ONLINE PARKING BOOKING SYSTEM

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Abstract

The world is aware of the current scenario the population is increasing day by day hence number of vehicles are also increasing. Thus, everyone is facing the problem of parking, as there are less options available for legitimate parking. This problem leads to congestion, accidents, lack of space availability etc. Annual survey which is carried out has figured out that there is consistent growth in the ratio of traffic jam and accidents. Illegal parking plays a vital role in increasing the chances of traffic jams for hours. Due to increase in the number of vehicles, Moreover it is much more time consuming as well. In this world of fast growing technologies, we should be able to save our time for the thing which is essential rather than searching space to park our vehicle. A car user must be able to book car before starting the journey and heading to the destination. The main objective online parking booking system developing such applications is to overcome such problems. An application will be developed according to the user point of view and could be able to book their parking space.

Keywords: Legitimate parking, congestion, accidents, lack of space availability

1. INTRODUCTION

Our online booking system to reserve parking spaces in the immediate parking, additional services and home purchase will increase your website by enabling customers to pay or go online. It is designed to make it easier for people to book parking spaces online. In today's parking lots there are no standard system to check for parking spaces. Searching for a vacant parking space in a metropolitan area is the daily concern for most people and it is time consuming. It commonly results more traffic load and air pollution in certain area only for an available parking space.Car parking is one of a major problem in cities. It causes traffic congestion in parking areas. This project helps to find the availability of parking areas and also an online booking. The availability of parking areas are also displayed in LED boards present in the parking areas. Online booking system helps us to save time. LED board present outside the parking will help the roadside users to find the availability of parking area. Thus the availability of parking zone in a particular parking area details could be obtained easily. The online booking system can be programmed using MySQL or C++.

In metropolitan areas, parking management influences drivers search time and cost for parking spaces, parking revenue, and traffic congestion. The wide deployment of wireless parking meters with sensing and communications capabilities allows the parking authority to monitor the state of each parking space in real time and optimize the

parking management.In this thesis, we study state-of-the-art parking policies in smart parking systems, and show that the smart parking system needs to be "smarter".

Our design goals of the smart parking systems include:

(1) simplify the operations of parking systems

(2) improve drivers' satisfaction

(3) increase parking revenue

(4) alleviate traffic congestion.

Through analysis and simulations, we first show that the proposed reservation-based parking policy has the potential to achieve the above goals. We then model the behavior of both service providers and drivers in smart parking systems, and explore the dynamic pricing scheme to achieve the goals in smart parking system design.

1.1 APPROACH

As the technical foundation of smart parking system, computing devices (e.g., smart phones, wireless sensors and personal laptops) turn progressively smaller, cheaper and more powerful. As a result, mobile and pervasive computing is becoming an indispensable component in the distributed networked computing infrastructures. It provides us a powerful platform to compute real-time information from physical world (physical part), as well as communicate with people (cyber part). Cyber-physical systems are so involved in the everyday life that we should not underestimate their impacts. In this thesis, the objective of smart parking system is to develop technologies which will help to build a mobile and real-time computing system which make the computing and communication capabilities fully play, and elegantly integrated with users.

A reservation-based solution:Based on the observation that parking space reservation can help drivers to reduce the search time dramatically, we propose a reservation-based solution, built on advanced sensing and mobile communication technology, with the objectives to alleviate the parking contention, balance the benefits between parking service providers and drivers, coordinate among service providers, differentiate the needs of individual drivers, and reduce the amount of traffic searching for parking as well. To

achieve the design goals, a powerful tool to model the behavior of both service providers and drivers is required. Meanwhile, we need to design control signals to guide the parking selection of large scale, autonomous drivers.

1.2 DYNAMIC PRICING SCHEME

Normally, a parking system manages the parking resources, and the drivers buy or reserve the permits to park somewhere they want within a specific parking district for the chunk of time they purchase. In the proposed model, the parking management system adopts dynamic pricing scheme to generate prices for parking spaces in different parking lots. The parking price reflects the real time parking availability. It not only serves as a control signal to balance the parking lot utilization, but also improves the revenue for service providers. On the other hand, drivers rely on the utility functions to determine where to park (e.g., select the most convenient parking spaces) under a certain budget constraint. Through the simulations, we will show that: the amount of traffic searching for parking is reduced, the solution guarantees the service quality for different users and the revenue is increased for service providers.

