

# **DARE2COMPETE**

# **HACKATHON 2021**

---

**Park**

**EASY**

**TEAM : ANONYTECH**

**IDEA : IoT BASED**

**PARKING**

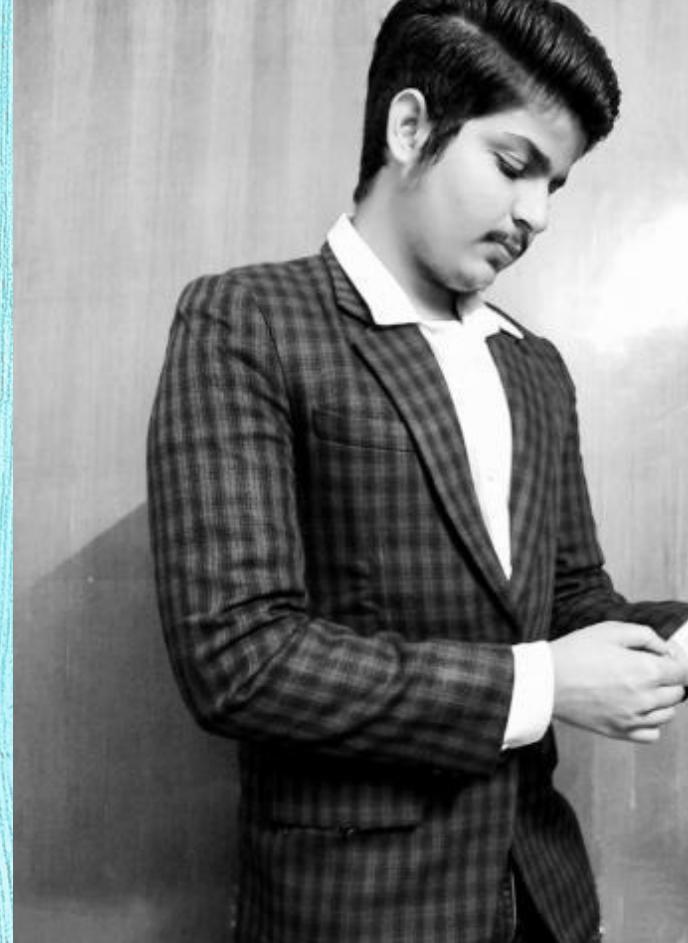
**(PARK EASY)**

# TEAM ANONYTECH

---



VICKY KUMAR



AMAN  
SHRIVASTAVA



SAGAR JANGID



ARYA SINGH

# IoT BASED PARKING SYSTEM

## (Problem Description)

In today's world, the era of growing population, more spaces are required to park our vehicle. In growing cities this is the big issue to find the suitable parking area.

