

Project Based Learning-II

Work Book and Report

Course Code: 210258

(2019 Course)

Second Year Engineering

Year 2020 - 2021

Group ID:

1	5		
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Team Members: 1. Shreyas Kulkarni
2. Kunal Desai
3. Yash Kudale
4. Mayur Kharmate
5. Aniket Uttekar
6. Parth Hamane

Project Title : Empty Parking Detection using IoT

Name of Mentor: Prof. Pragati Choudhari

Preamble

For better learning experience, along with traditional classroom teaching and laboratory learning; project based learning has been introduced with an objective to motivate students to learn by working in group cooperatively to solve a problem, Project-based Learning (PBL) is a student centric pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real world challenges and problems. Students learn about a subject by working for an extended period of time to investigate and respond to a complex question, challenge or a problem. It is a style of active learning and inquiry-based learning. Problem based learning will also redefine the role of teacher as mentor in learning process. Along with communicating knowledge to students, often in a lecture setting, the teacher will also act as an initiator and facilitator in the collaborative process of knowledge transfer and development.

This workbook will reflect accountability, punctuality, technical writing ability and workflow of the work undertaken.

^^



CERTIFICATE

This is to certify that **Mr. Shreyas Ajay Kulkarni**

Group No. **15** Division **A** Branch **Computer Engineering** has successfully completed the work associated with **Project Based Learning II (210258)** titled as “**Empty Parking Detection using IOT**” and has submitted the work book associated under my supervision, in the partial fulfillment of Second Year Bachelor of Engineering(Choice Based Credit System) (2019 course) of Savitribai Phule Pune University.

Date:

Place:

Guide

Prof. Pragati Choudhari

Head of Department

Dr. Vinod Kumar

Coordinators

Prof. Uzmammsrat Shaikh
Prof. Manjusha Tatiya



CERTIFICATE

This is to certify that **Mr. Kunal Anil Desai**

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This is to certify that **Mr. Yash Satish Kudale**

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This is to certify that **Mr. Mayur Sambhaji Kharmate**

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This is to certify that **Mr. Aniket Rajesh Uttekar**

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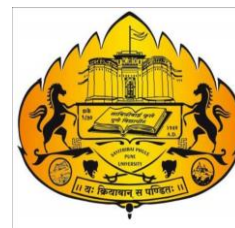
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ACKNOWLEDGEMENT

With immense pleasure, I am presenting this Project report as part of the curriculum of S.E. Computer Engineering. I wish to thank all the people who gave me an unending support right from the stage the idea was conceived.

We take this opportunity to convey our sincere thanks to our beloved principal Dr. Sunil Ingole for his continual support and encouragement that made the Seminar a great success.

We express our profound thanks to our respected Head of the Department, Dr. Vinod Kumar whose advice and valuable guidance helped us in making this Project interesting and successful one.

We are appreciative to our Seminar Coordinator Prof. Uzmamasrat Shaikh and Prof. Manjusha Tatiya for their great support throughout the course of our Project Work.

We are grateful to our internal guide Prof. Pragati Choudhari for her support and guidance throughout the course of our Seminar.

We also thanks all those who have directly or indirectly guided and helped us in implementing this Project.

Last but not the least we thank our beloved parents, friends and well-wishers who helped us to do this Project by their kind help and assistance.

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Empty Parking Detection using IoT

Project Information Sheet

Project /Group ID	Gr_no 15				
Title	Empty Parking Detection using IOT				
Problem Statement	To implement Empty parking slot detection using IOT to display If there is an empty parking slot at the parking area over the mobile phone using Blynk application.				
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Problem Statement

To implement Empty parking slot detection using IOT to display If there is an empty parking slot at the parking area over the mobile phone using Blynk application.