2. LITERATURE SURVEY

1) Robin Grodi has done that how vehicle will occupy in the particular allocated place. RFID sensors detect the presence of a vehicle or other objects. Once a vehicle is detected, the system needs a way to notify drivers or a parking spot being occupied. The disadvantage is, the parking place will be detected only to nearby places there is no GPS sensor to search parking slots from the far place.

2) Alirezahassani had implemented this system using a mobile application that is connected to the cloud. The user will set the time for when he is going to allocate the place. If he didn't occupy later the alarm will be given to the user. The app will show the number of allocated and the empty spaces in the parking slots. The disadvantage is, after allocating if another user request for the same place then he is unable to allocate that place so it is the waste of space if first user cancel later, waste of time and money.

3) DharminiKanteti have developed a Smart Parking System in case of pre-registered users IP cameras would capture the vehicle registration number and they can proceed

without interruptions. As per their details like parking time estimate, their place of visit etc. For preregistered users, the amount will be deducted from E-wallet and there by users will be notified. A similar pricing system will be followed for new users but payment is offline. The disadvantages is, the system could serve all the parking requests but beyond 80 it couldn't accommodate more cars since the parking is full.

4) Georgios Tsaramirsis make use of wired sensors systems. There are two categories intrusive and nonintrusive sensors. Intrusive sensors are most commonly installed directly on pavement surfaces or holes in the roads surface. In turn, on-intrusive sensors can also be described as above ground sensors, which are mounted above traffic lane and are monitoring on either side of the road. The disadvantage is, intrusive sensors type are the decreases of pavement life due to the requirement of pavement cut for installation

5) Rosario Salpietro implemented automatic detection of parking actions performed by users, through the analysis of smart-phone embedded sensors' and of the Bluetooth connectivity. Once the parking event has been detected, an adaptive strategy allows the disseminating the information over the target scenario, using the combination of internet connection to a remote server, and device-to-device connection over wifi direct links.
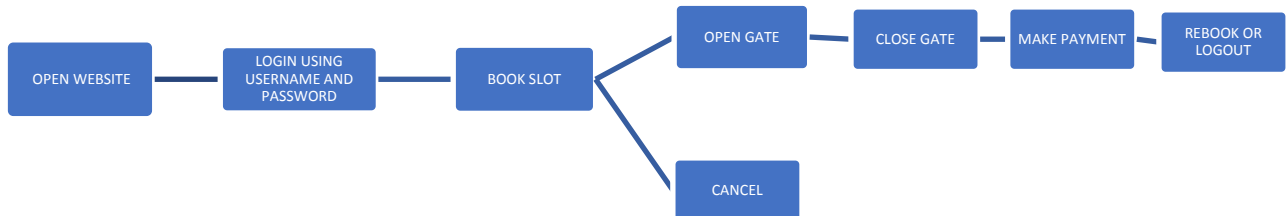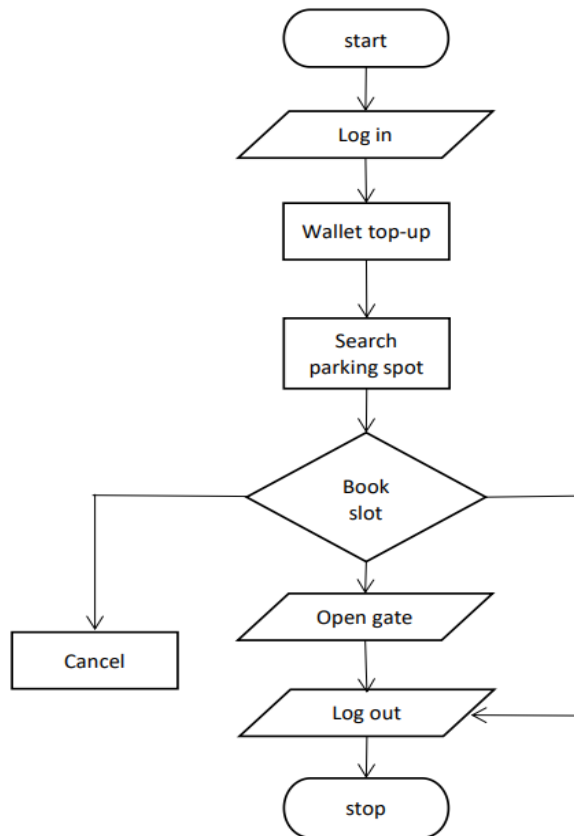
3. DESIGN
3.1 BLOCK DIAGRAM

