**Abstract:**

**Smart Parking System**

A Smart Parking System is a modern solution to alleviate the growing problem of urban congestion and inefficient parking management. This system employs various technologies, such as sensors, IoT devices, and mobile applications, to streamline the parking process. It helps drivers find available parking spaces quickly, reduces traffic congestion, and enhances the overall parking experience. This project presents a basic implementation of a smart parking system using Python, demonstrating the key functionalities of occupancy detection and real-time parking space availability updates.

**Code**

import random

import time

# Simulated parking lot with 10 parking spaces

total\_spaces = 10

occupied\_spaces = 0

def check\_availability():

global occupied\_spaces

return random.choice([True, False]) # Simulate space availability randomly

def update\_display():

print(f"Total Spaces: {total\_spaces}")

print(f"Occupied Spaces: {occupied\_spaces}")

print(f"Available Spaces: {total\_spaces - occupied\_spaces}")

print()

def simulate\_smart\_parking():

global occupied\_spaces

while True:

# Check for space availability

if check\_availability():

if occupied\_spaces < total\_spaces:

occupied\_spaces += 1

print("Car parked successfully!")

else:

print("Parking lot is full. Cannot park.")

else:

if occupied\_spaces > 0:

occupied\_spaces -= 1

print("Car left. Space freed up.")

else:

print("No cars in the parking lot.")

update\_display()

time.sleep(2) # Simulate parking status updates every 2 seconds

if \_\_name\_\_ == "\_\_main\_\_":

print("Smart Parking System Simulation\n")

simulate\_smart\_parking()

**Github Link:** **https://github.com/maadesh-07/maadesh-07/tree/7bf2510b323014f8a2563c4f165b2c76c01166d5**