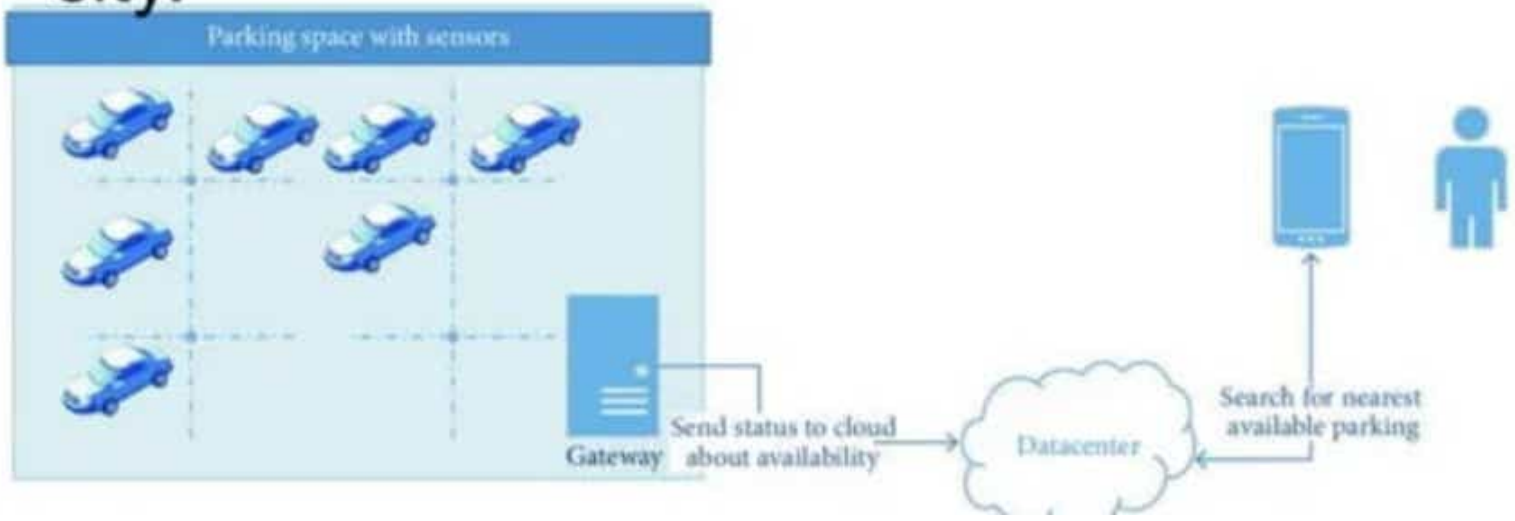
# IoT Based Smart Parking Systems for Smart Cities

# Objective

- The main aim of this project is reduces the risk of finding the parking slots in any parking area.
- It eliminates the unnecessary travelling of vehicles across the filled parking slots in a city.



# Introduction

- Smart Car Parking System is an integrated system to organize cars in public areas.
- All vehicles enter into the parking and waste time for searching for parking slot .

