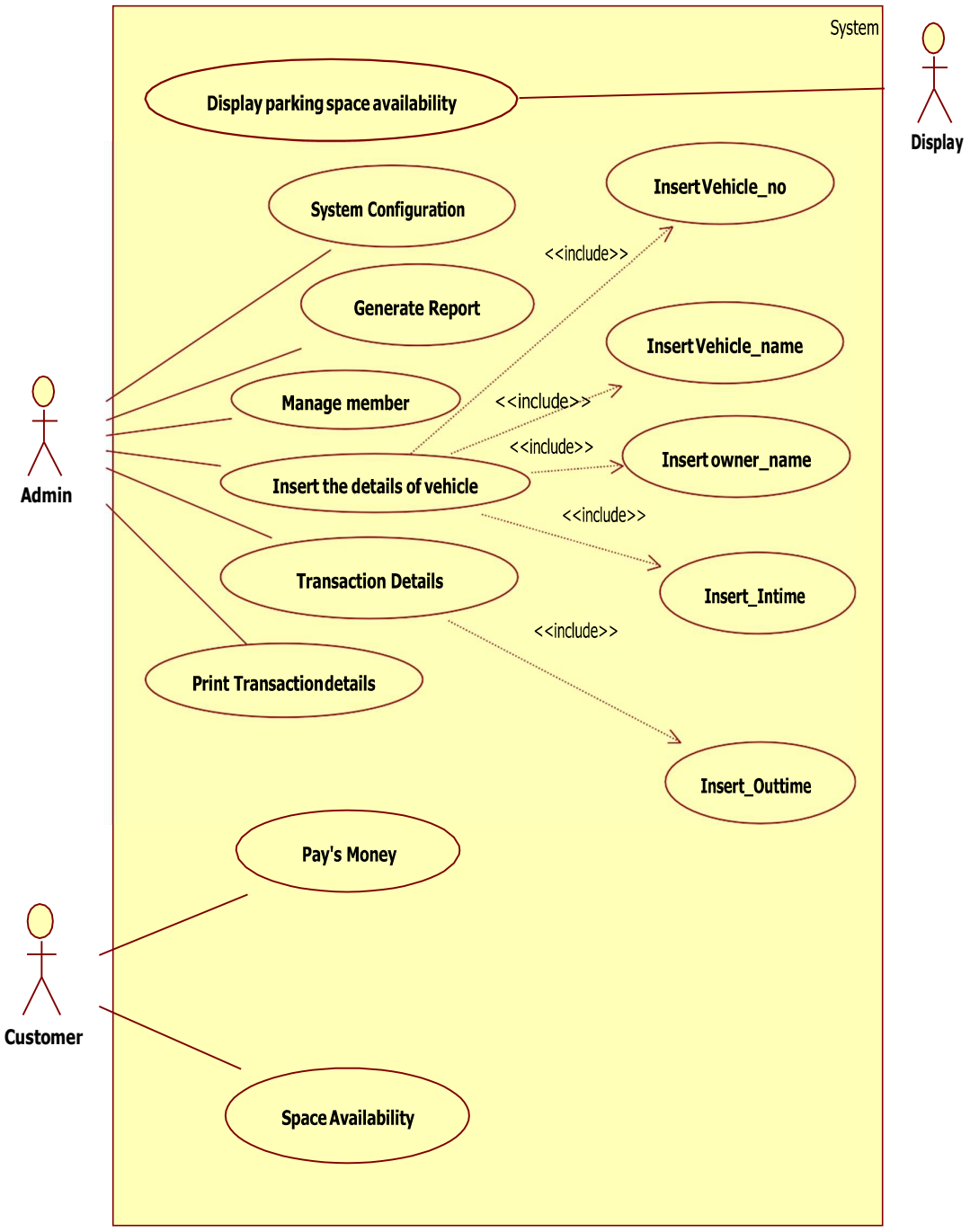
