Utilizing QR Code Table Ordering System for Golden Cress in Alaminos City

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ABSTRACT

The purpose of this study is to develop and implement a QR Code-based table ordering system at Golden Crest Restaurant. Ordering was made easier with QR code technology, which allowed customers to place orders straight from their mobile devices, which reduced wait time and mistakes in the order. It also enables live updating of menus and order status It ensures seamless processing of orders through and allows for better control to inventory tracking. The system, with its simple design and functional operations, ensures to bring a revolution in the dining experience and new benchmarks for the restaurant service. the project follows a structured process involving requirements gathering, design, development, and testing. The deployment phase ensures successful integration into the production environment, while feedback from customers is systematically collected and analyzed for further system enhancements.

Keywords: QR Code, table ordering system, service efficiency

INTRODUCTION

Traditionally, the customers need to interact with the waistaff to place orders. The waiters write down the foods that the customer orders. The paper will then pass to the kitchen and the chef will start to cook. The customers have faced a lot of inconveniences with this traditional method. For example, waiting to get the food served, receiving an incorrect bill and many more. All this inconvenience will cause the customers to be unsatisfied with the service of the restaurant. But using this restaurant ordering system, it is easier to know the time of preparation of the food. [1]

The quick response (QR) code provides a fast, easy, convenient, accurate and automatic method of transporting data. The benefits of technology to the service sector, for this study, we used various QR code applications in the food or beverage menu service management system in restaurants / cafes. The specific purpose is to allow restaurant waiters to quickly and appropriately provide service to restaurant / cafe customers. Experimental results show that the method developed in this study can significantly improve the service menu, prepare waiters and chefs to provide the right service, shorten the time for ordering the menu, and facilitate the resolution of the problem.[2]

Customers are often unaware of the preparation time for their food. This QR code ordering system is designed not only to streamline the ordering process but also allow customers to track their waiting time, helping the restaurant manage operations more efficiently the time of placing an order has reduced. QR menus have several sustainability benefits, ranging from easily updating menus to target different audiences and promoting dishes that are about to expire to eliminate food waste to preventing unnecessary paper waste associated with traditional print menus, particularly in high-inflation economies.[3]

QR code menus can also help managers produce food more responsibly. Managers can use QR code menus to get real-time data on customer preferences, demand, and feedback, which can help them optimize their inventory, supply chain, and menu design. This can assist managers in reducing food waste, lowering costs, and increasing customer satisfaction.[4]

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. [5]

To lessen human error and physical interaction of the customer and staff. Ordering through a restaurant app will save time, money and effort both for the customers and the restaurant. With this, a Quick Response (QR) code is embedded in the system developed by the researchers. QR Code is a technology that is easy to use that even first-time users will easily learn how to use it. The process of scanning a QR Code to access information can be engaging to customers.[6]

Embracing the convenience of QR code technology to revolutionize the dining experience. By simply scanning the QR code at their table, customers can unlock a seamless ordering process that not only saves time but also minimizes the chances of errors in their orders.

METHODOLOGY

The proponents chose the Agile model because it provides flexibility in project execution, allowing teams to adapt to changing requirements and priorities. The Agile model facilitates iterative development, continuous feedback, and incremental improvements, ensuring that the project remains aligned with user needs and expectations throughout its life-cycle. This adaptability is crucial for managing the dynamic and evolving nature of software development projects, ultimately leading to more effective and efficient delivery of high-quality software.

Figure.1 Agile Model

Source:https://www.researchgate.net/figure/Agile-Methodology-in-System-Development-source-Okeke2021-retrieved-from_fig1_354310848

In order to fully understand the system's functioning and how admins and users handle processes, the developer gathers requirements during the Agile phase as they build the system. To get thorough information, this requires for performing observations and interviews as well as using an interview guide. This entails conducting interviews, observations, and utilizing an interview guide to collect comprehensive information. Interviews with key stakeholders, including restaurant managers, staff, and potential users, help gather insights into user navigation, menu viewing, and administrative tasks. Observations of the restaurant environment provide context for understanding current workflows and identifying pain points.

The design phase involves formulating detailed specifications and requirements based on the gathered information and initial planning. This phase is crucial as it lays the foundation for the subsequent stages of development. During the design phase, the proponents establish a system architecture, develop a basic wireframe,

and design the system prototype to visualize the user experience, and select the appropriate tools to use in time for building the structure of the system. Continuous collaboration with the client, developer, and designers is good to improve the design based on the feedback of the client.

The proponent will use a set of tools, including PHP, HTML, MySQL, Visual Studio, XAMPP, JavaScript, and CSS, to smooth development and implementation. For the frontend, JavaScript will add interactivity and dynamic behavior to the web pages, while CSS will ensure they are visually appealing and responsive.