Fig :3.1 Block Diagram Of Project

Fi: 3.2 Architecture Of Website

Major problem arising in developed countries is the parking system. Due to the development of technologies the production of cars where increased. Due to the increment in production of cars, the usage of cars becomes increasing day by day. To reduce the traffic during car parking, we proposed this system. IR sensor is used to continuously monitor the status of the car parking Zone. It updates the presence and absence of cars in a parking Zone. C programming processing techniques have been used to extract the features of presence and absence of car. Haar like features are used for extracting the features of car to identify the presence and absence of car. Node MCU microcontroller is used for controlling this system. IR sensor continuously updates the status of the parking zone. The availability of places in the parking area. From the information given by the IR sensor, microcontroller updates the information to the LCD display that are present outside the car parking area and also the status is continuously updated to the web server. This system helps to reduce the traffic in the parking area. This system also saves the time for the customers.

4. MATERIALS FOR PROTOTYPE
4.1 ATMEGA 328

Fig : 4.1 Atmega 328

The high-performance Microchip 8-bit AVR RISC-based microcontroller combines 32 KB ISP Flash memory with read-while-write capabilities, 1 KB EEPROM, 2 KB SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented Two-Wire serial interface, SPI serial port, 6-channel 10-bit A/D converter (8-channels in TQFP and QFN/MLF packages), programmable watchdog timer with internal oscillator, and five software selectable power

saving modes. The device operates between 1.8-5.5 volts.

The Atmel 8-bit AVR RISC-based microcontroller combines 32 KB ISP flash memory with read-while-write capabilities, 1 KB EEPROM, 2 KB SRAM, 23 general-purpose I/O lines, 32 general-purpose working registers, 3 flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI serial port, 6-channel 10-bit A/D converter (8 channels in TQFP and QFN/MLF packages), programmable watchdog timer with internal oscillator, and 5 software-selectable power-saving modes. The device operates between 1.8 and 5.5 volts. The device achieves throughput approaching 1 MIPS/mhz.

4.2 NODEMCU WITH ESP8266

Fig : 4.2 Nodemcu With Esp8266

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).Both the firmware and prototyping board designs are open source. The firmware is based on the eLua project, and built on the Espressif Non-OS SDK for ESP8266.The NodeMCU (Node MicroController Unit) is an open-source software and hardware development environment built around an inexpensive System-on-a-Chip (SoC) called the ESP8266. The ESP8266, designed and manufactured by Espressif Systems, contains the crucial elements of a computer: CPU, RAM, networking (WiFi), and even a modern operating system and SDK. That makes it an excellent choice for Internet of Things (IoT) projects of all kinds.

The NodeMCU is available in various package styles. Common to all the designs is the base ESP8266 core. Designs based on the architecture have maintained the standard 30-pin layout. Some designs use the more common narrow (0.9″) footprint, while others use a wide (1.1″) footprint – an important consideration to be aware of.The most common models of the NodeMCU are the Amica (based on the standard narrow pin-spacing) and the LoLin which has the wider pin spacing and larger board. The open-source design of the base ESP8266 enables the market to design new variants of the NodeMCU continually.
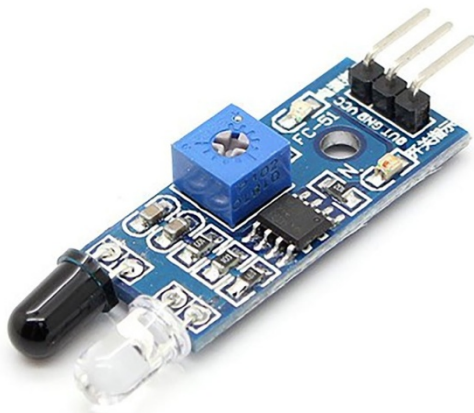
4.3 IR SENSOR

Fig : 4.3 IR Sensor

An infrared sensor (IR sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm … 50 µm. IR sensors are now widely used in motion detectors, which are used in building services to switch on lamps or in alarm systems to detect unwelcome guests.IR sensor is an electronic device, that emits the light in order to sense some object of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion. Usually, in the infrared spectrum, all the objects radiate some form of thermal radiation. These types of radiations are invisible to our eyes, but infrared sensor can detect these radiations.