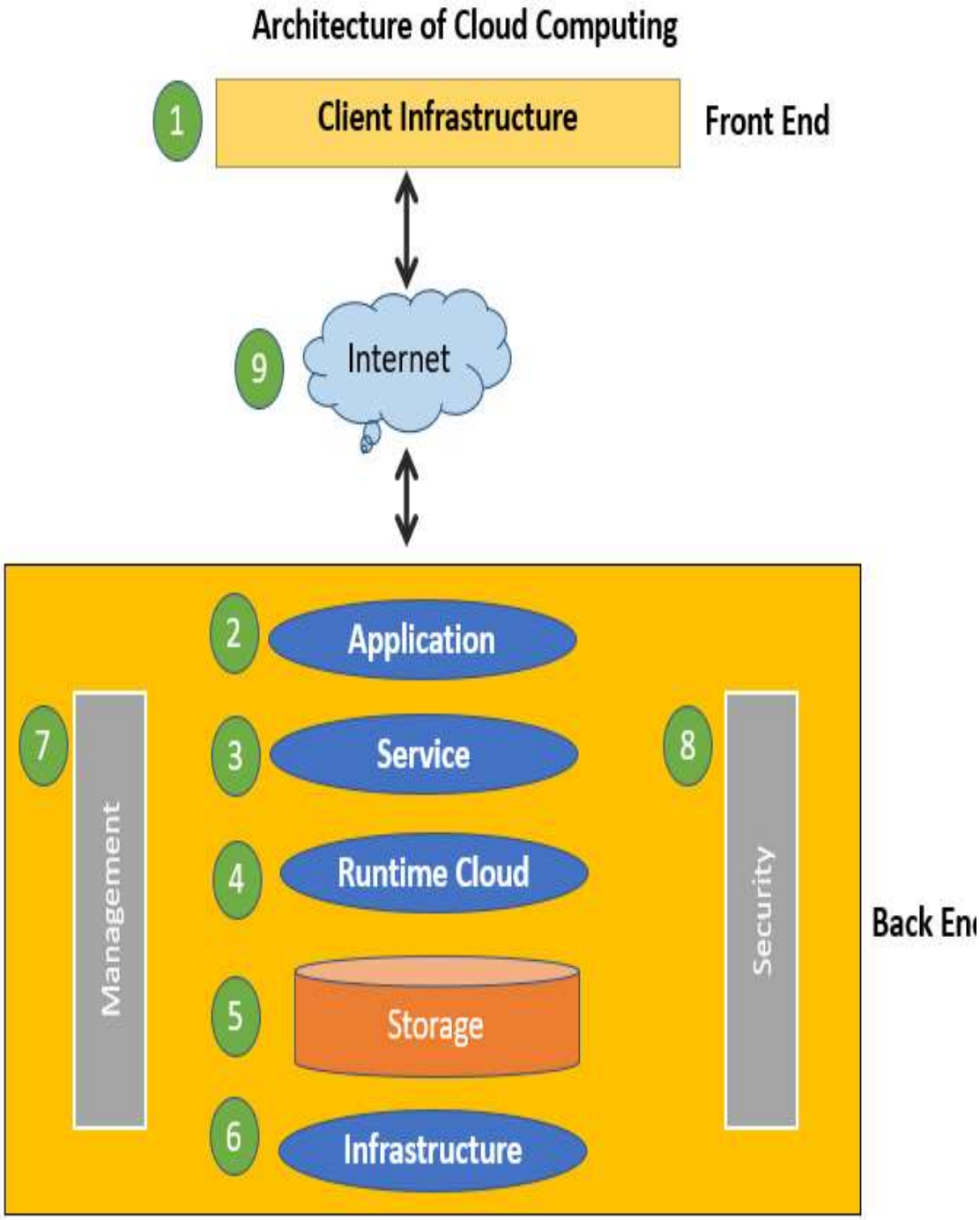