# Existing system

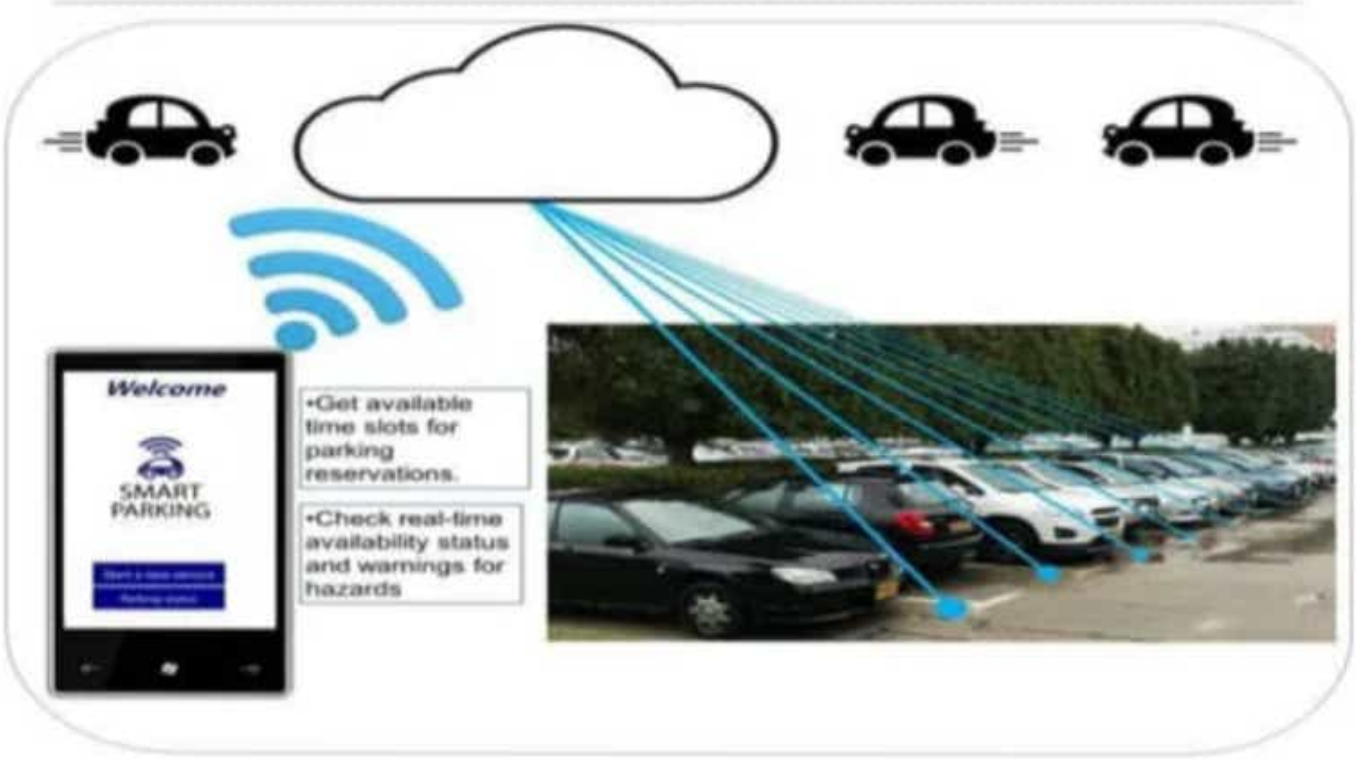
- The problem in the existing system is whether parking slot is available or not doesn't know before reach the parking area.

# Problem Definition

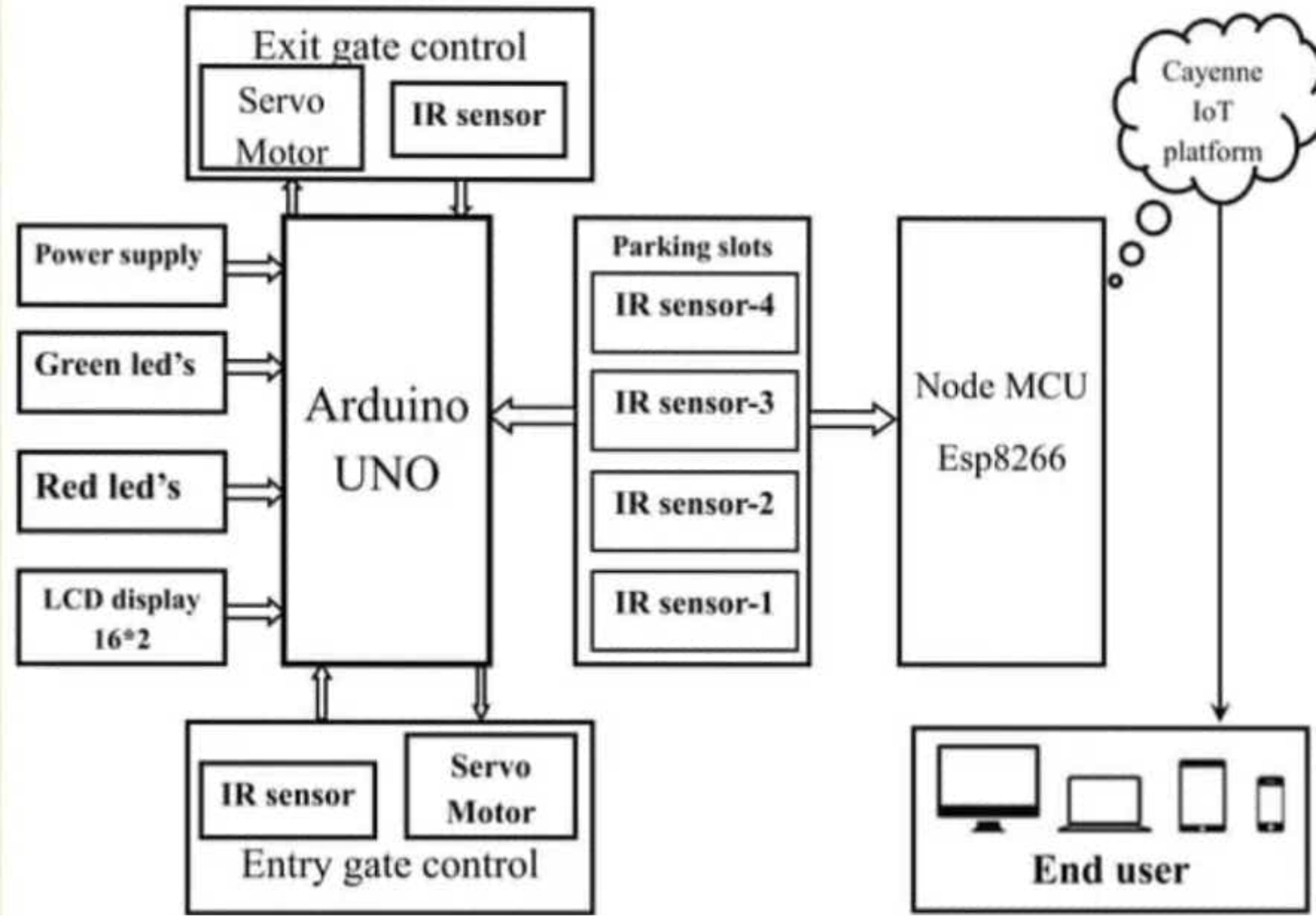
- With increase in the population, number of vehicles increases and due to unmanaged parking it leads to many problems.

