IOT BASED SMART PARKING SYSTEM

A project report submitted in partial fulfilment
Of the requirements for the mark of B.Tech in
Information technology

By

S. Selvakumar(513221205311)

Under the supervision of

Professor & HOD
Department of Information Technology.

SMART PARKING SYSTEM

Phase 5: project documentation & submission

Introduction:

The number of vehicles present on road is exponentially increasing day by day. To facilitate parking for every vehicle, we need to use the available space most efficiently. Due to increased number of vehicles in addition with mis-usage of available space is leading to parking issues

In this work “Internet of Things (IOT): An overview and its applications” applications of IOT is mentioned taking the example of home automation which is one of the major applications of Bluetooth technology. The interface of home automation with IOT provides some diagnostic services so that if there is any problem with system, it can be tracked down. The program chart in the work will explain how the LAMP will be turn ON and turn OFF and how to exit the program.

Implementation AND DESIGN

IOT (Internet of Things) helps to integrate physical devices with internet, which can collect and share information over internet. This can be achieved with the availability of low cost on-chip computers and micro-controllers. Integrating various components like sensors, peripherals etc., with the available on-chip computers and micro-controllers help to transmit or receive real time information without human intervention. By using this technology, the data these physical devices collected in it.

Smart meter systems

The connected metering system detects when a car enters and leaves the parking lot. In this way, an iot platform will be able to provide drivers with a real-time meter of available spaces.

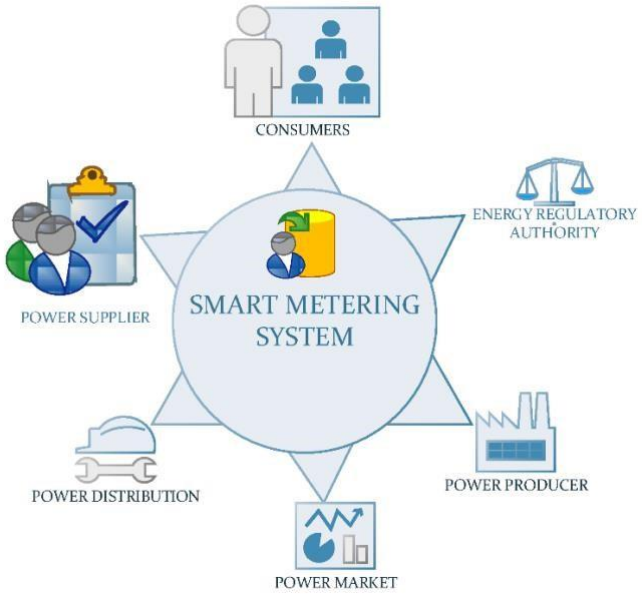
platform will be able to provide drivers with a real-time meter of available spaces.

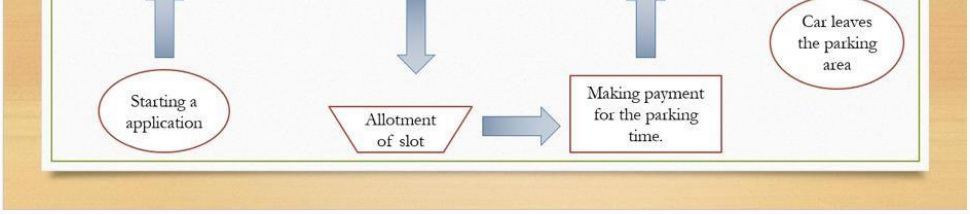
Facility managers can use the meter system to improve the efficiency of parking facilities, identify trends and patterns about the ridership, and be able to predict the surges of future vehicle.

Solutions using IoT-based parking

IoT-based smart parking system transmits available and occupied parking spaces via a web/mobile application.
Each parking space has an IoT gadget, which includes sensors and microcontrollers. The user gets real-time updates on the availability of all parking spaces and, therefore, an option to choose the best one. This solution alone initiates a chain-reaction of benefits, from lesser traffic congestion to reduced fuel efficiency, in urban areas where parking is often painstaking.

A basic flowchart for the whole process of smart parking IoT looks like this:





Applications of Smart Parking Systems using IoT

Smart cities offer better use of space, less traffic, clean air, and more efficient public services, increasing the quality of life. In addition, smart cities provide many jobs and economic opportunities, and strong social connections.

The seamless flowing of traffic

Public transport routes can be adjusted in real-time according to need, and smart traffic lights systems can improve congestion.

Energy efficiency can be improved

One can easily track down the power consumption & energy consumption by monitoring in real-time.

Cities can be made safer

Cities can use technology to improve residents' safety and improve response times with the widespread use of Wi-Fi communications and IoT technology.

Encouragement of greater citizen engagement

Citizens can respond to daily problems enabling neighbors to connect and share resources to improve communities and neighborhoods.

Results

The results are presented for various cases like (I) when a vehicle enters into parking lot, (II) when the same vehicle leaves the parking lot and (III) when a vehicle with illegal associated entities enters the parking lot.

Case
– *I*: *When a vehicle enters into parking lot* when a vehicle gets detected at the entrance, the image of the vehicle is captured and the system tries to extract the characters of the number plate of the vehicle. If there is no criminal record on that vehicle.

Conclusions

In this paper, we discussed about the solution for the issue of parking which is Smart Parking System. Smart Parking System adds value to users by saving a lot of time and adds value to environment by reducing the human generating traffic which in turn reduces the pollution and profits the community by utilizing all the available and existing parking spaces more effectively.

Further enhancements to Smart Parking System is to integrate the existing system with Artificial Intelligence and Machine.

The development of the Internet of Things and cloud technology opens up new opportunities for smart cities. Smart parking has always been the backbone of building smart cities. IoT-based smart parking system offers real-time slots, parking procedures, information and improves users' ability to save time on proper parking. It helps to solve growing traffic congestion concerns. As for future work, users can book parking in a remote location. GPS, reservations, and license plate scanners can be included in the future.