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Smart Parking System

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Abstract: In the modern age, many people have vehicles. Vehicle is now a primary need. Every place is under process of urbanization. There are many supermarkets and shopping centers etc. There are many creative places where people used to go for refreshing and relaxation. All these places are full of with people so they need a parking space where people can park their vehicles safely and easily. Every parking area needs a website or system that records the detail of vehicles to give the parking facility. With the help of iot based system we can deliver a good service to users/people who wants to park their vehicles into organization's premises. Present days in parking areas they just maintain the vehicles just with tokens and they have records of vehicle details in books so that during some critical situations like police enquiry of terrorist car or vehicle missing that case it is difficult to find the details of particular vehicle. But with our parking management system it is easy to find within 1 to 2 seconds. By parking the vehicle in public place the vehicle can be claimed by other person but in this case there is no such problem and no need to give fine for anything we can park our vehicle with securely.

I. INTRODUCTION

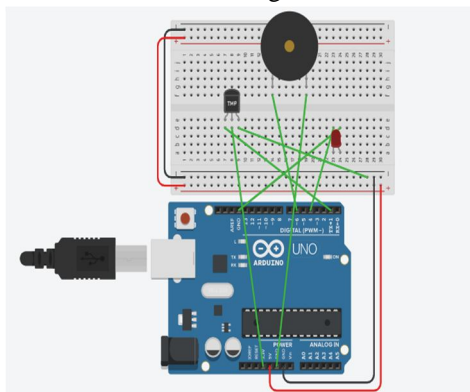
This chapter is about the views and thoughts of other scholars in relation to the topic identified by the researcher. The purpose of the study is to review previous studies in relation to the topic under my study. Internet of things (IoT) is inter networking of physical devices, vehicles building, and other things embedded with electronics ,sensors, software ,actuators, and network connectivity that enable these objects to collect and exchange data. In 2013 the Global Standards Initiative on Internet of Things (IoT-GSI) defined the IoT as "the infrastructure of the information society." The IoT allows objects to be controlled remotely across existing network infrastructure, creating opportunities for further more direct integration of the physical world into iot-based systems, and resulting in improved efficiency and economic benefit in addition to reduced human intervention. When IoT is augmented with actuators and sensors the technology becomes an instance of the more normal class of cyber-physical systems, which also encompasses technologies such smart homes, smart grids, intelligent transportation and smart cities. Each object is uniquely identifiable through its embedded computing system but is able to operate within the existing internet infrastructure. Experts estimate that IoT will consist of almost 45 billion objects by 2020

II. PROPOSED SYSTEM

Our web application enables the time management and control of vehicles using vehicle information . It maintains the log records clearly and easily .It shows whether the parking slots are available or not. It will determine the cost for parking a vehicle according to the time of parking. Retrieving the particular vehicle details is very easily by using our system.

The existing systems are allotting the parking slots for new vehicles randomly with tokens. They are maintaining records manually. They are not displaying any available slots.

Block Diagram



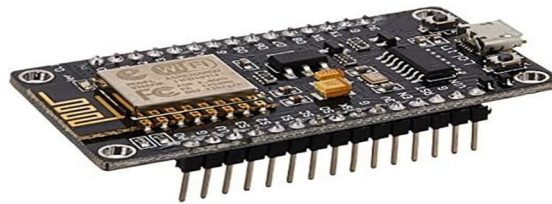
III. COMPONENTS DESCRIPTION

A. IR Sensor



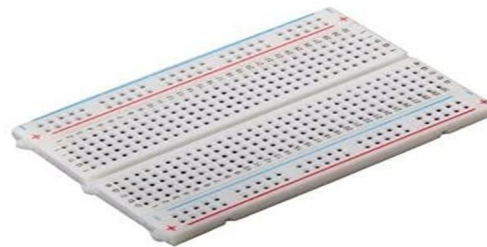
An infrared sensor (IR) is an electronic device that detects infrared radiation in its surrounding environment. When any thing comes close to the IR sensor, the infrared light from the LED reflects off of the object and is detected by the receiver

B. NODE MCU



Node MCU stands for Node MicroController Unit. It is an open source firmware and development kit which helps to build IoT based products. It also has a wifi module which is used to connect over internet. Node MCU has 128kb RAM and 4 MB flash memory to store data and programs. Node MCU could be powered using micro USB jack. Its high processing power with in-built wifi makes it ideal for IoT projects. It takes input from input devices like sensor and process it and will give output through output devices like LCD, LED, buzzers etc.

