Smart parking using iot

1.Objective and Scope Definition:

that enables drivers to search for and reserve a parking spot remotely through their smartphones.

2.Hardware Selection:

Consider factors like reliability, scalability, ease of maintenance, and integration with the parking management system.

3.Data Collection:

Data collection in a smart parking system involves gathering information from various sources to manage and optimize parking spaces.

4.Data Transmission:

The data collected from sensors and other devices is often transmitted to a centralized cloud-based platform.

5.Data Processing:

The information is collated and analyzed in real-time to create a map of available parking slots, which is reflected on the smartphone application.

6.Centralized Server/Cloud:

a centralized management that enables drivers to search for and reserve a parking spot remotely through their smartphones.

7.User Interface:

As a rule, such apps ensure parking management, time tracking, reservation, billing tools, data logging, remote video.

8.Optimization Algorithms:

Adding or removing parking rows.Changing the parking lot layout.

9.Testing and Validation:

Testing and validation in smart parking IoT systems involve various stages to ensure functionality and reliability.

10.Integration with Public Transport Authority:

This integration allows for the sharing of real-time parking availability, enabling commuters to check parking spaces before arrival.

11.Security and Privacy:

Security and privacy are crucial aspects in smart parking IoT systems.

12.calability:

Scalability in smart parking IoT systems involves the capability to efficiently expand or adapt the system as demands increase or change.

13.Maintenance and Updates:

Maintenance and updates in smart parking IoT systems are crucial to ensure consistent performance and security.

14.Cost Analysis:

Cost analysis involves evaluating various expenses associated with implementing and maintaining the system.

15.Deployment:

Deployment of system involves several key stepsIdentify the number and types of sensors, communication infrastructure,and user interface.

16.Monitoring and Feedback:

Monitoring and feedback in a system play a vital role in maintaining system efficiency and user satisfaction.

17.Documentation:

Proper documentation ensures adherence to regulatory requirements and industry standards.

18.Regulatory Compliance:

Adhering to data privacy regulations ensures user information is handled securely.

pip install Adafruit\_DHT pip install requests

import Adafruit\_DHT

import requests

import time

# Set up your DHT sensor

sensor = Adafruit\_DHT.DHT11

pin = 4 # GPIO pin where the DHT sensor is connected

# ThingSpeak API endpoint and API key

api\_key = "YOUR\_API\_KEY" # Replace with your ThingSpeak API key

url = f"https://api.thingspeak.com/update?api\_key={api\_key}"

while True:

try:

# Read temperature and humidity from the sensor

humidity, temperature = Adafruit\_DHT.read\_retry(sensor, pin)

if humidity is not None and temperature is not None:

# Send data to ThingSpeak

payload = {'field1': temperature, 'field2': humidity}

response = requests.post(url, data=payload)

print(f"Temperature: {temperature}°C, Humidity: {humidity}%")

else:

print("Failed to read data from the sensor")

# Wait for a few seconds before taking the next reading

time.sleep(30)

except KeyboardInterrupt:

break