IBM NAAN MUDHALVAN – INTERNET OF THINGS(IOT)GROUP 4

Phase 1:

Project Submission

Topic:

Smart parking

Team members:

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Project Definition:

The project involves integrating IoT sensors into public transportation vehicles to monitor ridership, track locations, and predict arrival times. The goal is to provide real-time transit information to the public through a public platform, enhancing the efficiency and quality of public transportation services. This project includes defining objectives, designing the IoT sensor system, developing the real-time transit information platform, and integrating them using IoT technology and Python.

Design Thinking:

Project Objectives:

Define specific objectives such as real-time parking space monitoring, mobile app integration, and efficient parking guidance.

IoT Sensor Design:

Plan the design and deployment of IoT sensors in parking spaces to detect occupancy and availability.

Real-Time Transit Information Platform:

Design a mobile app interface that displays real-time parking availability to users.

Integration Approach:

Determine how Raspberry Pi will collect data from sensors and update the mobile app.

Program :

Code:

```
Import random
Import time

# Simulated parking spaces with random occupancy (0 for available, 1 for occupied)
Parking_spaces = [0] * 10

Def update_parking_spaces():
   # Simulate changes in parking space occupancy
   For I in range(len(parking_spaces)):
      If random.random() < 0.3:
         Parking_spaces[i] = 1
      Else:
         Parking_spaces[i] = 0
```

```
Def check_parking_availability():
   While True:
      Update_parking_spaces()
      Print("Parking Space Availability:")
      For I, status in enumerate(parking_spaces, start=1):
         Print(f"Space {i}: {'Occupied' if status == 1 else
'Available'}")
      Print("\n")
      Time.sleep(5)  # Simulate periodic updates

If __name__ == "__main__":
   Print("Smart Parking System Simulation")
   Check_parking_availability()
```

OUTPUT for above Code:

```
  Smart Parking System Simulation
Parking Space Availability:
Space 1: Available
Space 2: Occupied
```

Space 3: Available

Space 4: Available

Space 5: Occupied

Space 6: Available

Space 7: Available

Space 8: Occupied

Space 9: Available

Space 10: Available

Parking Space Availability:

Space 1: Available

Space 2: Available

Space 3: Available

Space 4: Occupied

Space 5: Available

Space 6: Available

Space 7: Occupied

Space 8: Available

Space 9: Occupied

Space 10: Available