C. Breadboard



It is a construction base for prototyping of electronics. Most of the breadboard we use today are made of white plastic and it is pluggable. It was designed by Ronald J. Portugal in 1971.

D. Jumper Wires



They are also called as Jumper wires. These wires are electrical wires with a pin or connector at each end which are normally used to interconnect the components in a breadboard. Each Jump wires end connectors are connected with the slots provided in the breadboard and header connectors are connected to the components.

E. LED



LED stand for Light Emitting Diode. It is a semiconductor device that emits visible light or infrared light, when charged with an electric power. It acts as an output device. LED has an anode(+) and cathode(-) to connect it to the power supply. Anode is usually the longer pin and cathode is the shorter one.

F. Battery



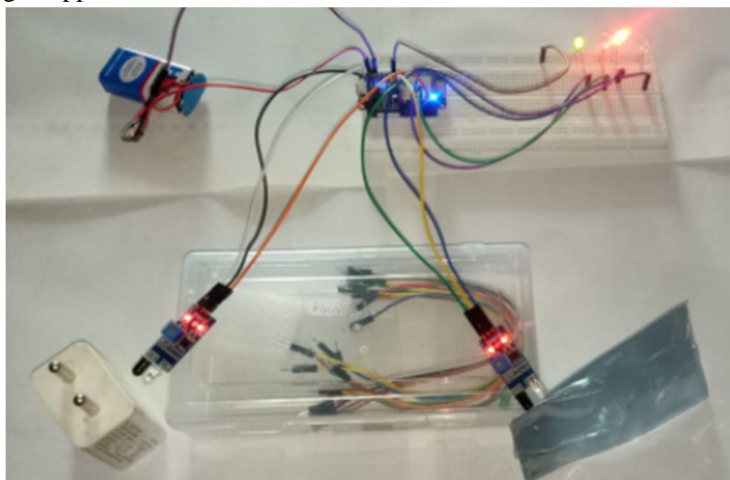
It is a power source which has electro- chemical cells with external connections for powering electrical devices like lights, electrical cars, mobile phones etc. It has anode and a cathode to which an electrical device is connected and taken power supply.

IV. ALGORITHM

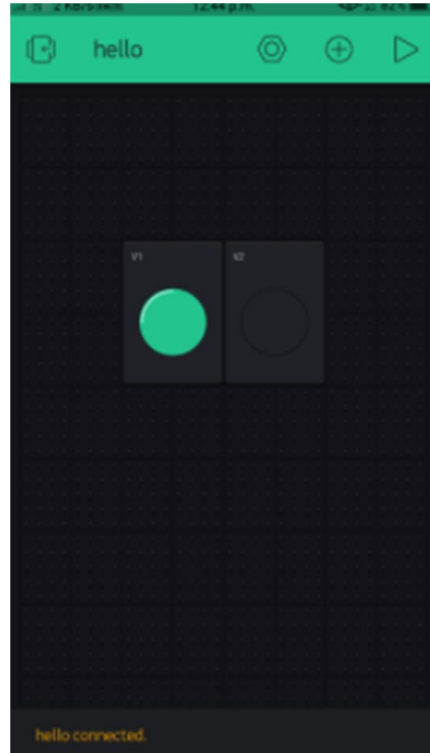
- 1) *Step1:* Start
- 2) *Step2:* Connect WIFI Module using id and password
- 3) *Step3:* IR sensor will check parking slot empty or not
- 4) *Step4:* Monitor the Blynk app to view the resulted slots empty or full.

V. RESULT ANALYSIS

The proposed system is able to detect vehicles and send notifications through mobile and also alert near by people by switching on LED and showing in app.



Architectural Design



Output screen

VI. CONCLUSION

Hence from the above proposed method we have described the Smart parking and it's working. With this type of technology we can easily get the clarity about the parking which we are doing and it looks Smart at low cost.

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45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



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