The pyroelectric IR sensor uses a wavelength range from 2 to 14 µm. InfraTec uses special absorption layers so that the infrared sensors can even work as large-area, long-term stable receivers for UV radiation(e.g.193nm) butals of or THz radiation in the range of 100µm.1mm further

infrared sensors are Golay cells, bolometers and thermopiles, which also belong to the thermal IR sensors. The change in pressure of a gas volume is evaluated in a Golay cell and the change in temperature of a solid is evaluated in a bolometer. Thermopiles basically represent a series connection of thermocouples with an absorption layer and use the Seebeck effect. Photodiodes use the inner photo effect. At the same time, radiation quanta generate charge carrier pairs within a semiconductor. In the case of photoresistors, the radiation changes the electrical resistance.

4.4 SERVO MOTER(SG90)

A servomotor (or servo motor) is a simple electric motor, controlled with the help of servomechanism. If the motor as a controlled device, associated with servomechanism is DC motor,then it is commonly known as a DC Servo Motor. A servomotor is a linear actuator or rotary actuator that allows for precise control of linear or angular position, acceleration, and velocity. It consists of a motor coupled to a sensor for position feedback.The servo motor is usually a simple DC motor controlled for specific angular rotation with the help of additional servomechanism (a typical closed-loop feedback control system). Nowadays, servo systems are used widely in industrial applications.

Micro Servo Motor SG90 is a tiny and lightweight server motor with high output power. Servo can rotate approximately 180 degrees (90 in each direction), and works just like the standard kinds but smaller. You can use any servo code, hardware or library to control these servos. Good for beginners who want to make stuff move without building a motor controller with feedback & gear box, especially since it will fit in small places. It comes with a 3 horns (arms) and hardware.Most of the hobby Servo motors operates from 4.8V to 6.5V, the higher the voltage higher the torque we can achieve, but most commonly they are operated at +5V. Almost all hobby servo motors can rotate only from 0° to 180° due to their gear arrangement so make sure you project can live with the half circle if no, you can prefer for a 0° to 360° motor or modify the motor to make a full circle. The gears in the motors are easily subjected to wear and tear, so if your application requires stronger and long running

motors you can go with metal gears or just stick with normal plastic gear.

4.5 POWER SUPPLY

Fig : 4.5 Power Supply

12V power supplies (or 12VDC power supplies) are one of the most common power supplies in use today. In general, a 12VDC output is obtained from a 120VAC or 240VAC input using a combination of transformers, diodes and transistors. A power supply is an electrical device that supplies electric power to an electrical load. The main purpose of a power supply is to convert electric current from a source to the correct voltage, current, and frequency to power the load. As a result, power supplies are sometimes referred to as electric power converters. Some power supplies are separate standalone pieces of equipment, while others are built into the load appliances that they power. Examples of the latter include power supplies found in desktop computers and consumer electronics devices. Other functions that power supplies may perform include limiting the current drawn by the load to safe levels, shutting off the current in the event of an electrical fault, power conditioning to prevent electronic noise or voltage surges on the input from reaching the load, power-factor correction, and storing energy so it can continue to power the load in the event of a temporary interruption in the source power .

All power supplies have a power input connection, which receives energy in the form of electric current from a source, and one or more power output or rail connections that deliver current to the load. The source power may come from the electric power grid, such as an electrical outlet, energy storage devices such as batteries or fuel cells, generators or alternators, solar power converters, or another power supply. The input and output are usually hardwired circuit connections, though some power supplies employ wireless energy transfer to power their loads without wired connections.

