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Table Reservation and Meal Ordering System Using QR Code

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Abstract: ***At present, people have been waiting anxiously for the system that will satisfy their needs more clearly. The majority of the companies in the restaurant sector is looking for some software that improves the quality of delivery and increasing revenue. In a typical system, the waiter records the customer's order, and then put the order in to the kitchen, and then billing is done, which spends a lot of time and might lead to errors. The goal of this project is to automate the process of ordering food from the table in a restaurant and reserving a table, as well as to improve the quality of their customer service. Smart Restaurant is a concept of a restaurant's business that is based on the use of state-of-the-art technology from reservation to the order and the customer sign a relationship with you. The traditional restaurant will be replaced with the help of a smartphone, a tablet, or a graphical user interface and interactive touch screens. Customers will have to order their food via mobile phones by scanning a QR code on a table, as they are directly linked to the kitchen via a central server. In addition, our records are permanently stored on a central server, which can then be used for the marketing, distribution and sales. A smart restaurant, decrease the number of staff who work at the hotel-services, so as to increase the profit margins. The kitchen is going to be one of the interfaces which will be provided in accordance with the following priority (first-come-first-served). This app will help you to find more detailed information on the restaurant and its services, as well as the ease of ordering food and reservation table.***
Keywords: QR Scanner, Order, Reserve, Donation, Django, Restaurants.

I. INTRODUCTION

The advancement in technology has greatly influenced the business transactions. The introduction of digital technologies has led to the automation of the hospitality industry. The development of technology that could adversely affect the business. The introduction of digital technologies has led to the automation of the industry. The system processes the food, which is delivered directly to the table without any confusion. Working of QR based ordering system is very efficient as compared to traditional system.

A. Some Of The Key Features Of The System Include

1) The system will be having a QR code which customer can scan from their mobile to get a SMART FOOD MENU provided by the restaurant.
2) Each table will have different QR code , that will uniquely identify each table number.
3) The menu will show all type of stuff available in stock at the moment
4) The system provides managed food delivery right to the table (without any confusion).
5) User can reserve a table before coming to the restaurant.
6) It will also provide Online Payment options.
7) Customers can also donate a particular order if they want to feed needy people.
8) Customer can comment on each food item

With the help of this system, table reservation and food ordering on table will be more efficient, and can help the manager, to prevent human error, and improve the efficiency of business development. In this system, ordering transaction is a step-by-step process to start a more systematic approach, and the system is able to guide the staff in order to avoid a booking error. So, it will make a restaurant smart by its automated systems.

B. Disadvantages Of The Existing System

1) The traditional food ordering system is a manual process that involves the waiters with a pen and a piece of paper.
2) The customer will have to wait for the servers to take their order
3) Chances of serving wrong dishes to customer is high.
4) Need of more man power.
5) Daily updates is not possible through printed menu cards.
6) Time consuming process and lacks customer satisfaction.