Fig 2


Architecture of Cloud Computing
1
Client Infrastructure
Front End
9
Internet
2
Application
7
Management
3
Service
8
Security
4
Runtime Cloud
Back En
5
Storage
6
Infrastructure

3.3 Hardware & Software

- API Used : Geo- location API , QR Code Generator, Insta Scan
- Languages : HTML, CSS, Javascript, PHP, My SQL,XAMPP
- Visual Studio Code

3.4 Experiment and Results for Validation and Verification

Code:

index.php

```
<?php
   include 'connection.php';
   include 'end.php';
   include 'getlocation.php';
   include 'update_slots.php';
   session_start();

   $login = 0;
   if(isset($_COOKIE['cst_id'])){
      $cst_id = $_COOKIE['cst_id'];
      $login = 1;
   }


?>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta http-equiv="X-UA-Compatible" content="IE=edge">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Smart Parking</title>
   <link rel="stylesheet" href="css/home.css">
   <link rel="manifest" href="manifest.json">
   <meta name="theme-color" content="#FFF27B">
   <link rel="apple-touch-icon" href="img/icon-96x96.png">
</head>
<body>
<div>
   <div id="navbar">
      <h2 id="project_title">Smart Parking</h2>
      <?php
         if($login == 0){
            ?>
               <a href="login.php" id="login_a">Login</a>
            <?php
         }else{
```

```
            ?>
            <a href="logout.php" id="login_a">Logout</a>
            <?php
          }
      ?>
    </div>
    <div id="myModal" class="modal">

      <!-- Modal content -->
      <div class="modal-content">
        <div style="pointer-events: none;" id="qr_div"></div>
      </div>

    </div>

    <div id="myModal1" class="modal1">

      <!-- Modal content -->
      <div id="modal-content1" class="modal-content1">
        hello
      </div>

    </div>
    <!-- <div id="search_div">
      <input type="text" name="search" class="search" autocomplete="off" id="search"
onkeypress="keypress(event, this)" placeholder="Search your Destination" value="">
      <div class="result"></div>
    </div> -->
    <div id="result_main_div">
      <?php
        for($count = 0; $count < $num_locations; $count++){
      ?>
      <div id="result_sub_div" style="height: auto;">
        <h2><?php echo $name[$count]; ?></h2>
        <h4><?php echo $address[$count]; ?></h4>
        <h4>Distance:- <?php echo sprintf("%01.1f", $distance[$count]); ?> Km</h4>
        <h4>Slots available:- <?php echo $total_slots_available[$count]; ?></h4>
        <button id="locate" <?php if($login != 1){?> style="width: 98%;" <?php } ?>
onclick="openMaps(<?php echo $lat[$count]; ?>,<?php echo $long[$count]; ?>)">Locate on
map</button>
        <?php
```

```
                    if($login == 1){
                ?>
                    <button id="book" onclick="book_slot(<?php echo $parking_id[$count]; ?>,<?php
        echo $cst_id; ?>)">Book Parking Slot</button>
        <?php
}
        ?>

        <hr style="width: 100%; margin-left: 0;">
        </div>
        <?php
}
  ?>
 </div>

 <?php
            if($login == 1){
        ?>
        <div id="home_buttons">
            <button class="home-buttons" onclick="locations()" id="saved">
                <img style="width: 50%; height: 60%;" src="img/locations.png" /><br />
                <span class="button-text" style="font-weight: bold;">Home</span>
            </button>
            <button class="home-buttons" id="myQRCode">
                <img style="width: 50%; height: 60%;" src="img/qrcode.png" /><br />
                <span class="button-text" style="font-weight: bold;">My QR</span>
            </button>
            <button class="home-buttons" onclick="my_bookings()" id="myBookings">
                <img style="width: 50%; height: 60%;" src="img/bookings.png" /><br />
                <span class="button-text" style="font-weight: bold;">My Bookings</span>
            </button>
 </div>
 <?php
}
        ?>
        <script src="js/app.js"></script>
        <script src="https://code.jquery.com/jquery-1.12.4.min.js"></script>
        <script src="js/qrcode.min.js"></script>
        <script src="js/home_fun.js"></script>
        <script>
            document.onclick = function() {
```

```
            if (document.querySelector('.search') === document.activeElement) {
                // document.querySelector('.result').style.display = "block";
                document.body.style.background = "rgba(0,0,0,0.2)";
                document.body.style.overflow = "hidden";
            } else {
                // document.querySelector('.result').style.display = "none";
                document.body.style.background = "rgba(0,0,0,0)";
                document.body.style.overflow = "scroll";
            }
        }


        function keypress(e, text){
            var code = (e.keyCode ? e.keyCode : e.which);
            if (code == 13) { //Enter keycode
                alert("Select from auto suggestion");
            }
        }
        $(document).ready(function() {
            $('#search').on("keyup input", function() {
                /* Get input value on change */
                var inputVal = $(this).val();
                var resultDropdown = $(this).siblings(".result");
                if (inputVal.length) {
                    $.get("get_parking_location.php", {
                        term: inputVal
                    }).done(function(data) {
                        // Display the returned data in browser

    resultDropdown.html(data);
    });
    } else {
    resultDropdown.empty();
}
});

            // Set search input value on click of result item
            $(document).on("click", ".result p", function() {
                $(this).parents("#search").val($(this).text());
                $(this).parent(".result").empty();
                inputVal = $(this).text();
```

```
        project_details(inputVal);
    });
});
var phone_number = getCookie('cst_id');
var modal = document.getElementById("myModal");
var modal1 = document.getElementById("myModal1");
var modal_content1 = document.getElementById("modal-content1");
var display = false;
var btn = document.getElementById('myQRCode');

if(btn!=null){
btn.onclick = function() {
    modal.style.display = "block";
    if (!display) {
        var qr_data = phone_number;

        var qr_div = new QRCode(document.getElementById('qr_div'), {
            width: 200,
            height: 200
        });
        qr_div.makeCode(qr_data);
        display = true;
        console.log(qr_data);
    }
}

}
window.onclick = function(event) {

    if (event.target == modal) {
        modal.style.display = "none";
    }else if(event.target == modal1){
        modal1.style.display = "none";
    }
}



function getLocation() {

    if (navigator.geolocation) {
```

```
            navigator.geolocation.watchPosition(showPosition);

        } else {
            alert("Geolocation is not supported by this browser.");
        }
    }

    function showPosition(position) {
        var latitude = position.coords.latitude;
        var longitude =  position.coords.longitude;
        // var latitude = 19.4083044;
        // var longitude = 72.8365344;
        $.post("algo.php", {lat: latitude, long: longitude});
    }


    getLocation();
    function my_bookings(){ window.location.href
        = "my_bookings.php";
    }

    function locations(){
        window.location.href = "index.php";
    }

    function openMaps(lat, long) {
        window.open("https://www.google.com/maps?z=12&t=m&q=loc:" + lat + "+" +
long);
}

    function book_slot(pid, cid){
    window.location.href = "book_slot.php?pid=" + pid + "&cid=" + cid;
    }

    var string = getCookie("slot_booked");
    if(string!=""){
        alert_fun(string);
        document.cookie = "slot_booked=;";
    }
```

```
    </script>
</body>
</html>
```

