

Online Based Smart Car Parking System

¹Sushilkumar D. Birunagi, ²Salimkhan A. Pathan, ³Twinkle M. Kadam, ⁴Akashta R. Nanadikar, ⁵Samarth M. Gaikwad, ⁶Mr. Chandraknat P. Divate

Sanjay Bhokare Group of Institutes, Miraj

Abstract: As we know today's life-style is so busy, everybody is busy in her working day. And in this lifestyle there is a biggest problem in everybody's way that is parking Area / Slots. Everyone wants a parking area for her vehicle but in some cases or places there are no parking area are available, so thus to reduce some consumption of people's we made an online based smart car parking system. This project will be useful for people to save her money and time. This project is based on online mobile application (Blynk) which helps us to connect system in online mode, like customers can see the parking slots in her mobile phone and also it helps to park the car at proper position. Also in this project we use Arduino UNO and Arduino WIFI modules.

INTRODUCTION

Nowadays, the main problem is parking area everyone wants some parking area for her vehicle's in such crowded area (Malls, Hospitals, Events, Weddings etc.). In everyone's home there are multiple vehicle's for her purpose, one person's use 2/3 vehicle's because of this there are increasing a number of cars. And we face a consumption for parking vehicle. In some situations, businesses workers / employees cannot get a parking spot because of this they can be shouted by her boss, and the reason is Time. Time is something that comes in every one's life at one's time and we want to use that time, so in that time if we waste our time in searching for free space for parking car then we lose our good future which was broken by parking area. For this we implement the Online based smart car parking system. Such an increasing number of cars will affect on traffic consumption. In some big cities there is always traffic problem so for this we want proper parking spaces. Increasing number of cars also affect on pollution, and cause the environment because of vehicles. In Urban area we waste our time in searching of parking space, for this problem we implement this project.

Problem analysis and Likely Benefits

- No need to waste time on looking for parking.
- Reduction in time and fuel spent by road user searching for parking.
- Less queues as motor will be guided to parking areas.
- Proper selection of vehicle according to the availability of parking space.
- Saving time, resources and effort.

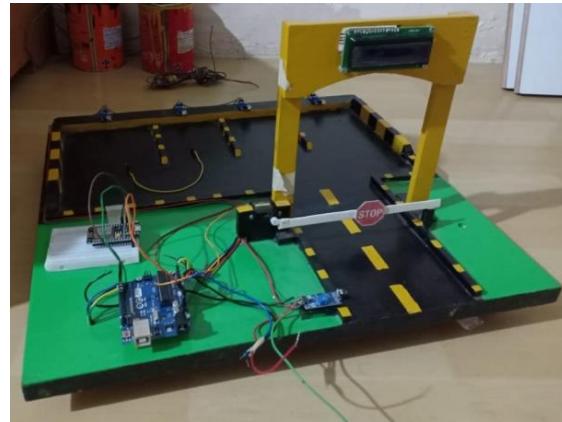
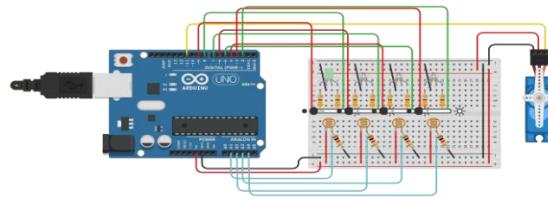
Objectives

- ❖ **Social Study**
✓ Reduced pollution
✓ Reduced traffic
✓ Increased Safety
✓ Enhanced User Experience.
- ❖ **Environmental Study :**
• The project site is basically a car park, and therefore it does not include cutting green spaces or cutting down trees.
- ❖ **Technical Aspect :**
• In this project we use various equipment's like Arduino device, IR Sensor, LCD Display, Servomotor, Toy Cars, Breadboard, Jumper Wires, Mobile

MODULES OF PROJECT

❖ **Module 1: Designing Circuit.**

In this module we made design of circuit hardware as per shown in following figure. For circuit designing we use Arduino uno, IR Sensors, Breadboard, Servomotor, LCD Display, Jumper Wires, Batteries etc. After connection check the all connections are working properly.

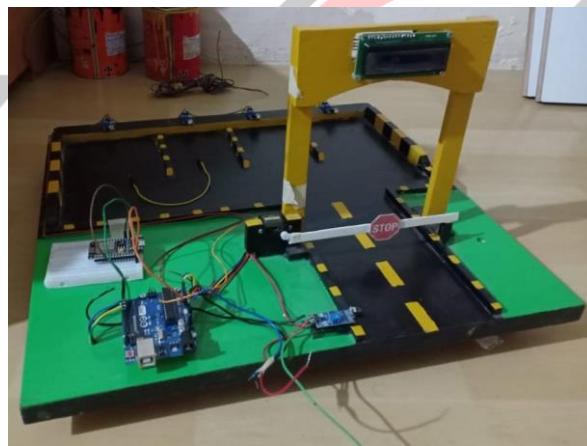


❖ **Module 2: Design of Model.**

In this module after completing the circuit design we made designing of hardware as per shown in figure, In the hardware section we use Parking slots for parking the cars and some toys of cars for understood efficiently working of circuit design. After completing hardware base we check the all the components are working good or not.