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II. LITERATURE SURVEY

Various wireless applications for restaurant ordering have been developed, analyzed and implemented in restaurants.
In [1] The author suggests that the customer's application is running on the Android tablet. This application connects to a database, and loads the menu in real-time. The customers are able to browse the menu. With the help of this software, the customer can call a restaurant staff by pressing the button. The waiter approaches, in order to confirm the order and the name on the invoice. In this , the menu is then displayed in the kitchen. In [2] Sun Guiling, SongQingqing proposed a system of self-service ordering information system, which is based on ZigBee wireless technology. This system uses the FFD (Full Function Device) and RFD (reduced Function Device). In [3] the author provides an intelligent restaurant, the service, the customer is in the focus of attention. This system provides online booking, ticket booking, booking process, as well as personalized service and recommendations and special. With the help of a member based on the RFID card, the waiters are able to immediately identify the customer's consumption of the items. The waiter uses a PDA to take orders from the customer. In [4] Another project was proposed by the Bluetooth technology, as a means of communication, and the peripheral interface controller (PIC) [2], in which the hardware is faster than the system. It is made up of a desk to the keyboard, which is a client of the remote control monitor, and a kitchen area for the display of information.
In [5], This describes how the Android phone's digital booking system can be designed for the restaurant by B. K. Mishra ,B. S., Choudhary, and Tanmay Bakshi . This work is aimed to replace the traditional pencil and paper methods to automate the process of ordering food in a restaurant, thus enhancing the quality of customer service. In [6], In this Paper, it shows the wireless method to order the food, along with customer's feedback for the restaurant by Nur Azah Samsudin, Shamsul Kamal Khalid Ahmed, Mohd Fikri Akmal Mohd Kohar, Zulkifli Senine, Mohd, Or Ikhkasan. CWOSRTF allows restaurant owners to easily set up a wireless system, the environment, and to update their menu and presentation. The objective of the scheme is to get feedback, after having served as a meal, in the end, will help the restaurant owners to improve the quality of the food and the service. In [7] They developed a method that how smart menu can be used in a restaurant, in order to remove the bottlenecks in the current paper-based menu at the restaurant. This article is deemed to be in the S. Pieska, M. Liuska and J. Jauhiainen. This article presents the results of an online survey that is tangible that people don't agree with it, if it is a paper-based system. In the smart the restaurant, the system offers an interesting range of connectivity and the growing cognitive capabilities, both in the cognitive and intercognitive communications.

III. METHODOLOGY

A. Overview

In this proposed System a QR code is generated by the admin for each table which identifies table number. The customers can scan the QR code in order to access the web application we have developed. The system will automatically detect the table number of the user as there is unique QR for each table. The customer can pick the desired food items from the categorised food item list and can add the item to cart. They can place the order and pay their and pay their bills after confirming their orders. The customer can pay the bill according to their choice (online or at counter by cash). This can be done according to customer convenience.
Also, system provides a table reservation system to the customer. A customer can book a table before coming to restaurant for hassle free experience. When a customer's book a table, they will get a confirmation message after restaurant accepts the order. If person doesn't arrive at the time they mentioned then system will cancel that booking after 15 minutes of due time.

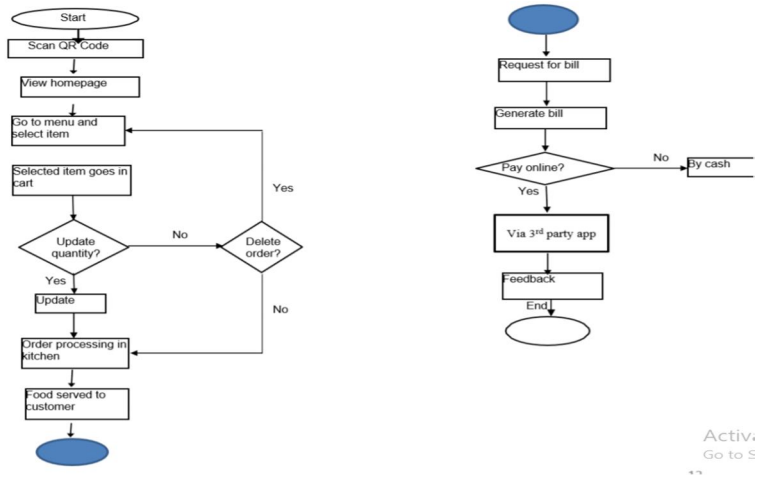


Fig 1 :Flowchart

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B. Implementation

1) The Implementation of the web-Pages: That are offered by the system, is mainly prepared using the Django web framework. The basic layout of the website is designed with the help of HTML, CSS, and bootstrap. HTML (Hypertext Markup Language) is a standard markup language for documents designed to be displayed in a web browser. This can be of help, due to its use of cascading style sheets (CSS) and scripting languages such as JavaScript. HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. The Django REST framework is a powerful and flexible tool for creating web API's.