login.php

```
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Smart Parking</title>
    <link rel="stylesheet" href="css/home.css">
    <link rel="manifest" href="manifest.json">
    <meta name="theme-color" content="#FFF27B">
    <link rel="apple-touch-icon" href="img/icon-96x96.png">
</head>
<body>
    <div id="main">
    <div id="myModal1" class="modal1">

<!-- Modal content -->
<div id="modal-content1" class="modal-content1">
    hello
</div>

</div>
        <h2 style="margin-top: 35vh; display: inline-block;">Smart Parking</h2><br>
        <form action="blogin.php" method="post">
            <input type="text" name="username" class="input_login" placeholder="Username">
            <input type="password" name="password" class="input_login"
placeholder="Password"><br>
            <a href="register.php" style="margin-left: 53vw; color: black;">Sign up?</a>
            <input class="input" style="width: 40%; padding: 0; margin-left: 30%; background-
color: #232323; color: white;" type="submit" name="submit" id="submit" value="Done">
        </form>
    </div>
    <script src="js/home_fun.js"></script>
    <script>

        var modal1 = document.getElementById("myModal1");
        var modal_content1 = document.getElementById("modal-content1");
```

```
        var string = getCookie("invalid");
        if(string!=""){
           alert_fun(string);
           document.cookie = "invalid=;";
        }

        window.onclick = function(event) {

     if(event.target == modal1){
       modal1.style.display = "none";
    }
    }
       </script>
    </body>
    </html>
```

