**Smart Parking**

**Introduction:**

mart parking is a revolutionary solution that harnesses cutting-edge technology to transform the traditional parking experience. By seamlessly integrating sensors, data analytics, and mobile apps, smart parking systems optimize the utilization of parking spaces, reduce congestion, and enhance convenience for both drivers and city dwellers. In this era of urbanization and digital innovation, smart parking is paving the way for a more efficient, sustainable, and user-friendly urban mobility landscape.

**Methodology** **:**

**Site Assessment:** Begin by assessing the parking area or cityscape where the smart parking system will be deployed. Identify the number of parking spaces, their locations, and any existing infrastructure that can be leveraged.

**Sensor Deployment:** Install a network of sensors, such as ultrasonic or magnetic sensors, in individual parking spaces. These sensors detect the presence of vehicles and relay real-time data to a central control system.

**Data Collection:** Gather data from the deployed sensors, including information on parking space occupancy, duration of stay, and turnover rates. This data forms the foundation for decision-making and analytics.

**Connectivity:** Ensure reliable connectivity for the sensors and central control system. This often involves setting up wireless networks or using IoT (Internet of Things) technologies to transmit data.

**Components:**

* ESP32 development board
* Ultrasonic distance sensors, IR sensor for each parking space
* Breadboard and jumper wires
* Wokwi virtual simulator
* Aurdino UNO
* Mobile Application

**Problem solution:**

Integrated payment systems: Integrated payment systems allow drivers to pay for parking using a variety of methods, such as credit cards, mobile wallets, and contactless payments.

Dynamic pricing: Dynamic pricing can be used to adjust parking rates based on demand. This can help to reduce congestion and encourage drivers to park in less popular areas.

**Conclusion:**

SMART parking systems have the potential to revolutionize the way we park. By using technology to improve efficiency and reduce frustration, smart parking systems can make our lives easier and our communities more livable.

AS smart parking technology continues to develop and become more widely adopted, we can expect to see even more benefits emerge. Smart parking systems have the potential to transform the way we park, making our lives easier and our communities more sustainable