2) Implementation of Payment Module is The most significant development, the aim of this module is to manage the payment from the customer, over the internet or the delivery of the participants. The Admin will have to deal with all of the items issued by means of the payment. According to the clients ' convenience, the customer will have to pay. The Admin and all of the handling, settlement records of all your customers.

3) To create the databases, and the proposed system has been created in a database using SQLite. SQLite is C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine. SQLite is the most used database engine in the world. SQLite is built into all mobile phones and most computers and comes bundled inside countless other applications that people use every day.

4) The implementation of the QR code to be scanned, as we have a QR code scanning system, that is, the first step is to get the customer on our web site just by scanning the provided Qr code. After that, customers will have easy access to our website. QR code can be generated by admin for a specific table. When customer scans that QR and orders, then admin can see order along with table number. You don't need a Play Store application and search on, our website, over the internet.

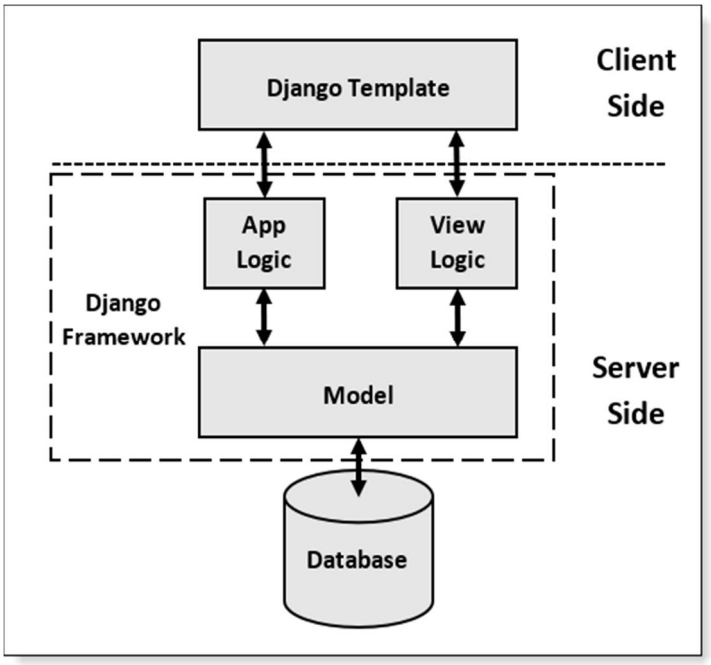


Fig 2: MTV Architecture

The proposed system is majorly developed using django Framework. Django is a python based free and open source web framework, which follows the model-template-view architectural pattern. It is maintained by Django Software Foundation(DSF),an independent Organisation established as a 501(c)(3) non-profit.

C. Project Tools

1) Django — Web Framework
2) Back end Python 3.8 — Back end Programming language
3) NoSQL — databases
4) Front end — HTML 5, Bootstrap , JavaScript, CSS 3.