# Proposed system

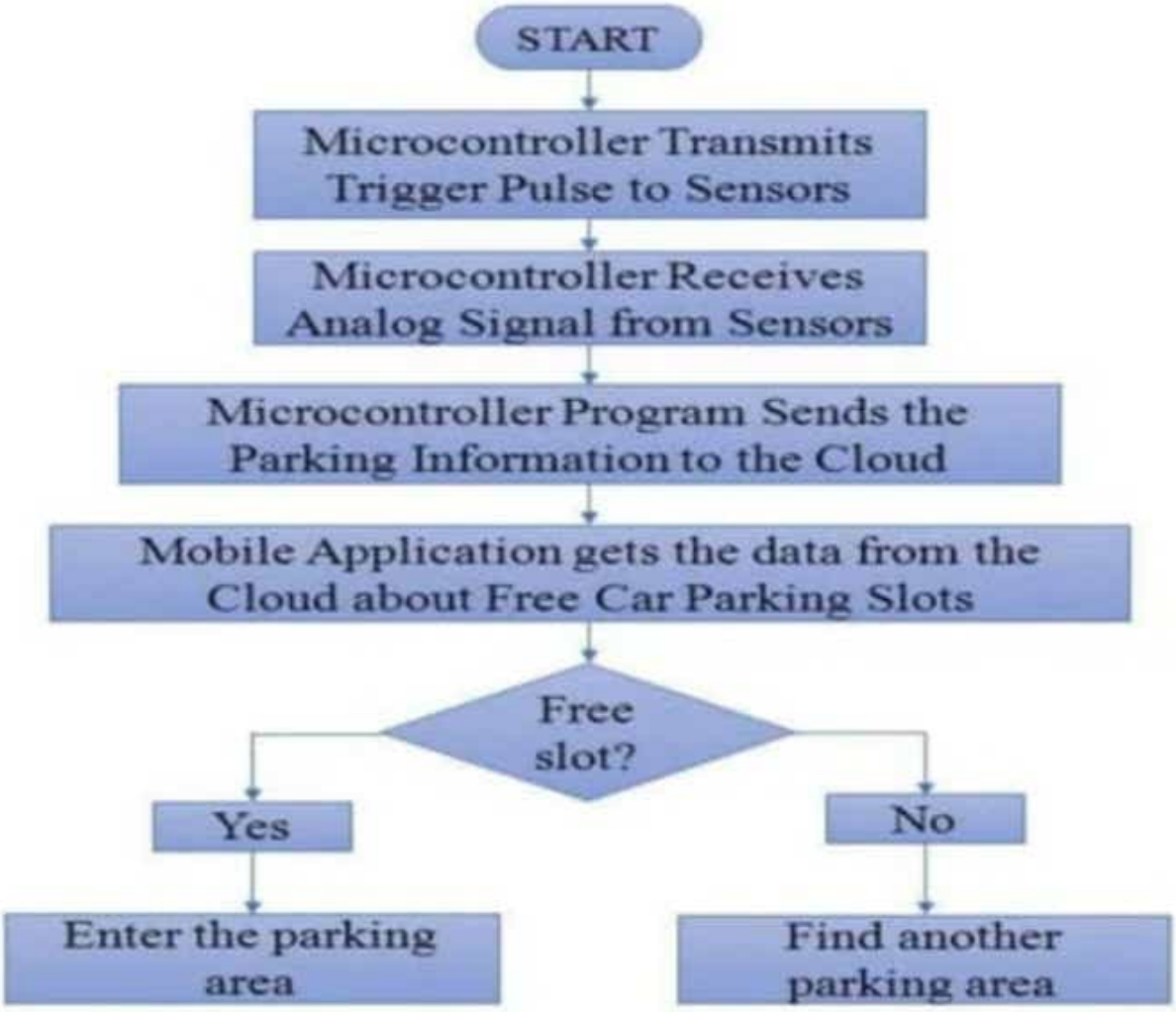
- To find the parking space from any where by using the mobile applicaton.