admin_login.php

```
    <html lang="en">
    <head>
       <meta charset="UTF-8">
       <meta http-equiv="X-UA-Compatible" content="IE=edge">
       <meta name="viewport" content="width=device-width, initial-scale=1.0">
       <title>Smart Parking</title>
       <link rel="stylesheet" href="css/home.css">
       <link rel="manifest" href="manifest.json">
       <meta name="theme-color" content="#FFF27B">
       <link rel="apple-touch-icon" href="img/icon-96x96.png">
    </head>
    <body>
       <div id="main">
          <h2 style="margin-top: 35vh; display: inline-block;">Smart Parking</h2><br>
          <form action="badmin_login.php" method="post">
             <input type="password" name="password" class="input_login"
    placeholder="Password"><br>
             <input class="input" style="width: 40%; padding: 0; margin-left: 30%; background-
    color: #232323; color: white;" type="submit" name="submit" id="submit" value="Done">
          </form>
</div>
</body>
    </html>
```

admin_home.php

```
    <?php
```

```
        include 'connection.php';
        include 'end.php';
        session_start();

        $login = 0;
        $admin_login = 0;
        if(isset($_COOKIE['cst_id'])){
            $cst_id = $_COOKIE['cst_id'];
            $login = 1;
        }

        if(isset($_COOKIE['admin_id'])){
            $admin_id = $_COOKIE['admin_id'];
            $admin_login = 1;
        }else{
            echo "<script>
                window.location.href = 'admin_login.php';
            </script>";
        }


    ?>
    <html lang="en">
    <head>
        <meta charset="UTF-8">
        <meta http-equiv="X-UA-Compatible" content="IE=edge">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <title>Smart Parking</title>
        <link rel="stylesheet" href="css/home.css">
        <link rel="manifest" href="manifest.json">
        <meta name="theme-color" content="#FFF27B">
        <link rel="apple-touch-icon" href="img/icon-96x96.png">
</head>
<body>
<div>
        <div id="navbar">
            <h2 id="project_title">Smart Parking</h2>
        </div>
        <div id="myModal" class="modal">

            <!-- Modal content -->
```

```
            <div class="modal-content">
                <div style="pointer-events: none;" id="qr_div"></div>
            </div>

        </div>
        <div id="result_main_div" style="height: 75vh;">
            <?php
            $sql1 = "SELECT * FROM `parking_log` WHERE `admin_id` = $admin_id";
            $result_sql1 = mysqli_query($conn, $sql1);
            if(mysqli_num_rows($result_sql1) > 0){
                while($row1 = mysqli_fetch_assoc($result_sql1)){
                    $cst_name = $row1['cst_name'];
                    $unique_park_id = $row1['unique_park_id'];
                    $in_timestamp = $row1['in_timestamp'];
                    $out_timestamp = $row1['out_timestamp'];
                    $total_price = $row1['price'];
                    $payment_status = $row1['payment_status'];

                    $in_date = date('d/m/Y', $in_timestamp);
                    $out_date = date('d/m/Y', $out_timestamp);
                    $in_time = date('H:i:s', $in_timestamp);
                    $out_time = date('H:i:s', $out_timestamp);
            ?>
<div id="result_sub_div" style="height: 20vh;">
<h2>Name:- <?php echo $cst_name; ?></h2>
                <h4>Parking Id:- <?php echo $unique_park_id; ?></h4>
                <h4>Date:- <?php echo $in_date . " - ". $out_date; ?></h4>
                <h4>Time:- <?php echo $in_time . " - ". $out_time; ?></h4>
                <h4>Price:- Rs <?php echo $total_price; ?></h4>
                <h4>Payment Status:- <?php if($payment_status == 1){ echo "Done"; }else{ echo
        "Not Done"; } ?></h4>
            </div><hr>
            <?php
                }
            }
            ?>
        </div>

        <?php
            if($admin_login == 1){
        ?>
```

```
            <div id="home_buttons" style=" left: 23%;">
                <button class="home-buttons" id="myQRCode" onclick="scan()">
                    <img style="width: 50%; height: 60%;" src="img/scan.png" /><br />
                    <span class="button-text" style="font-weight: bold;">Scan</span>
                </button>
                <button class="home-buttons" onclick="all_bookings()" id="myBookings">
                    <img style="width: 50%; height: 60%;" src="img/bookings.png" /><br />
                    <span class="button-text" style="font-weight: bold;">All Bookings</span>
                </button>
 </div>
 <?php
}
            ?>
            <script src="https://code.jquery.com/jquery-1.12.4.min.js"></script>
            <script src="js/qrcode.min.js"></script>
            <script src="js/home_fun.js"></script>
            <script>

                function scan() {
                    window.location.href = "qrcam.php";
                }

                function                    all_bookings(){
                    window.location.href = "admin_home.php";
                }
            </script>
        </body>
        </html>
```