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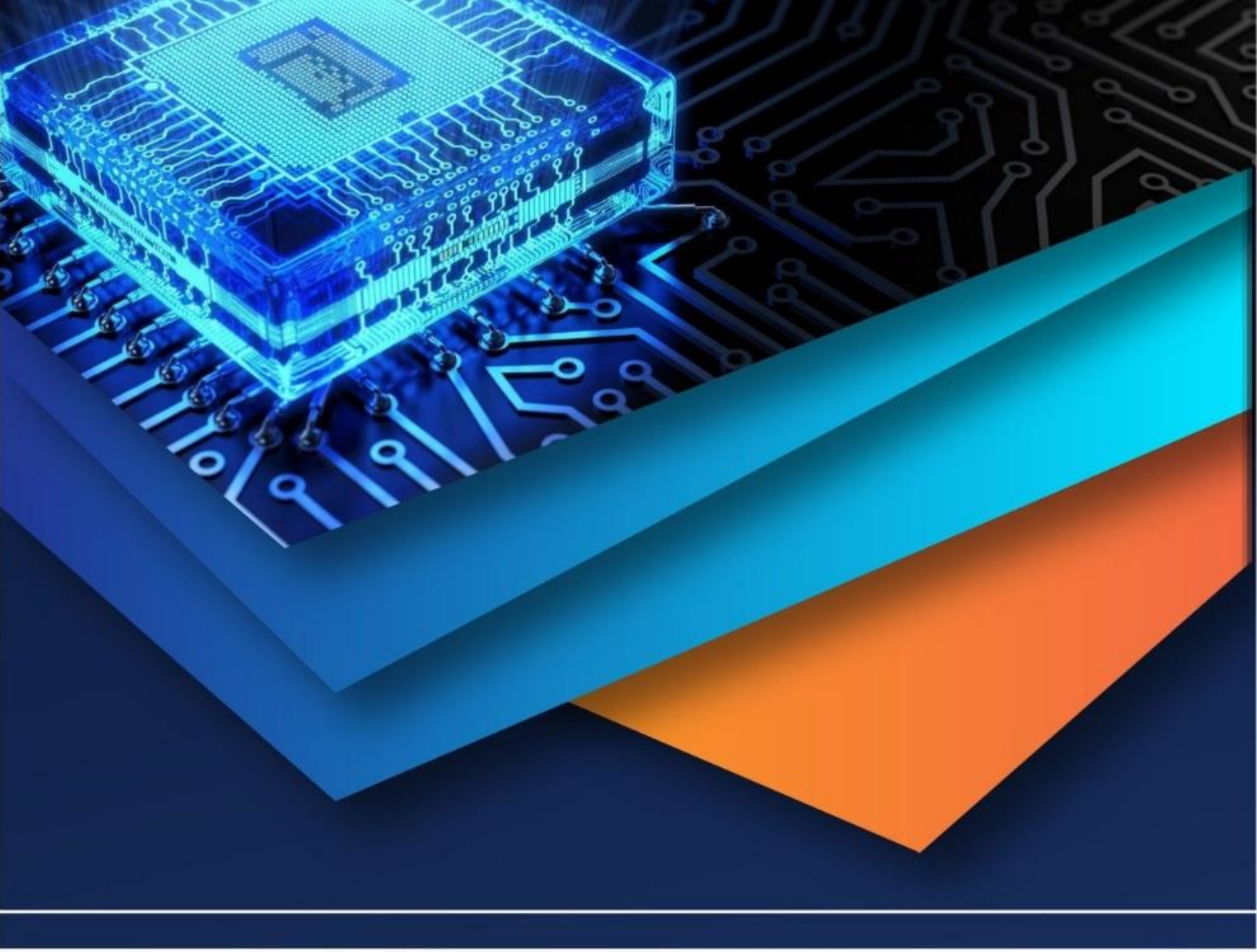
IV. CONCLUSION AND FUTURE WORK

The objectives of our project "QR code-based Smart Dining System" is to increase the customer's dining experience by fastening the existing restaurant services and to simplify the ordering and bill payment systems to minimize the workload of the restaurant and hotel owners. .By passage of time and popularity of the culture of using smartphones, the influence of this tool in all aspects was highlighted so that it has become an inseparable part of human life. The use of this capacity in the matters of business and directing users to the optimum and proper use of this tool is what customers and business owners are looking for. However, users tend to use technology in different situations more and more by increasing penetration of smartphones. This situation can be use by businesses so that they can get more benefit that move before customers and prepare an appropriate condition in advance. Using QR code in ordering process causes to remove physical ordering and payment. Other than more attraction, it gives more facilities to customers and business managers. This system is not only eliminate traditional ordering, but also to apply this smart ordering beside traditional method and attract customers and improve their sense of loyalty. Also, wasting time and energy of staffs will be reduced using this method and consequently customers are more satisfied.

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