# Block Diagram



# Flowchart


START
Microcontroller Transmits Trigger Pulse to Sensors
Microcontroller Receives Analog Signal from Sensors
Microcontroller Program Sends the Parking Information to the Cloud
Mobile Application gets the data from the Cloud about Free Car Parking Slots
Free slot?
Yes
No
Enter the parking area
Find another parking area

# Working:

## *Stage-1:*

When car enters the parking area IR sensor that is present before IN gate will detects the passing vehicle and the gate will be opened automatically.

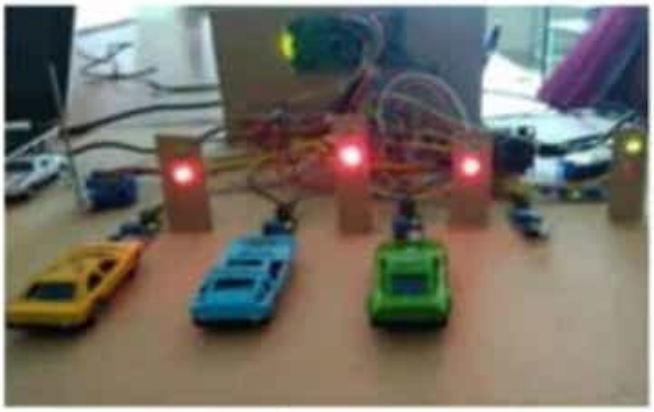
**Before reaching to IN gate**

**After reaching to IN gate**

## *Stage-2:*

The car will enter into the parking area at that time person doesn't know which slot is empty, for this there will be an indication of LED's for every slot when the Green light glows the slot is empty when the red light glows the slot was filled. By this the person easily know which slot is empty.

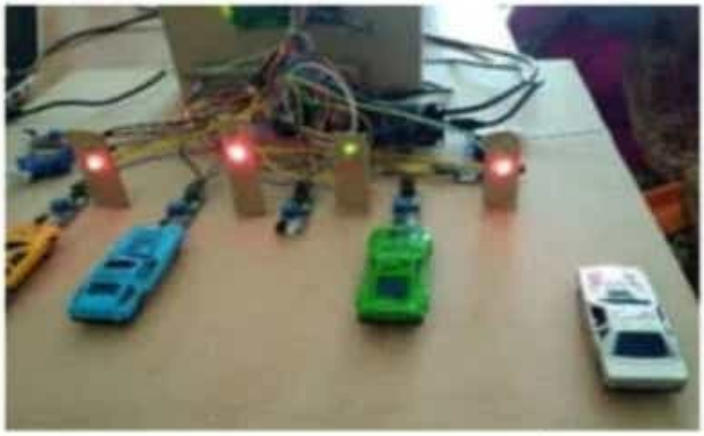
**Before reaching to slot**



**After reaching to slot**

## *Stage-3*

The operation of exit side will be same as that of the entrance. When the car is leaving the parking area, the IR sensor that is present before the OUT gate will detect the passing vehicle and the gate will be opened automatically.