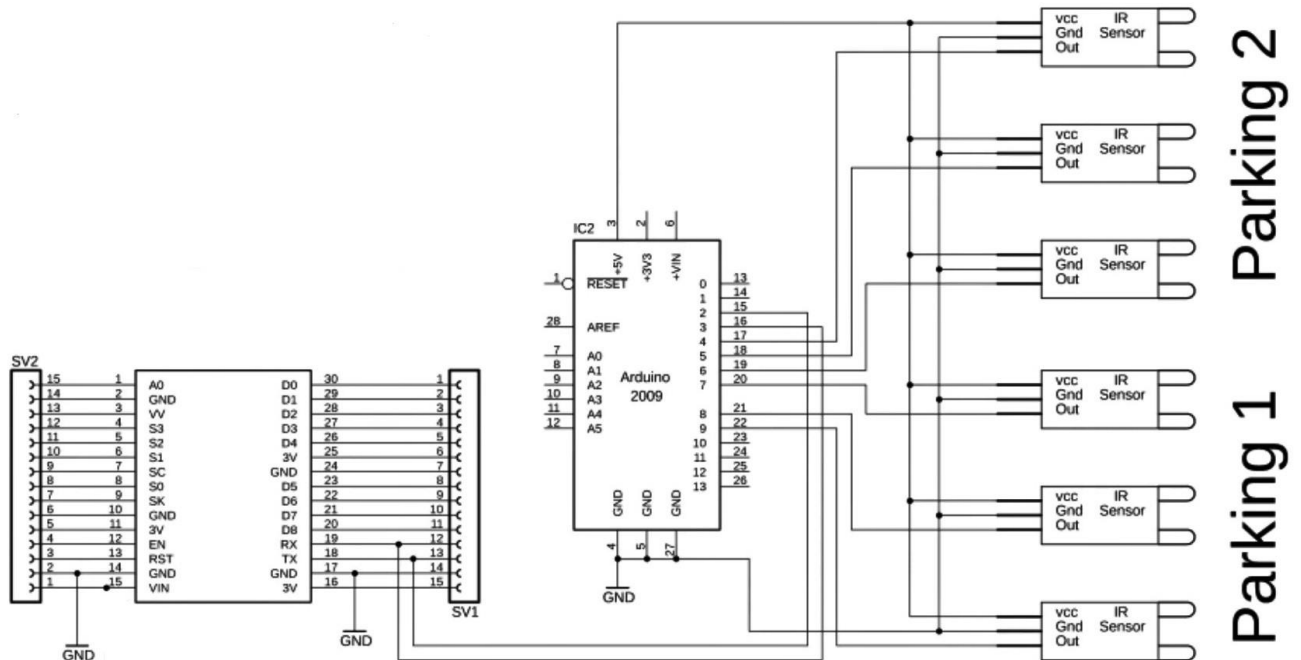
Motivation

Now the era of Internet of things i.e. IOT has begun so we can see the use of IOT in every place so we are also using same advancement so that using IOT we can get to know the empty parking slot at a parking area even if we are anywhere in the world .

Objectives

- To improve the Traditional parking system by using IOT.
- Implementing the Empty parking slot detection using IOT.
- To display which parking slot is empty and which is full.
- Save both Time and Fuel of vehicle driver.

Methodology/ Proposed System Block Diagram



Software and Hardware requirements

- Arduino IDE – To run and embed the code in Arduino.
- Arduino – To execute the code embedded properly to function the Empty Parking Detection using IOT.
- NodeMCU (ESP8266) – To connect to internet and send data to Blynk application.
- IR sensors – To count number of cars entered and left the parking area.
- Blynk Application – To display empty parking slot.
- Jumper wires – To connect all the components to each other.

Empty Parking Detection using IoT

Arduino :

Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board.

NodeMCU :

NodeMCU is an open source firmware for which open source prototyping board designs are available. The name "NodeMCU" combines "node" and "MCU" (micro-controller unit). The term "NodeMCU" strictly speaking refers to the firmware rather than the associated development kits.

Blynk App :

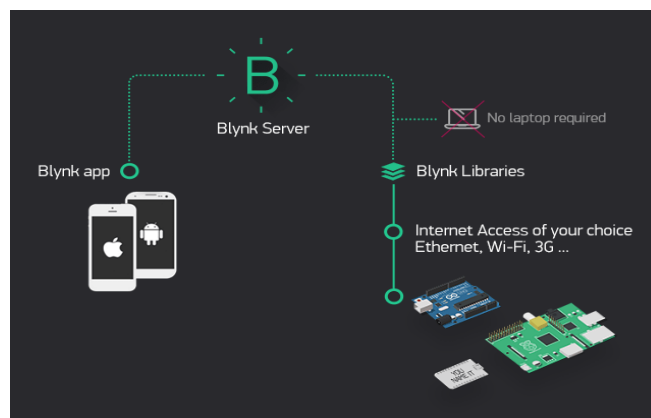
By removing barriers to building effective IoT solutions that solve actual business challenges, we help new businesses to get started, expedite growth for existing companies, and increase economic output globally.