The proponent will use a systematic evaluation process in software development known as testing to assess the qualities, performance, and reliability of a piece of software or system. Proponents, often software testers or quality assurance professionals, play a critical role in ensuring the quality and dependability of software products.

The procedure for deploying a web system into a production setting so that clients or end users can utilize it. What we have to do is include assessing risks and dependencies during release planning, considering factors such as system compatibility, user training needs, and business priorities.

The proponents requested Golden Cress Restaurant to assess the developed QR Code Table Ordering System. The evaluation covered functionality, reliability, usability, efficiency, maintainability, and portability, involving the staff, manager, customers, and PSU-ACC IT experts. The acceptability was divided into two surveys: one for guest users and another for clients with IT experts. Feedback focused on the ordering process, menu options, food quality, and service. The results were: functionality (3.35), reliability (3.22), usability (3.49), efficiency (3.39), maintainability (3.39), and portability (3.36). The overall weighted mean was 3.36, categorized as excellent, with developmental feedback for improvements.

Agile methodology enabled our project to efficiently develop the QR Code Table Ordering System. With the iterative process and open communications, it was easier for team members and all partners to work together. Its systematic approach allowed us to define project requirements and transform them into design elements for implementation efficiently to ensured a flexible development process proficient in integrating feedback into the functioning QR Code Table Ordering System as well as changes in requirements.

RESULT AND DISCUSSION

The result aimed to discuss is the influence of project design and architecture on the creation and implementation of the QR Code Table Ordering System. The project was approached using a structured framework with a three-tier model as a means to increase efficiency while ensuring the success of the project.

To keep a proper focus during the development, the team used an established framework, which is shown in Figure 2 below. This proved useful for the management of the project in its different stages of requirements gathering, deployment, and review, as well as coordination between the developers and the other partners.

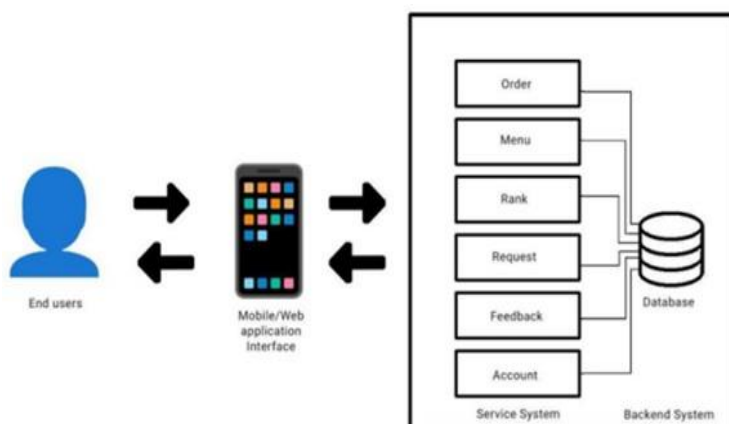## QR CODE FOR TABLE ORDERING SYSTEM THREE-TIER

Figure 2. Three-tier

The application layer focus in user interface issues such as getting and displaying data or showing user directed actions' outcomes. This part can be created through technologies like HTML/CSS for web-based applications or GUI frameworks like Swing/Java for desktop apps.

The business layer ensures that all business requirements are met through manipulating and processing data. At this point every functional aspect of the websites including calculations, versification and workflow management are defined.

Communication here often happens via direct calls into databases/files while communication may also go indirectly through high-level programs such as Java Objects-Relational Mapping (ORM) frameworks.

CONCLUSION

In our system we create digital menu that customer can see the image, price, rating, name of the item the purpose of this feature is to lessen the paper print when the manager change the menu, price, image, rating, and the availability of the item. The second feature is the customer is the customer request where the customer can write what they want to remove in their order or make a request without hesitation. The third one is order history where the customer can view their order history if they need preference, and the last one is the favorite where the customer can make their favorite so they can see it on the category.

The QR Code Table Ordering System and its contribution to the dining experience and restaurant management is a transformation that has clearly been incurred by these technological changes. The integration of the project's business processes with food service providers seamlessly lifted the order management systems toward optimizing workflow, which in turn raised productivity and fulfilled customer expectations.With the development of this project, it can be appreciated that the introduction of the QR Code Table Ordering System has further digitized the customer placing an order and has created opportunities toward a more sustainability driven service. Making the procedures simple for end users, customers, and restaurant staff was just as important as the deployment phase. The use of digital interfaces, real-time order monitoring systems all functioned to create a smoother and more efficient dining experience. This positive experience of dining out was pursued through the assuring measure of meeting customer needs: technology can be integrated without compromising the quality of service offered by the restaurant.

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