



# SMART PARKING SYSTEM

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## Problem Statement

Parking in urban areas is a major challenge due to increasing vehicle numbers, limited parking spaces, and inefficient management. This results in **traffic congestion, fuel wastage, and driver frustration**. Traditional parking systems lack **automation and real-time monitoring**, making it difficult for users to find available slots efficiently.

## Objectives

1. Develop a **smart, IoT-based parking system** to detect empty slots.
2. Use **sensors & ESP32** to provide **real-time parking updates**.
3. Minimize **traffic congestion & fuel wastage**.
4. Display available slots on **LCD and PC**.

## Methodology

1. **ESP32** acts as the central controller, replacing Arduino Uno.
2. **IR sensors** detect vehicle presence in each parking slot.
3. **Data is processed** and sent to an **LCD screen & cloud**.
4. Users can check slot availability **in real time**.

## Hardware



## Technology used

1. **IoT (Internet of Things)** – Real-time slot monitoring.
2. **C/C++ (ArduinoIDE)** – ESP32 programming.
3. **Cloud & Mobile App** (if applicable) – Remote access.
4. Automation Technology.
5. Sensor-Based Monitoring.

## Results



## Conclusion

The **Smart Parking System** improves **parking efficiency** by providing **real-time slot availability updates** using **IoT & ESP32**.

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## References

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