qrcam.php

```
        <head>
            <meta charset="UTF-8">
            <meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-
        scale=1.0, user-scalable=no, autoRotate:disabled">
            <title>BookBarber</title>
            <link rel="apple-touch-icon" href="img/icon-96x96.png">
            <meta name="apple-mobile-web-app-status-bar" content="#F37736">
            <meta name="theme-color" content="#F37736">
            <link rel="shortcut icon" type="image/png" href="img/icon-72x72.png">
            <link rel="manifest" href="manifest.json">
            <link rel="stylesheet" href="css/home.css">
            <script src="js/instascan.min.js"></script>
```

```
    <link rel="manifest" href="manifest.json">
    <meta name="theme-color" content="#FFF27B">
    <link rel="apple-touch-icon" href="img/icon-96x96.png">
</head>
<body>
<div id="loader_bg">
        <div id="loader">

        </div>
    </div>
    <div id="myModal1" class="modal1">

<!-- Modal content -->
<div id="modal-content1" class="modal-content1">

</div>
</div>
    <div>
        <video id="qrcam"></video>
        <h2 id="h2_scan">Scan Qr Code Here</h2>
    </div>
    <div id="home_buttons" style=" left: 23%;">
        <button class="home-buttons" id="myQRCode">
            <img style="width: 50%; height: 60%;" src="img/scan.png" /><br />
            <span class="button-text" style="font-weight: bold;">Scan</span>
        </button>
        <button class="home-buttons" onclick="all_bookings()" id="myBookings">
            <img style="width: 50%; height: 60%;" src="img/bookings.png" /><br />
            <span class="button-text" style="font-weight: bold;">All Bookings</span>
        </button>
    </div>
    <script src="js/home_fun.js"></script>
    <script src="https://code.jquery.com/jquery-1.12.4.min.js"></script>
    <script>
        var qr = new Instascan.Scanner({
            video: document.getElementById('qrcam')
        });

        navigator.getUserMedia = navigator.getUserMedia || navigator.webkitGetUserMedia ||
            navigator.mozGetUserMedia || msGetUserMedia || navigator.oGetUserMedia;
```

```
        if (navigator.getUserMedia) {
          Instascan.Camera.getCameras().then(function(cams) {
            qr.start(cams[0]);
          }).catch(function(err) {
            console.log(err);
            alert('please grant permission');
          });

          qr.addListener('scan', function(data) {
            window.location.href = "park_time.php?id=" + data;

  });
  } else {
alert('please grant permission');
        }

        function all_bookings(){
          window.location.href = "admin_home.php";
        }

        var btn = document.getElementById('myQRCode');

        btn.onclick = function() {
          window.location.href = "qrcam.php";
        }

        var modal1 = document.getElementById("myModal1");
        var modal_content1 = document.getElementById("modal-content1");
        var string = getCookie("registered");
        if(string!=""){
          alert_fun(string);
          document.cookie = "registered=;";
        }

        window.onclick = function(event) {

     if(event.target == modal1){
       modal1.style.display = "none";
     }
     }
       </script>
```

```
</body>

</html>
```