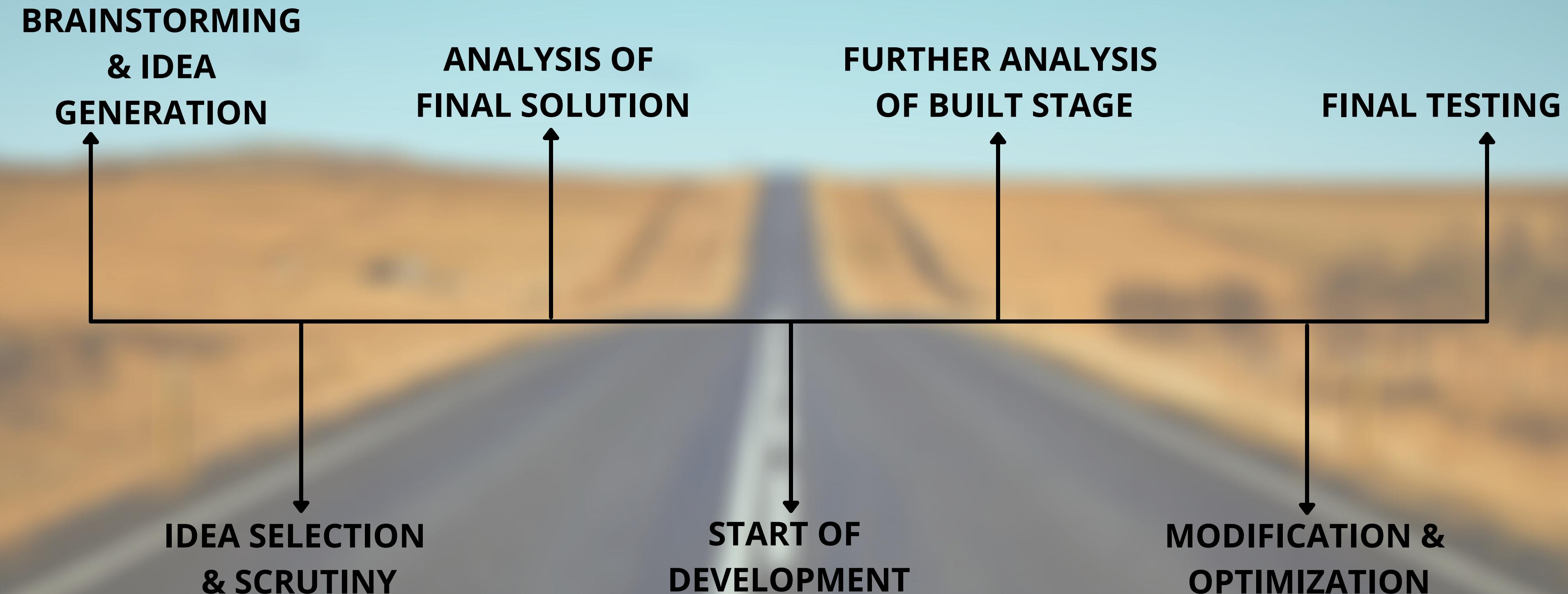
This web based application will serve the purpose to help the individual get the notification at the place of parking area and gives us efficiency to find vacant slots to park a vehicle in parking area.

# SOLUTION

The proposed idea solves the problem by :

- showing the empty parking spots in the form of grid on the installed screens at the entrance of the parking area
- capturing their plate number in order to store it in database at the server, so as to keep track of membership, locally.
- letting user pay through payment gateway or upi to make the whole process of ticket collection and payment faster and cashless.
- letting the user search of empty parking spots nearby, on the website.

# PROJECT TIMELINE



# COMPONENT ENLISTMENT

## HARDWARE

- NODEMCU
- ARDUINO
- UNO
- IR SENSORS
- VISION

## SOFTWARE

- ARDUINO IDE

## TECHNOLOGY

- PYTHON LANGUAGE(FETCHING DATA FROM DB)
- FLASK FRAMEWORK
- FIREBASE
- YOLO v3
- OPENCV
- OCR
- HARCASCADE

# CHALLENGES

- Static obstacle in front of sensor
- Issues with connectivity
- Crashing of server or firebase (which is very unlikely)
- Glitch in sensors
- Plate detection file too large to be uploaded on the global system. Hence, should be uploaded locally.

# PROJECT DESCRIPTION

## Ease of Deployment

It is as easy to deploy on the global as well as local level. And even easy to maintain.

## System Reliability

System is consolidated by various available frameworks, IDE, sensors, models of technology used, etc.

## Mechanism

The mechanism involves sending of data fetched to the server and localhost in real time so as to show the parking spots unoccupied at a time.

# GOALS TO ACCOMPLISH

CONVENIENT FOR  
USER

REAL TIME DATA &  
INSIGHTS

CASHLESS TRANSACTION

REDUCED TRAFFIC

ELIMINATION OF HUMAN  
INVOLVEMENT

# FUTURE SCOPE

- CAN BE EXPANDED AS ANDROID APP WITH GEOFENCING SYSTEM
- CAN BE INSTALLED WITH JUST ONE VISION(i.e CAMERA) TO READ NUMBER PLATE THROUGH OCR.
- CAN BE INTEGRATED WITH PAYMENT GATEWAY AND RFID, SO AS TO FACILITATE EASY PAYMENT WHILE LEAVING PARKING AREA WITHOUT HALTING TO PAY.
- THE COLLECTED DATA FROM THE OCR READER CAN THEN BE USED TO BUILD THE PREDICTION MODEL BASED ON WHICH THE STATE OF THE PARKING AREA CAN BE FOUND OVER A LONG TIME PERIOD WITH UTMOST 80% ACCURACY THROUGH AVAILABLE ML TECHNIQUES
- THROUGH THE DATABASE READ THROUGH OCR, AGAIN, WE CAN BUILD A SYSTEM WHICH CAN 'TELL' WHERE THE ARRIVING CAR HAS BEEN PARKED.