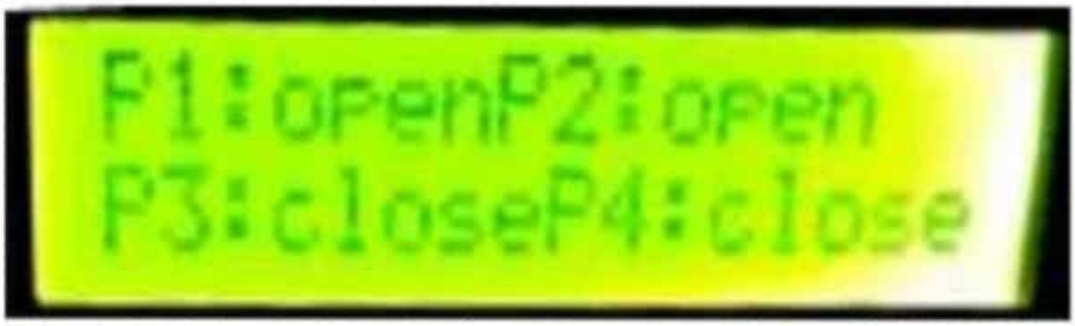


**Before reaching to OUT gate**

**After reaching to OUT gate**

*Stage-4*

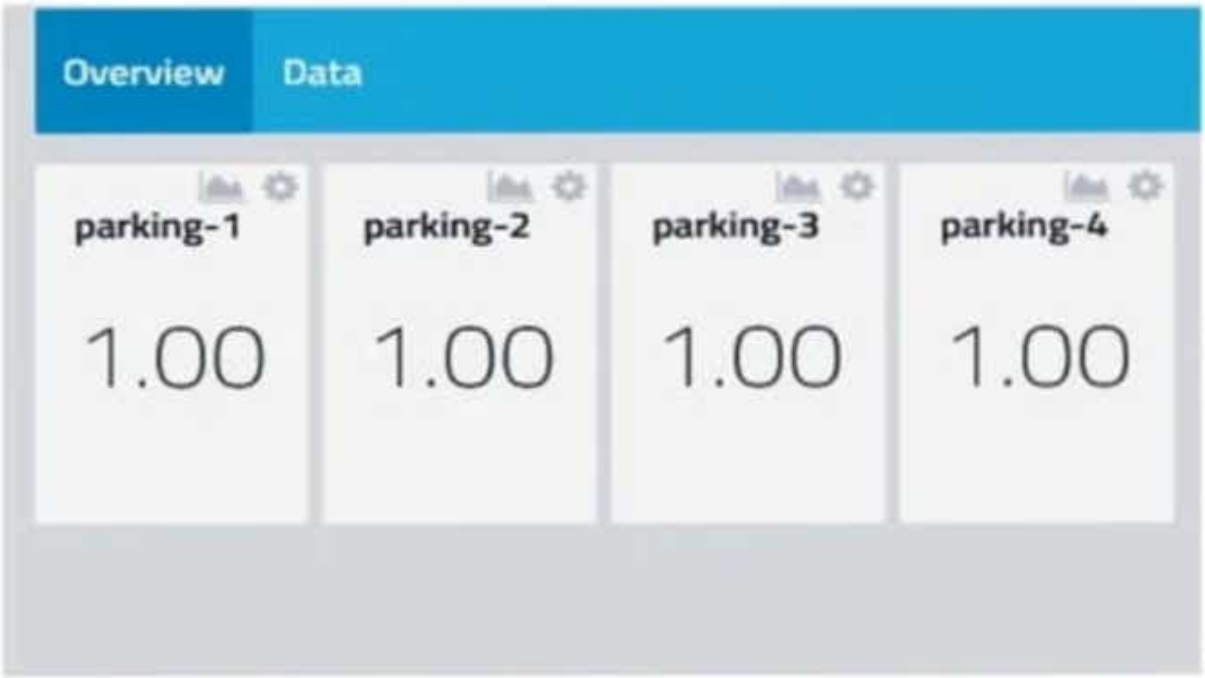
In front of the parking area, there will be an LCD display that is used to show the status of the parking slots, whether the parking is available or not.



## *Stage-5*

The main advantage of the current system is the user will register in CAYENNE application/website.

From this application/website also the user can see the status of parking area. In this application it will show the information of parking slots individually.



# Conclusion

- This project focuses on implementation of car parking place detection using Internet of Things.
- The system benefits of smart parking go well beyond avoiding time wasting.
- Developing a smart parking solutions with in a city solves the pollution problem.


THANK YOU