my_bookings.php

```
<?php
   include 'connection.php';
   include          'end.php';
   session_start();

   $login          =          0;
   if(isset($_COOKIE['cst_id'])){
      $cst_id = $_COOKIE['cst_id'];
      $login = 1;
   }



?>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta http-equiv="X-UA-Compatible" content="IE=edge">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Smart Parking</title>
   <link rel="stylesheet" href="css/home.css">
   <link rel="manifest" href="manifest.json">
   <meta name="theme-color" content="#FFF27B">
   <link rel="apple-touch-icon" href="img/icon-96x96.png">
</head>
<body>
<div>
   <div id="navbar">
      <h2 id="project_title">Smart Parking</h2>
   </div>
   <div id="myModal" class="modal">

      <!-- Modal content -->
      <div class="modal-content">
         <div style="pointer-events: none;" id="qr_div"></div>
      </div>
```

```
            </div>
            <div id="result_main_div" style="height: 75vh;">
               <?php
               $sql1 = "SELECT * FROM `parking_log` WHERE `cst_id` = $cst_id";
               $result_sql1 = mysqli_query($conn, $sql1);
               if(mysqli_num_rows($result_sql1) > 0){
                  while($row1 = mysqli_fetch_assoc($result_sql1)){
                     $admin_name = $row1['admin_name'];
                     $unique_park_id = $row1['unique_park_id'];
                     $in_timestamp = $row1['in_timestamp'];
                     $out_timestamp = $row1['out_timestamp'];
                     $total_price = $row1['price'];
                     $payment_status = $row1['payment_status'];

                     $in_date = date('d/m/Y', $in_timestamp);
                     $out_date = date('d/m/Y', $out_timestamp);
                     $in_time = date('H:i:s', $in_timestamp);
                     $out_time = date('H:i:s', $out_timestamp);

                     $_SESSION['going_to_payment_opt'] = 1;
               ?>
               <?php
                  if($payment_status == 0){
               ?>
                  <div id="result_sub_div" style="height: 24vh;">
               <?php
                  }else{
               ?>
                  <div id="result_sub_div" style="height: 20vh;">
      <?php
}
               ?>

                  <h2>Name:- <?php echo $admin_name; ?></h2>
                  <h4>Parking Id:- <?php echo $unique_park_id; ?></h4>
                  <h4>Date:- <?php echo $in_date . " - ". $out_date; ?></h4>
                  <h4>Time:- <?php echo $in_time . " - ". $out_time; ?></h4>
                  <h4>Price:- Rs <?php echo $total_price; ?></h4>
                  <?php
                     if($payment_status == 0){
```

```
                ?>
                    <button id="pay" onclick="payment_opt('<?php echo $unique_park_id;
        ?>')">Pay</button>
        <?php
}
                ?>

            </div><hr>
            <?php
                }
            }
            ?>
        </div>

        <?php
            if($login == 1){
        ?>
        <div id="home_buttons">
        <button class="home-buttons" onclick="locations()" id="saved">
                <img style="width: 50%; height: 60%;" src="img/locations.png" /><br />
                <span class="button-text" style="font-weight: bold;">Home</span>
            </button>
            <button class="home-buttons" id="myQRCode">
                <img style="width: 50%; height: 60%;" src="img/qrcode.png" /><br />
                <span class="button-text" style="font-weight: bold;">My QR</span>
            </button>
            <button class="home-buttons" onclick="my_bookings()" id="myBookings">
                <img style="width: 50%; height: 60%;" src="img/bookings.png" /><br />
                <span class="button-text" style="font-weight: bold;">My Bookings</span>
            </button>
 </div>
 <?php
}
        ?>
        <script src="https://code.jquery.com/jquery-1.12.4.min.js"></script>
        <script src="js/qrcode.min.js"></script>
        <script src="js/home_fun.js"></script>
        <script>

      var phone_number = getCookie('cst_id');
            var modal = document.getElementById("myModal");
```

```
var display = false;
var btn = document.getElementById('myQRCode');

btn.onclick = function() {
  modal.style.display = "block";
  if (!display) {
    var qr_data = phone_number;

    var qr_div = new QRCode(document.getElementById('qr_div'), {
      width: 200,
      height: 200
    });
    qr_div.makeCode(qr_data);
    display = true;
    console.log(qr_data);
  }
}
window.onclick = function(event) {
  if (event.target == modal) {
    modal.style.display = "none";
  }
}

function getLocation() {
  if (navigator.geolocation) {
    navigator.geolocation.watchPosition(showPosition);
  } else {
    alert("Geolocation is not supported by this browser.");
  }
}

function showPosition(position) {
  var latitude = position.coords.latitude;
  var longitude = position.coords.longitude;

  $.post("algo.php", {lat: latitude, long: longitude});
}

getLocation();

function my_bookings(){
```

```
        window.location.href = "my_bookings.php";
    }

    function                    locations(){
        window.location.href = "index.php";
    }
    function payment_opt(unique_park_id){
        window.location.href = "paytm_php/TxnTest.php?unique_park_id=" +
unique_park_id;
    }
  </script>
</body>
</html>
```