4.6 LCD DISPLAY

Fig : 4.6 Lcd Display

A liquid-crystal display is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals combined with polarizers. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCD (Liquid Crystal Display) is a type of flat panel display which uses liquid crystals in its primary form of operation. LEDs have a large and varying set of use cases for consumers and businesses, as they can be commonly found in smartphones, televisions, computer monitors and instrument panels.LCDs were a big leap in terms of the technology they replaced, which include light-emitting diode (LED) and gas-plasma displays. LCDs allowed displays to be much thinner than cathode ray tube (CRT) technology. LCDs consume much less power than LED and gas-display displays because they work on the principle of blocking light rather than emitting it. Where an LED emits light, the liquid crystals in an LCD produces an image using a backlight.As LCDs have replaced older display technologies, LCDs have begun being replaced by new display technologies such as OLEDs.LCDs are made with either a passive matrix or an active matrix display grid. The active matrix LCD is also known as a thin film transistor (TFT) display. The passive matrix LCD has a grid of conductors with pixels located at each intersection in the grid. A current is sent across two conductors on the grid to control the light for any pixel. An active matrix has a transistor located at each pixel intersection, requiring less current to control the luminance of a pixel. For this reason, the current in an active matrix display can be switched on and off more frequently, improving the screen refresh time.

4.7 LED

LEDs are incorporated into bulbs and fixtures for general lighting applications. Small in size,

LEDs provide unique design opportunities. Some LED bulb solutions may physically resemble familiar light bulbs and better match the appearance of traditional light bulbs.Some LED light fixtures may have LEDs built in as a permanent light source. There are also hybrid approaches where a non-traditional "bulb" or replaceable light source format is used and specially designed for a unique fixture.LEDs offer a tremendous opportunity for innovation in lighting form factors and fit a wider breadth of applications than traditional lighting technologies.

Light-emitting diode (LED) is a widely used standard source of light in electrical equipment. It has a wide range of applications ranging from your mobile phone to large advertising billboards. They mostly find applications in devices that show the time and display different types of data. A light-emitting diode (LED) is a semiconductor device that emits light when an electric current flows through it. When current passes through an LED, the electrons recombine with holes emitting light in the process. LEDs allow the current to flow in the forward direction and blocks the current in the reverse direction. Light-emitting diodes are heavily doped p-n junctions. Based on the semiconductor material used and the amount of doping, an LED will emit a coloured light at a particular spectral wavelength when forward biased. As shown in the figure, an LED is encapsulated with a transparent cover so that emitted light can come out.

5. SOFTWARES FOR PROTOTYPE

5.1 ARDUINO IDE

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino hardware to upload programs and communicate with them. Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the text editor and are saved with the file extension .ino. The editor has features for cutting/pasting and for searching/replacing text. The message area gives feedback while saving and exporting and also displays errors. The console displays text output by the Arduino Software (IDE), including complete error messages and other information. The bottom righthand corner of the window displays the configured board and serial port. The toolbar buttons allow you to verify and upload programs, create, open, and save sketches, and open the serial monitor.

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board. The Arduino IDE is an open-source software, which is used to write and upload code to the Arduino boards. The IDE application is suitable for different operating systems such as Windows, Mac OS X, and Linux. It supports the programming languages C and C++. Here, IDE stands for Integrated Development Environment.

Arduino IDE is an open-source software, designed by Arduino.cc and mainly used for writing, compiling & uploading code to almost all Arduino Modules.It is an official Arduino software, making code compilation too easy that even a common person with no prior technical knowledge can get their feet wet with the learning process.It is available for all operating systems i.e. MAC, Windows, Linux and runs on the Java Platform that comes with inbuilt functions and commands that play a vital role in debugging, editing and compiling the code.A range of Arduino modules available including Arduino Uno, Arduino Mega, Arduino Leonardo, Arduino Micro and many more.Each of them contains a microcontroller on the board that is actually programmed and accepts the information in the form of code.The main code, also known as a sketch, created on the IDE platform will ultimately generate a Hex File which is then transferred and uploaded in the controller on the board.

5.4 PYTHON IDE

Writing Python using IDLE or the Python Shell is great for simple things, but those tools quickly turn larger programming projects into frustrating pits of despair. Using an IDE, or even just a good dedicated code editor, makes coding fun—but which one is best for you.Fear not, Gentle Reader! We are here to help explain and demystify the myriad of choices available to you. We can't pick what works best for you and your process, but we can explain the pros and cons of each and help you make an informed decision.To make

things easier, we'll break our list into two broad categories of tools: the ones built exclusively for Python development and the ones built for general development that you can use for Python. We'll call out some Whys and Why Nots for each. Lastly, none of these options are mutually exclusive, so you can try them out on your own with very little penalty.An IDE (or Integrated Development Environment) is a program dedicated to software development. As the name implies, IDEs integrate several tools specifically designed for software development.

