9209-NSN COLLEGE OF ENGINEERING AND TECHNOLOGY
GROUP-4

SMART PARKING MANAGEMENT SYSTEM

Team members:

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Problem statement:

With the rise of population,the number of vehicles increases,and unmanaged parking causes many problems,such as a lack of parking space and a high cost for parking reservations.To minimize this problem,

we designed a system that maximizes parking resource utilisation while cutting costs,and the parking place is also within walking distance.

In recent research in metropolitan cities the parking management problem can be viewed from serval angles.High vehicle density on roads.

This results in annoying issue for the drivers to park their vehicles as it is very diffcult to find a parking slot.

The drivers usually waste time and effort in finding parking space and end up parking their vehicles finding a space on streets.In worst case,people fail to find any parking space especially during peak hours and festive seasons.

By using ultrasonic sensors be able to keep a record of the number of cars parked inside of a parking garage.Consequently,once a car enters a parking garage followed by a parking space,a ping ultrasonic sensor will then be able to determine if a car is parked in space or not.

Finding a parking space in most metropolitan areas,especially during the rush hours,is difficult for drivers.Difficulty arises from not knowing where the available spaces may be at that time traffic congestion may occur.

Project objectives:

The basic objective of a smart parking solution is:

1.visualization: To identify a vehicle's presence or absence in a particular parking space with a high degree of accuracy, and to pass on this data into a system for visualization and analysis.

2.parking spot: To reduce the numbers of cars circling around the streets for finding a parking spot.

3.Arduino: Optimize parking space utilization, reduce human error, and enhance overall parking efficiency .

4.Multi level parking: Optimum space utilization.

5.scope: optimizing time in a tight and busy urban environment.

6.Productive time: Allowing city residents to save potentially productive time.

Used things:

Hardware:

1.Raspberry pi 3 Model B(2)

2.Arduino UNO(2)

3.Intel Edison with Arduino Breakout

4.Grove starter kit plus for Intel Edison

5.Ultrasonic Ranger HC-SR04

6.IR receiver(generic)(2)

7.IR transmitter(generic)(4)

8.Resistor 221 ohm(4)

9.Resistor 10k ohm(4)

Software & Online services:

1.samsung IOT ARTIK Cloud for IOT

2.Google Developers Google Maps

3.Ardunio IDE

4.Intel IOT XDK

Programming Language:

