GOVERNMENT COLLEGE OF ENGINEERING ERODE

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B.E Electronics and Communication Engineering

SMART PARKING SYSTEM

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SMART CAR PARKING:

INTRODUCTION:

A Smart Parking System in the Internet of Things (IoT) is a cutting-edge solution that leverages the power of connected devices and technology to address the ever-growing challenges of urban parking management.

As urban areas continue to expand, the demand for parking spaces has increased significantly, leading to congestion, pollution, and frustrated drivers.

In this context, IoT-based smart parking systems have emerged as a transformative solution, revolutionizing the way we approach parking.

These systems utilize a network of sensors, cameras, and communication technology to monitor and manage parking spaces in real-time.

They provide drivers with crucial information about available parking spots, optimizing their parking experience. Additionally, they offer city authorities and parking facility operators the ability to efficiently manage and utilize parking resources while reducing operational costs.

This introduction will explore the key features and benefits of IoT-based smart parking systems, their role in reducing traffic congestion and pollution, enhancing urban mobility, and improving the overall quality of life in urban environments.

By providing real-time data and insights, these systems are contributing to more sustainable and connected cities of the future.

PYTHON CODE

```
class SmartParking:
    def __init__(self,capacity):
        self.capacity = capacity
        self.available_spaces = capacity

    def park_vehicle(self):
        if self.available_spaces > 0:
            self.available_spaces -= 1
            print("Vehicle parked. Available spaces:", self.available_spaces)
        else:
            print("Parking is full. Cannot park the vehicle.")

    def leave_parking(self):
        if self.available_spaces < self.capacity:
            self.available_spaces += 1
            print("Vehicle left. Available spaces:", self.available_spaces)
        else:
            print("Parking is empty. No vehicle to leave.")

def main():
    capacity = 10  # Adjust the capacity as needed
    parking_lot = SmartParking(capacity)

    while True:
        print("1. Park Vehicle")
```

```
        print("2. Leave Parking")
        print("3. Exit")
        choice = input("Enter your choice: ")

        if choice == "1":
            parking_lot.park_vehicle()
        elif choice == "2":
            parking_lot.leave_parking()
        elif choice == "3":
            break
        else:
            print("Invalid choice. Please try again.")

if __name__ == "__main__":
    main()
```

CONCLUSION:

A Smart Parking System in the context of the Internet of Things (IoT) offers numerous benefits and holds great potential for addressing the growing urban parking challenges. In conclusion, this technology-driven solution has the capacity to revolutionize the way we manage parking spaces and improve urban mobility. Here are some key takeaways

- Efficiency and Convenience
- Reduced Traffic Congestion
- Optimized Space Utilization
- Data-Driven Insights
- Sustainability