Output

Fig 3

Fig 4

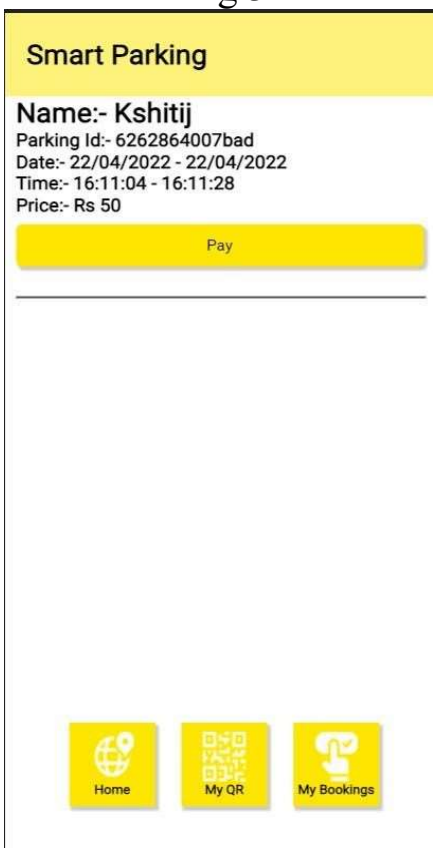


Fig 5

Fig 6

Fig 7

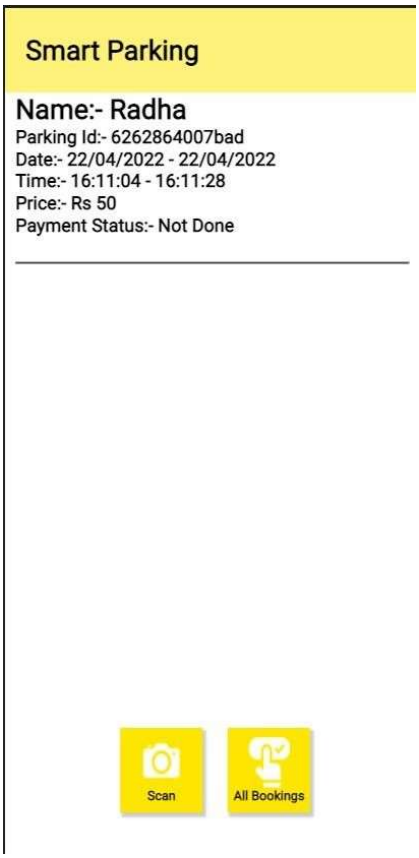


Fig 8

Fig 9

3.6 Conclusion

In conclusion, implementing a Online Parking system using AWS cloud can provide numerous benefits such as scalability, flexibility, reliability, and cost-effectiveness. By leveraging AWS services such as EC2, it's possible to build a robust and secure system that can handle a large number of users, data, and transactions.

With AWS, you can easily set up and manage your infrastructure, monitor performance, and optimize resource usage. You can also integrate other AWS services such as AWS CloudTrail, AWS CloudWatch, and AWS Security Hub to enhance your security and compliance posture

For federal institutions, the adoption of a smart parking system could give them a head start as the network can detect parking rules violation, register them, and then collect and store the required evidence ,Similarly, due to automation, the network can issue a ticket and then make a notification to theviolating party in seconds.

Future work

The smart parking system can be realized as a means to solve parking issues both in the currentera and in the future. Furthermore, IoT-enabling techniques need to be given maximum attention, ensuring that they are at the center of planning smart parking systems. In line with this, there exist several alternatives to the mechanism of modernizing the setup of parking lots and to the implementation of smart functionality. There are those that can be efficiently installed and there are those that are quite challenging. Regardless, the implementation has to allow drivers to acquire actual information on parking online and on the remaining parking spaces. The parking process in the city has to be addressed fully—in an efficient, real-time, andcost-effective manner.
Technology and parking center companies need to team up to provide the much- required parking solution and to assist drivers in saving time and energy. The combined effort can also provide priceless and valuable analytics to malls, shop owners, and federal institutions in regardto planning of affairs, especially in relation to parking spaces

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