1.HTML

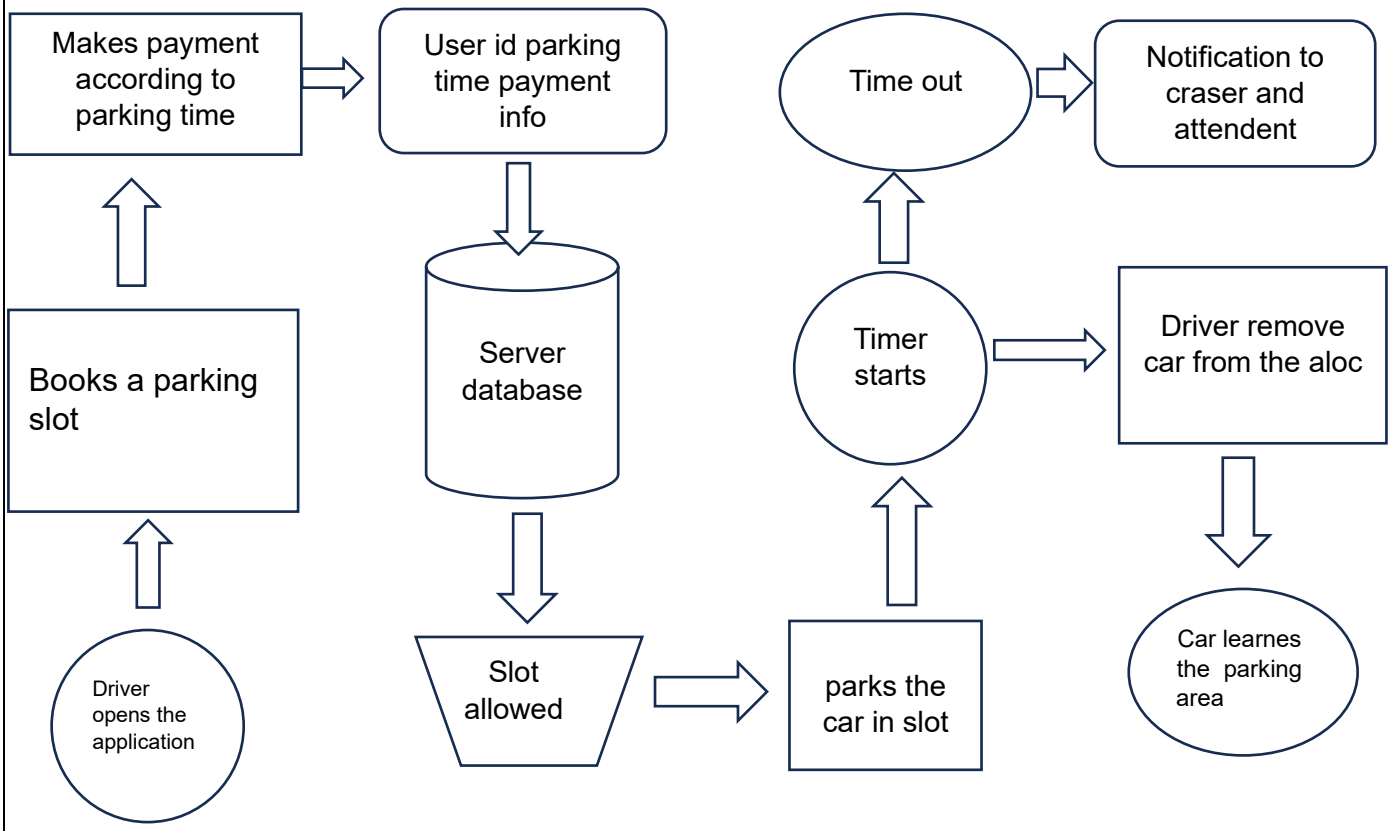
2.JS

3.Node.JS

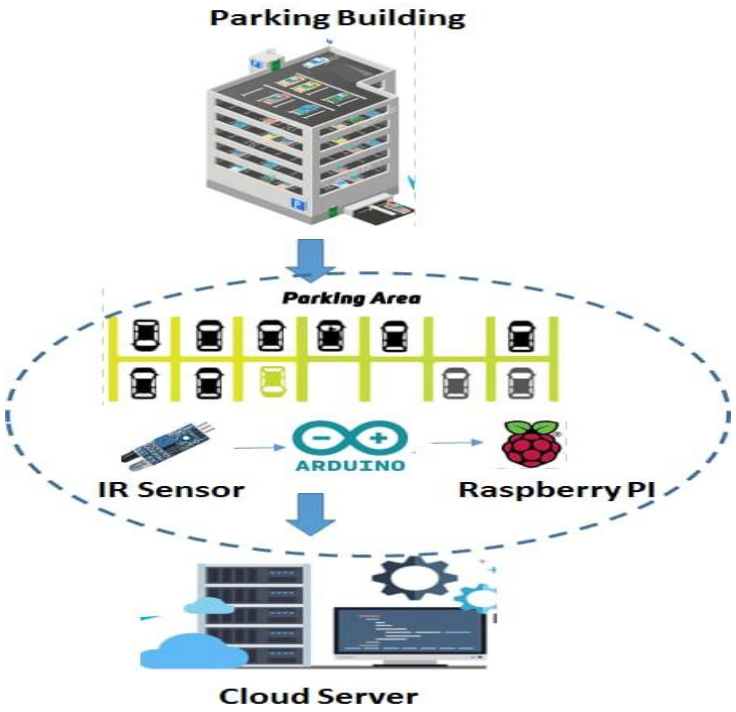
4.Python

Flow chart:

1.control flow system



Block diagram:



Integrated smart parking:

Integrated smart parking system provides separate application interfaces for each of the participants for communicating with it. The above following figure shows the above integrated design.