These tools usually include:

• An editor designed to handle code (with, for example, syntax highlighting and auto-completion)

• Build, execution, and debugging tools

• Some form of source control

Most IDEs support many different programming languages and contain many more features. They can, therefore, be large and take time to download and install. You may also need advanced knowledge to use them properly.In contrast, a dedicated code editor can be as simple as a text editor with syntax highlighting and code formatting capabilities. Most good code editors can execute code and control a debugger. The very best ones interact with source control systems as well. Compared to an IDE, a good dedicated code editor is usually smaller and quicker, but often less feature rich.

6. LANGUAGES FOR PROTOTYPE

6.1 C++

C++ is a general-purpose programming language and is widely used nowadays for competitive programming.It has imperative, object-oriented and generic programming features. C++ runs on lots of platforms like Windows, Linux, Unix, Mac etc.C++ is a object-oriented programming language. It was created by Bjarne Stroustrup at Bell Labs circa 1980. C++ is very similar to C (invented by Dennis Ritchie in the early 1970s). C++ is so compatible with C that it will probably compile over 99% of C programs without changing a line of source code. Though C++ is a lot of well-structured and safer language than C as it OOPs based.C++ (said C plus plus) is an object-oriented computer language created by notable computer scientist Bjorne Stroustrop as part of the evolution of the C family of languages. It was developed as a cross-platform improvement of C to provide developers with a higher degree of control over memory and system resources.Some call C++ "C with classes" because it introduces object-oriented programming principles, including the use of defined classes, to the C programming language framework. Over time, C++ has remained a very useful language not only in computer programming itself, but in teaching new programmers about how object-oriented programming works. However, it does not support only object-oriented, but also procedural and functional. Thanks to its high flexibility and scalability, C++ can be used to develop a broad range of software, applications, browsers, Graphical User Interfaces (GUIs), operating systems, and games.

Today C++ is still very appreciated for its notable portability which allows developers to create programs that can run on different operating systems or platforms very easily. Despite being a high-level language, since C++ is still close to C it can be used for low-level manipulation due to its close relation with machine language Bjarne Stroustrup developed C++ at Bell Labs in the early 1980s to merge the best advantages of several other languages. He wanted to put together the quickness of BCPL, the high-level of Simula, and the universality of Dennis Ritchie's C.

He took inspiration from other languages as well, such as Ada, ML, and ALGOL 68, to create a well-structured, general-purpose language that could compile nearly all C programs without changing their source code. C++ is so flexible that is often nicknamed the "Swiss Pocket Knife of Programming Languages" (although this nickname is shared by Python as well).When C++ was new, object-oriented programming was just coming on the scene. This revolutionary type of computer programming transformed the coding world with its promise of more sophisticated virtual data types and objects.In object-oriented programming, an object is a data type that has both data and functions inherent in its design. Prior to the advent of object-oriented programming, programmers typically saw a codebase as composed of individual command line instructions. The identification of objects with data and

functions built in led to a new way of packaging and automating code work.

6.2 PYTHON

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance.Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.Python is an interpreted, interactive, object-oriented programming language. It incorporates modules, exceptions, dynamic typing, very high level dynamic data types, and classes. It supports multiple programming paradigms beyond object-oriented programming, such as procedural and functional programming. Python combines remarkable power with very clear syntax. It has interfaces to many system calls and libraries, as well as to various window systems, and is extensible in C or C++. It is also usable as an extension language for applications that need a programmable interface. Finally, Python is portable: it runs on many Unix variants including Linux and macOS, and on Windows.

The Python Software Foundation is an independent non-profit organization that holds the copyright on Python versions 2.1 and newer. The PSF's mission is to advance open source technology related to the Python programming language and to publicize the use of Python. The PSF's home page is at https://www.python.org/psf/.You can do anything you want with the source, as long as you leave the copyrights in and display those copyrights in any documentation about Python that you produce. If you honor the copyright rules, it's OK to use Python for commercial use, to sell copies of Python in source or binary form (modified or unmodified), or to sell products that incorporate Python in some form. We would still like to know about all commercial use of Python, of course.Python has become one of the most popular programming languages in the world in recent years. It's used in everything from machine learning to building websites and software testing. It can be used by developers and non-developers alike. Python, one of the most popular programming languages in the world, has created everything from Netflix's recommendation algorithm to the software that controls self-driving cars. Python is a general-purpose language, which means it's designed to be used in a range of applications, including data science, software and web development, automation, and generally getting stuff done.

