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
```