# **IMPLEMENTATION SCALE**

**CAN BE IMPLEMENTED AT SMALLER SCALE AS WELL AS  
LARGE SCALE.**

**THE COST OF INSTALLATION AND DEPLOYMENT WILL  
BE MINIMAL AS COMPARED TO EXISTING SYSTEM**

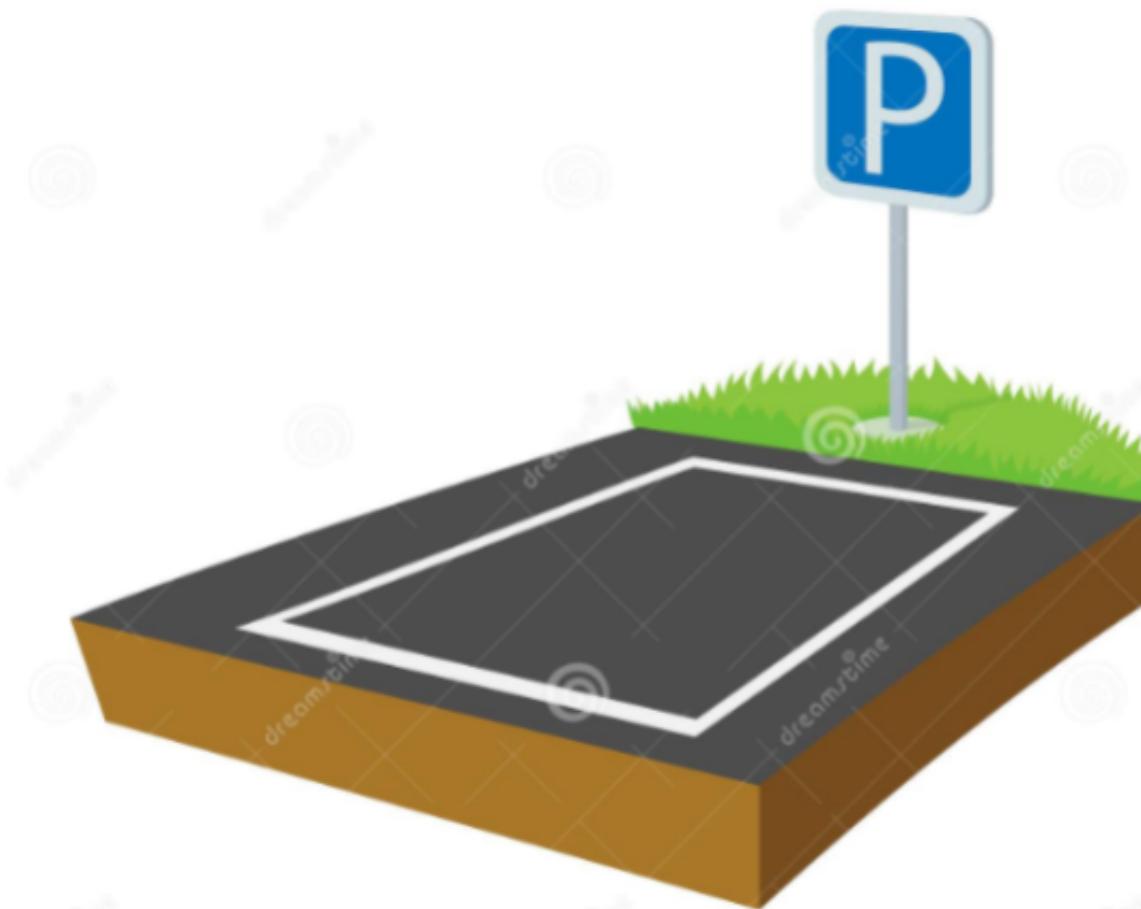
# OVERVIEW OF IDEA



Slot number : 1

PRESENT

1



Slot number : 2

ABSENT

0



Thank  
You!

OPEN FOR SUGGESTIONS