Arduino



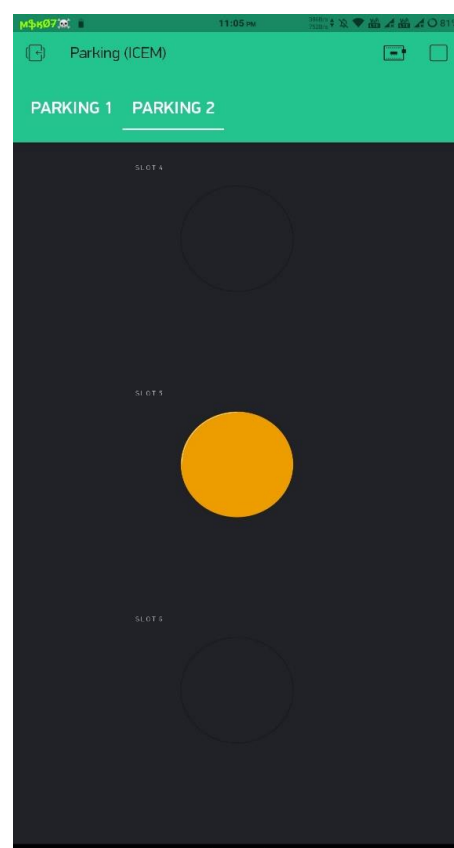
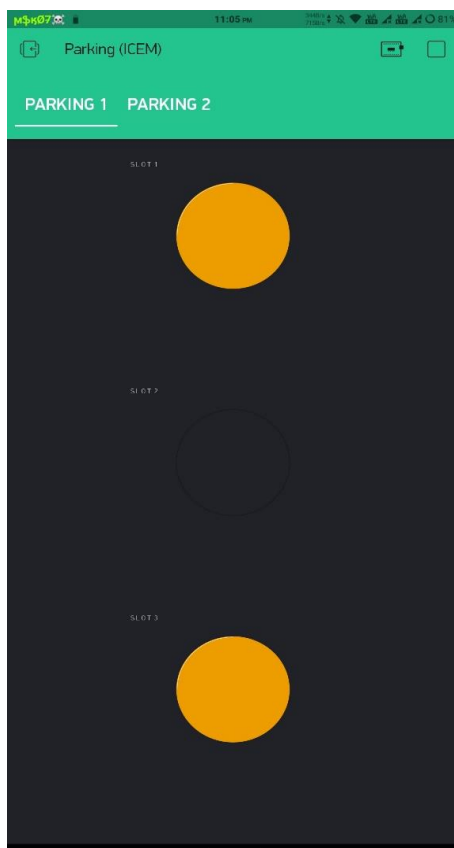
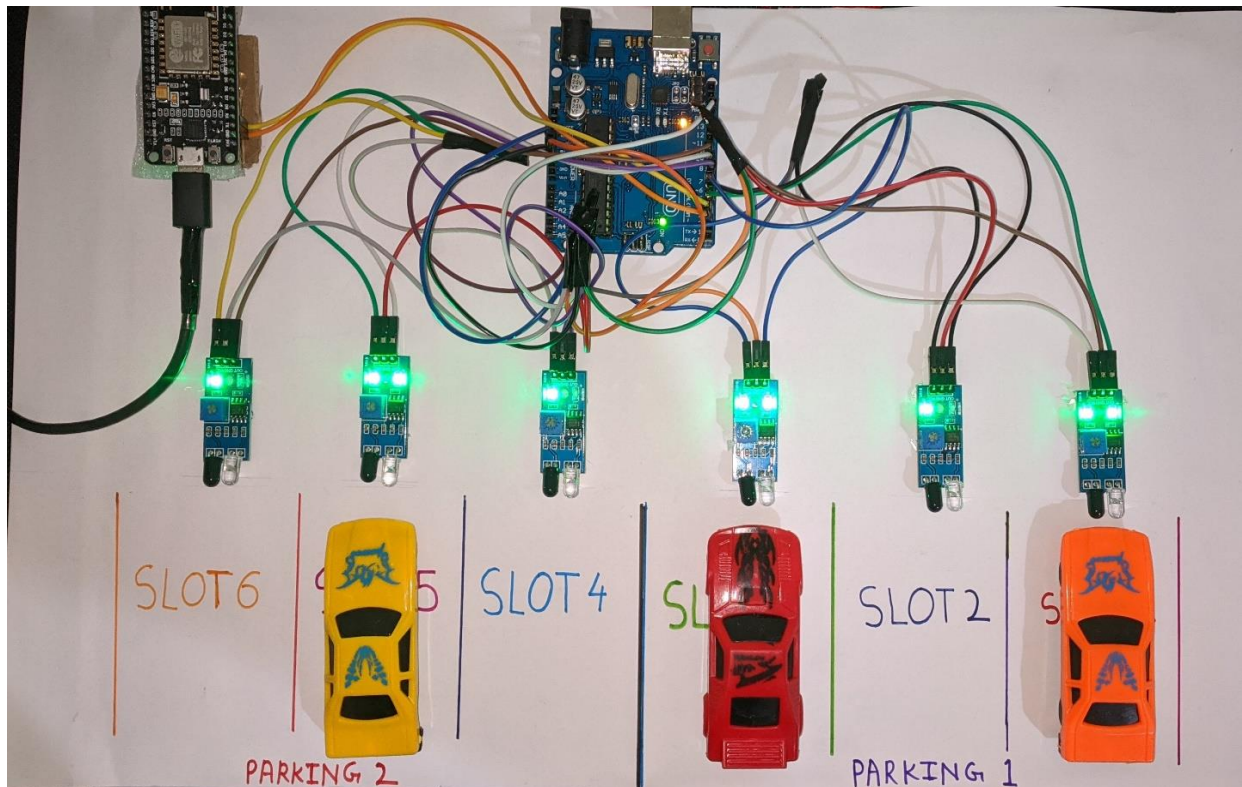
NodeMCU



Blynk App

Empty Parking Detection using IoT

Implementation



Challenges Faced

- One of the difficult challenges was the internet connectivity because as we search online there were many chipsets , modules that were being used to connect internet and all of those were good in their own way.

Conclusion

- Empty parking slot detection using IOT is implemented efficiently so that driver will know if the parking area has empty space or not using his mobile even if he/she is anywhere in the world .

Future Scope/Possible Changes

- We can use a bookmark like notation in the app so that driver can add it to the parking slot where he/she has parked the vehicle.
- We can implement online parking slot booking so that anyone can book the parking slot and pay its price through online means.