

## **Problem Statement:**

In urban areas, finding available parking spaces is often a time-consuming and frustrating experience. This problem results in increased traffic congestion, fuel wastage, and a negative impact on the environment. To address this issue, there is a need for an efficient and smart parking system that can provide real-time information about parking space availability, optimize parking resource utilization, and enhance the overall parking experience.

Project Document: Smart Parking System Using IoT

## **1. Project Overview:**

Project Title: Smart Parking System Using IoT

Project Duration: Sep 2023 – Dec 2023

Project Team: Akhil S (Leader)

Veerasivamani G (Member)

Manoj R (Member)

Rahilan R (Member)

Kamaleshvar R (Member)

## **2. Project Objectives:**

Develop a smart parking system that utilizes IoT technology to monitor and manage parking spaces. Provide real-time information to drivers about available parking spaces. Optimize parking resource utilization and reduce traffic congestion. Enhance the overall parking experience for users.

## **3. Scope of Work:**

Design and implement a network of IoT sensors to monitor parking space occupancy. Develop a mobile application and/or a web interface for users to access real-time parking information. Implement data analytics to predict parking space availability based on historical data. Integrate payment and reservation systems for user convenience. Ensure scalability for potential expansion.

## **4. Methodology:**

Deploy IoT sensors (e.g., ultrasonic or infrared sensors) in parking spaces to detect occupancy. Connect sensors to a central IoT platform for data collection and processing. Develop a user-friendly interface for both drivers and parking lot operators. Implement machine learning algorithms for predictive analytics. Integrate secure payment and reservation features.

## **5. Expected Deliverables:**

Working IoT sensor network deployed in parking areas. User-friendly mobile application and/or web interface. Real-time parking availability information. Predictive parking availability feature. Secure payment and reservation system.

## **6. Timeline:**

Phase 1: Sensor Deployment and Data Collection

Phase 2: Application Development

Phase 3: Predictive Analytics Implementation

Phase 4: Payment and Reservation Integration

Phase 5: Testing and Quality Assurance

Phase 6: Deployment and Maintenance

## **7. Budget:**

Provide a breakdown of estimated costs for hardware, software development, and ongoing maintenance.

## **8. Risks and Mitigations:**

Identify potential risks, such as technical challenges or security concerns, and propose mitigation strategies.