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Information Retrieving Through Sensors for Smart Parking

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Abstract

By using Internet of Things (IoT) we can make the things easier for our livelihood. The concept of smart parking in sensors is the combination of IoT. I.E By sending the status of the parking IoT through the internet, So that any person can see that which parking IoT is empty through the map and can easily park the vehicle. By using IoT the user can track the availability of the parking IoT through the web application to park the vehicle. In the existing systems the parking done manually and the user will probably had cases for looking for parking IoT for long time and there will be a chance for mismatching of parking IoT for the user. Smart parking provides parking efficiency and it reduces the time of searching for parking. The main concept of smart parking is to reduce searching for the parking IoT. Smart parking can optimize the traffic flows in the entire cities. The application uses IoT sensors just to receive the information about the parking IoT 's.

Keywords: Sensors, Internet of Things, Cloud, Raspberry Pi.

1 | Introduction

Internet of Things (IoT) Is a system interrelated devices connected to the internet to transfer and receive the data from one to the other. IoT enables the user to transmit the data to the cloud [1]. IoT is the ability that transfers the data without requiring the human-to-human or human-to-computer interaction. Now days, IoT is being used extensively to lessen the burden on humans [2]. Basically we have a device which collects the data by using sensors and actuators, and transforms the collected data to the cloud through the internet [3]. Smart parking sensors are used to provide the information for the drivers for free parking by improving the efficiency of parking [4]. We probably had cases that we look to long for parking IoT, well by using smart parking sensors everything can be quick and so simple [5]. In existing systems the vehicle parking is done manually for this parking availability is not known to the user and there will be a chance for mismatching for the user [6]. By using smart parking sensors we will able to know whether the IoT is full or empty are shown on the map [7]. In the application which uses sensors in IoT technologies just to receive the information about the IoT in real-time and we can easily park the vehicle [8]. By using smart parking there will be only access

for authorized people. We can also maintain a record of all the vehicles which are entering into the parking [9]. These smart parking sensors can successfully handle the issue of parking on several levels. Easy searching of parking IoT will help millions of drivers to save their precious time [10]. Finally smart parking can optimize traffic flows in the entire cities.

1.1 | Benefits

    I.   User will able to know the availability of IoT.
    II.   These smart parking sensors are user friendly and there will be no chance for mismatching of the parking IoT.
    III.   Optimization of parking space.
    IV.   By using smart parking sensors we can maintain all the digital records of cars incoming and outgoing.
    V.   More safety.
    VI.   It will reduce the parking time for the drivers.

2 | Working

If we had a parking area if we enter into the parking area then by using the IR sensor we check the parking availability in parking area [11]. The parking area IoT is whether it is empty or not, the user can check it through the LCD [12]. If it is empty it will shows the free parking space IoT [13]. Every parking IoT will have a sensor and two led lights which collects the data of the every parking and this data is pushed to Raspberry Pi and to the gateway and to the cloud and updates the information of the parking IoT [14]. If the led in parking IoT is green then it indicates that the parking IoT is free and we can park our vehicle. If it is red then it is occupied. It also shows how many cars will be there to full the parking [15]. Which means it also shows how many vacant IoT are present in the parking area in the LCD's or LED's [16].
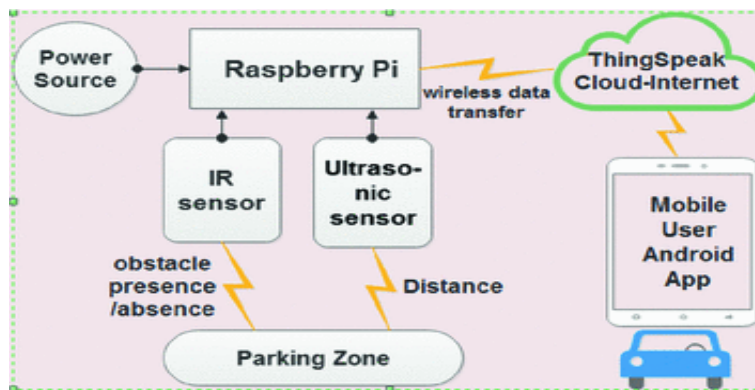

Fig. 1. Blueprint of the working model.

2.1 | Parking Reservation

In the map it shows as a vacant IoT before but it will be not available after reaching the IoT as it be will occupied by some other person. So, for avoiding this we can reserve [17]. The IoT so that it shows red light on our reserved parking IoT. So we can park our vehicle on the Reserved IoT. So no one can park on our IoT [18].
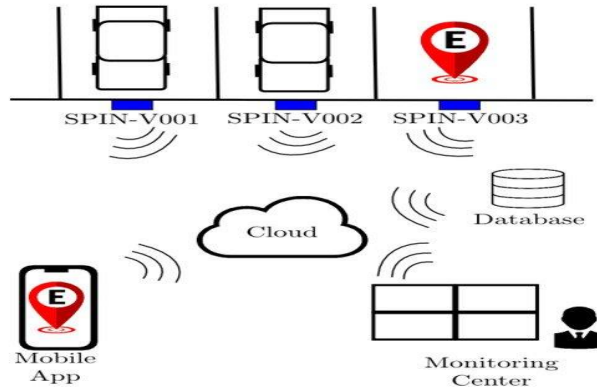
Fig. 2. Cloud integration with proposed model.

2.2 | Hardware Components

– *Power supply.*
– *Arduino or raspberry Pi.*
– *IR sensor.*
– *LCD or LED.*

Raspberry Pi. Raspberry Pi through this the data which is collected is pushed to the gateway and from the gateway it goes to the cloud and updates the information of the availability of parking IoT through the internet in the application or in the website [19].

IR sensors. IR Sensor is an electronic device which senses the object from a specific range. An infrared light is emitted by this sensor. If the light is not visible then there is no object present in its range [20]-[21].

Fig. 3. IR sensor.

LCD or LED. LCD or LED is used to display how many parking IoT are available and how many parking IoT are filled. By this we can able know whether there are empty parking IoT are there are not [22].
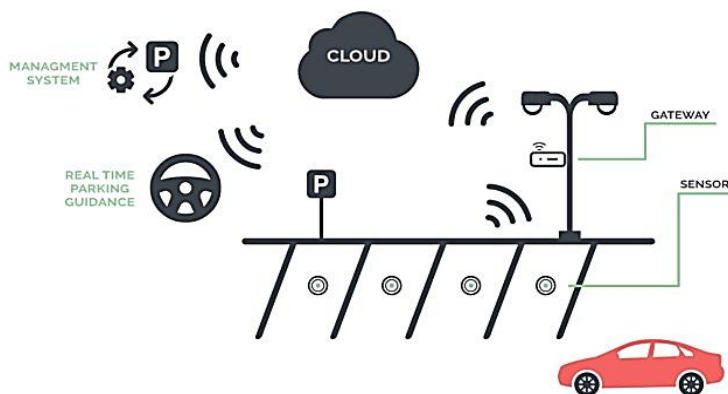

Fig. 4. LCD or LED.

Fig. 5. Implementation model of proposed model.

3 | Conclusions

For the future development every car parking data is important to us. By using the smart parking sensor we can reduce the stress of the visitors and there will be no mismatch of parking IoT. By using the smart parking sensors the benefits are more we can easily book or reserve the IoT's through app's or through the website by applying the IoT techniques, which will made easy to the users and make the payments for the parking whenever the user uses. And also there will be satisfaction for the users.

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