IOT BASED SMART PARKING SYSTEM

A Project report submitted in partial fulfilment of the requirements for the degree of B.E in Computer Science and Engineering.

By

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SMART PARKING SYSTEM

PHASE 3: DEVELOPMENT PART 1

First, you decide on the IoT hardware you'll use in the parking lot. Then, you connect the devices and sensors with the microcontrollers through protocols. Also, you need to use cloud-based services for data collection and transmission. Finally, you create a mobile or web app for parking management.

Build smart parking system steps involved in this project:

- Making three devices in Artik Cloud Platform.
- Making one application in Artik Cloud.
- Making one rule in Artik Cloud.
- Preparing & Programming Arduino.
- Connecting the Sensors to Arduino.
- Preparing Raspberry Pi.
- Preparing Intel Edison.
- Developing Web Application.
- Completing project.

IoT-based smart parking system deployment requires integrating various methods:

Devices

- ✓ Smart Parking Sensor Technology is a radar sensor device that allows the detection of parking availability indoors and outdoors.
- ✓ Wireless detection of parking spot occupancy.
- ✓ Best accuracy in the market: radar and magnetic technology combination.

Sensors

1. Ultrasonic sensors.
2. Electromagnetic sensors.
3. Infrared sensors.

Microcontrollers

Arduino: The microcontroller that used to implement our parking system and it is attached sensors.

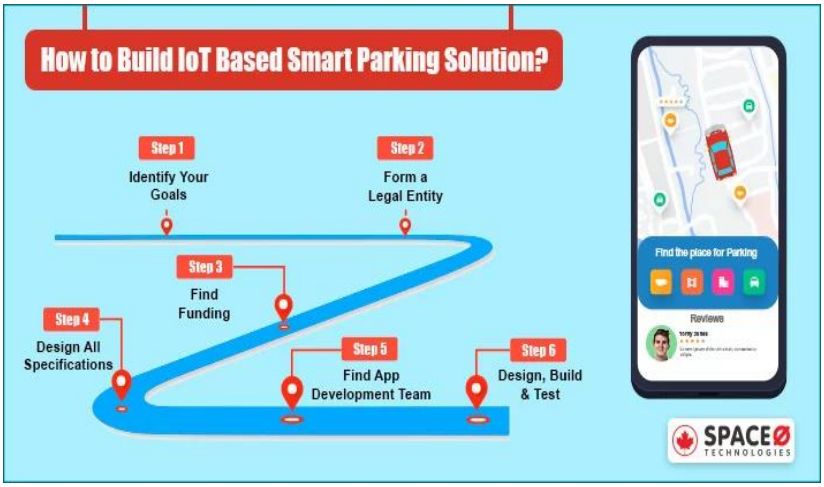
Android App: user can connect with the smart parking system with their smart phones.

This function we will be used to building the smart parking system is very easy and comfortable.

How to build the smart parking system using IOT devices:

- ✓ Audience Research
- ✓ Competition Study
- ✓ Planning to Designing
- ✓ Programming
- ✓ Testing & QA
- ✓ Deployment & Maintenance

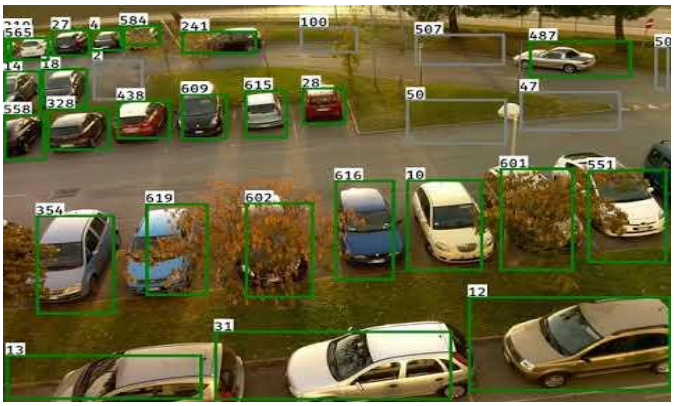
How to Build IoT Based Smart Parking Solution:



- Identify Your Goals
- Form a Legal Entity
- Find Funding
- Design All Specifications

- ❖ Find App Development Team
- ❖ Build & Test

PYTHON SCRIPT ON THE IOT DEVICES :



- Define a function constructor() . This will take big, medium, small
- sp := a list like [0,big,medium,small]
- Define a function addCar() . This will take carType
- if sp[carType] > 0, then
- sp[carType] := sp[carType] - 1
- return True
- return False

```
class Our Parking System:
  def __init__(self, big, medium, small):
    self.sp = [0,big,medium,small]

  def addCar(self, carType):
    if(self.sp[carType] >0 ):
      self.sp[carType] -= 1
      return True
    return False

ps = OurParkingSystem(2, 0, 1)
print(ps.addCar(3))
print(ps.addCar(2))
print(ps.addCar(3))
print(ps.addCar(1))
print(ps.addCar(1))
print(ps.addCar(1))
```

Input

ps.addCar(3)

ps.addCar(2)

ps.addCar(3)

ps.addCar(1)

ps.addCar(1)

ps.addCar(1)

Output

True

False

False

True

True

False