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems. This versatility, along with its beginner-friendliness, has made it one of the most-used programming languages today. A survey conducted by industry analyst firm RedMonk found that it was the second-most popular programming language among developers in 2021

6.3 PHP

PHP is an open-source server-side scripting language that many developers use for web development.It is also a general-purpose language that you can use to make lots of projects, including Graphical User Interfaces (GUIs).The abbreviation PHP initially stood for Personal Homepage. But now it is a recursive acronym for Hypertext Preprocessor. It's recursive in the sense that the first word itself is an abbreviation, so the full meaning doesn't follow the abbreviation.PHP is a general-purpose scripting language geared toward web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994. The PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive initialism PHP: Hypertext Preprocessor. PHP code is usually processed on a web server by a PHP interpreter

implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web server, the result of the interpreted and executed PHP code – which may be any type of data, such as generated HTML or binary image data – would form the whole or part of an HTTP response. Various web template systems, web content management systems, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response. Additionally, PHP can be used for many programming tasks outside the web context, such as standalone graphical applications and robotic drone control. PHP code can also be directly executed from the command line.

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on a variety of operating systems and platforms. The PHP language evolved without a written formal specification or standard until 2014, with the original implementation acting as the de facto standard which other implementations aimed to follow. Since 2014, work has gone on to create a formal PHP specification. W3Techs reports that, as of January 2022, "PHP is used by 78.1% of all the websites whose server-side programming language we know." PHP version 7.4 is the most used version. Support for version 7.3 was dropped on 6 December 2021.

7. HARDWARE IMPLEMENTATION

Fig:7.1 Admega 238 and Node MCU

The admega 238 and Node MCU will programmed and placed on a printed pcb board. The servo moters and IR sensers connected to the board. The sensers and combonents take place.The website is run in pc and the system and wifi module will connected to a same network for serial communication and local hosting.Then connect the power supply to power

8. RESULT AND CONCLUTION

All the components connected correctly , website successfully hosted, serial communication done.
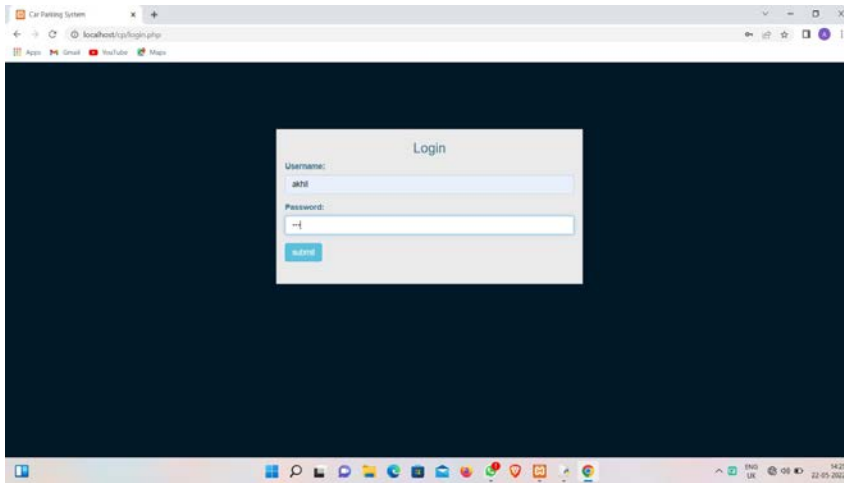
STEP-1