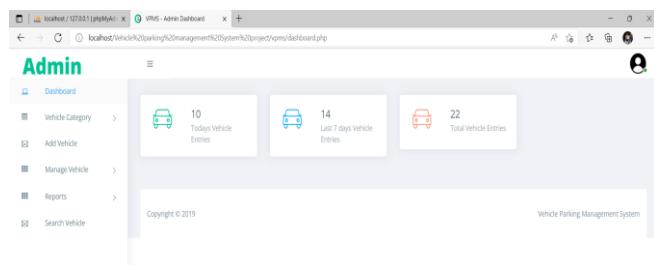
❖ **Module 3: Interface of Sensors with Database.**

In this module we use IOT application like we see the parking slots whether the slot is available or not, this helps drivers to reduce their time, money and pollution. Also we make an webpage for parking system to show customer's where parking slot is available or not and for new customers new login profile will be provided. In this webpage we added in time, out time, vehicle no, owner name etc. features.



❖ **Module 4: Admin Panel.**

In this module we connect the webpage to circuit diagram to display parking slot, also its help in showing whether the parking slots are available or not. In admin module we will see the total parking slots, today's parkings, fees for vehicles parking per hour (50 Rs).



Place of Work and Facilities Available / Required

- **For Designing hardware and Software :**
- ✓ Computer Engineering Labs of ATS Sanjay Bhokare Group Of Institute, Miraj.
- ✓ Electrical Engineering Labs of ATS Sanjay Bhokare Group Of Institute, Miraj.

Results and Performance measurements

The proposed system is used to indicate the user about the uses, advantages of parking spaces. A user can choose the parking spot where the empty spaces are available. Otherwise he will waste her time in searching of space.

Feasibility Study

- **Operational Feasibility:** Accurately predict and sense spot/vehicle occupancy in real-time.
- **Technical Feasibility:** Easy to understand, designing is simple.
- **Environmental Feasibility:** Smart Parking plays a major role in creating better urban environment by reducing the emission of CO2 and other pollutants.
- **Reliable:** Smart Parking enables better and real time monitoring and managing of available parking space, resulting in significant revenue generation.

Facilities Required

Name of Equipment	Specification
Laptop / Desktop	I3 processor, 4 GB RAM, 1 TB HDD
Arduino device	Arduino Uno, Wi-Fi
IR Sensor	780 nm
LCD Display	I2C
Servomotor	Operating Speed : 0.12 sec
Toy Cars	Normal
Breadboard	Normal
Jumper Wires	Normal
Mobile	Android 10
Batteries	9v
Resistor	1k ohm
Operating System	Windows 10 proper setup
Arduino Software	Arduino IDE

Conclusion: The Online based smart car parking system will helps user to solve parking issues. Also it helps to see whether the space is available or not which will save her time and money. In future in this project we made extra features for user reliability, this project will save the environment and fuel consumption which created by vehicle's. In short term this project is user and environment friendly. In whole project my team and me guided by Mr. C. P. Divate sir, they guide us very nicely, they clear all doubts about this project.so thank you very much sir for guiding us carefully.

References and Bibliography

1. Smart Parking System using IoT: (Elkay R) Assistant professor in Computer Science And Technology at SRMIST, Ramapuram, Chennai. Persued M.E. Mail id- elakayar@srmist.edu.in
2. Parking Slot Availability Guidance System Using Internet of Technology By MUDASHARUDDIN UNIVERSITY ROLL NO-11700114041 COLLEGE ROLL NO-CSE/2014/076
3. Design and Implementation of Smart Parking System Using Sensor Networks Sangwan Lee, Intelligent Parking Lot Application Using Wireless Sensor Networks, Proceedings of IEEE conference, 978-1-4244-2249-4/08
4. The Smart Parking Management System M. Y. I. Idris, Y. Y. Leon, E. M. Tamil, N. M. Noor, and Z. Razak, "Car parking system: A review of the smart parking system and its technology," Information Technology Journal, pp. 101-113., 2009.
5. Smart Parking System A Reservation – based Smart Parking System by Hongwei Wang and Wenbo He – April 01, 2016
6. Smart Parking System Orrie.O. Silva, B. Hancke, G.P. A Smart Parking System. In Proceedings of the 41st Annual Conference of the IEEE Industrial Electronics Society (IECON), Yokohama, Japan, 9–12 November 2015; pp. 4110–4114.