Fig: 8.1 Login page

☐ Open the web site in any browser
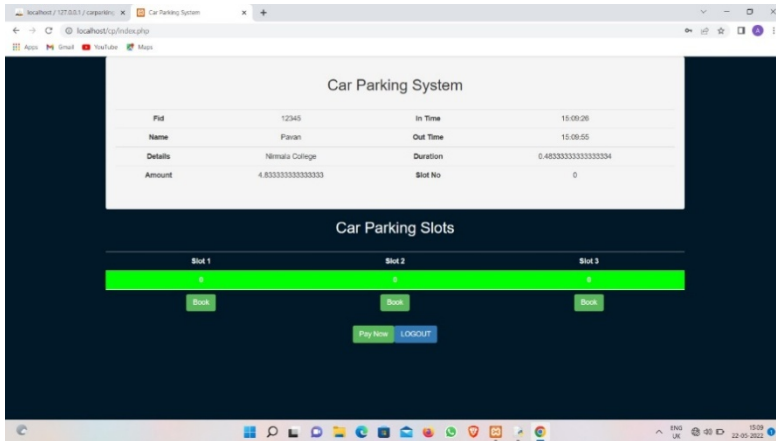☐ Login using username and password

STEP-2

Fig : 8.2 Booking page
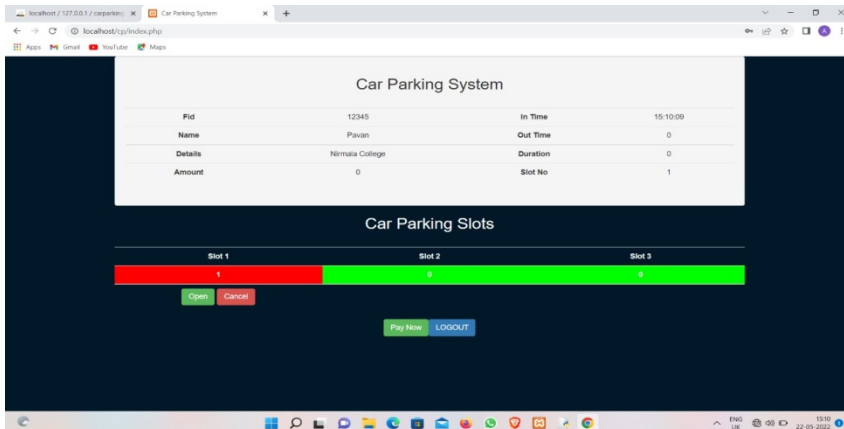
☐ Then book available slot

STEP-3

Fig : 8.3 Booked page

☐ After booking there is an option to cancel the slot

☐ Then reach to parking slot and click on open
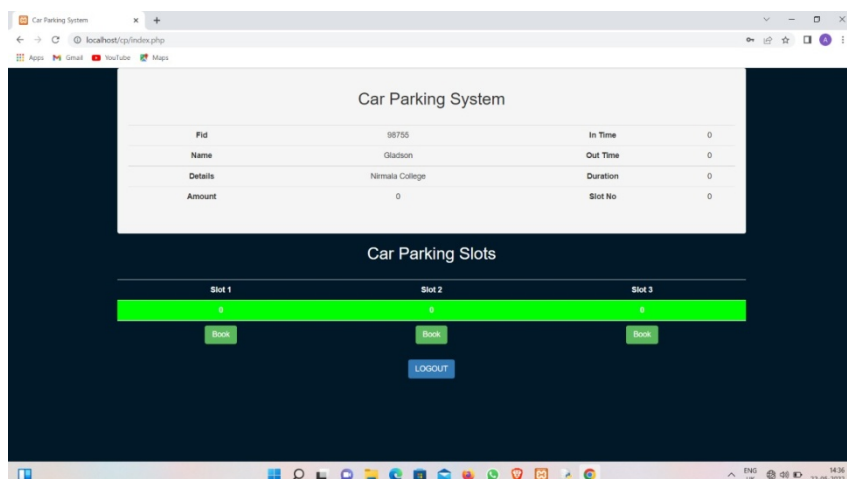
☐ Park the vehicle on the slot

STEP-4

Fig : 8.4 Final page

☐ After payment the booking option will give again

☐ Then no need of rebooking, logout the account.

9. CONCLUTION

Online vehicle parking reservation system improves the existing system since we are in computerized world. With this new system is mandatory, it enables the user of the system (client, employee, System administrator) to reserve a parking lot online and this reduces the wasting of time of the clients looking for where to park, increase the safety of the property since the parking lot is numbering. This system helps to save time as it allows us to know the number of car parking zones available in the particular car parking area. It also allows us to book the tickets for parking through online from wherever we are. And also the user can pre-book the parking space. This helps the roadside users to know the available parking zones in the car parking area. This saves the searching time for people in their busy schedule.

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