ScanKaro: An QR Code-Based Menu Application for Restaurants

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As the usage of information technology is increasing nowadays, people have become dependent on their mobile phones. In this covid pandemic if we go to hotel we get every order from same paper menu card which everyone touches and do not even update from time to time. The menu card is one of the most important forms of communication tool. Not only does it show hospitality to your restaurant and it offers your food, but it also reinforces the idea and style of your brand. But for it to be useful it must be done in a peculiar way. Customers view the menu for only 109 seconds (about 2 minutes) before selecting an order. Therefore, designing a restaurant menu not only affects the customer experience, but also the quality of the restaurant but some problem occurs with paper menu card like no updating in menu, in attention to detail, wrong pricing etc.

Keywords: QR code.

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1 Introduction

Although the coronavirus pandemic ushered in the quick and widespread use of QR codes, restaurant industry experts believe the technology will endure long after the health problem is resolved. Rapid response codes were invented in 1994 by a Japanese engineer to make tracking car parts easier. Years later, as cellophanes with cameras took over, quick response codes became mainstream. However, it was not until the ongoing pandemic compelled businesses to step up their sanitization efforts that they became a ubiquitous sight inside bars and restaurants throughout the United States, eventually displacing paper menus. This research paper presents a QR code-based restaurant menu application "ScanKaro". **"**ScanKaro**"** is developed to replace the previous old-fashioned system with our new system which is highly effective and time saving. Other systems can be a disadvantage for employees and customers because they require a large workforce. Employee labour will result in some defaults, such as invalid customer invoices. The server script is invalid. Wrong order. All these make customer unhappy and irritated. Therefore, this **"**ScanKaro**"** is created and developed for better restaurant safety management. It reduces the booking time. There is no need for customers to serve them at the restaurant for dinner. Customers are satisfied with this booking system. Prototyping methodology is used to develop this system and this is chosen because the system is developed in an abbreviated time compared to other methodologies. Throwaway's prototyping methodology also allows developers to listen to end-user feedback to further develop it to meet end- user requirements.

ScanKaro Is an interactive mobile application that helps manager in hotel management. Various opportunities is provide to the users of the application to get the facilities provided to them. User just must search and tap on that facility. Previous system uses file system for storing data. In fact, a QR code generated by the command, and the table will find the code and send the order to the kitchen. Thus, this QR code ordering system provide customer satisfaction. The hotels and restaurant integrated approach to ordering is based on QR codes to increase efficiency, and thus eliminate the many stages of ordering food without a table server. All information related to food is stored in a database, allowing administrators to manage menu items anytime, anywhere. The overall process how a menu can be read through use of QR code is illustrated in Figure 1.

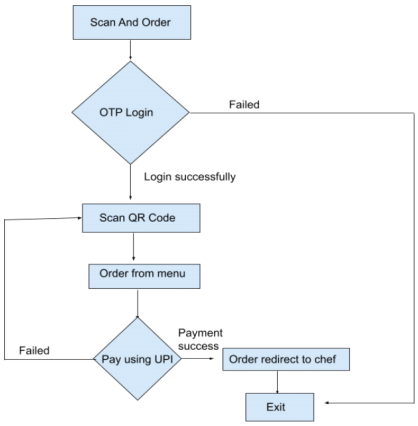

Fig 1. Flow chart of Steps in QR code scanning process

2 Literature Review

An article is titled "Self-service technology: Understand customer satisfaction with technology. Face to face service" enhances the customer experience. Contact on how to respond and create service results. Self-service is a business strategy that can automate customers [1]. Provide tools or services to serve the needy myself. Here are some examples of self-service technology. Bank ATMs, vending machines, mobile applications, Websites น Other applications that provide customer service. The potential benefits of self-service technology [2]. Satisfaction of business employees can eliminate this. Price that can prolong life - can do more Efficiency that reduces and increases backup time Security. There is a restaurant called La Frame Blanche Asian Ding Zung Zhang Wali Apps increase customer satisfaction. He left her customers should view photos of the food before ordering. Which one the app helps customers make the right choice Choose the right path for them [3]. It could be good Images of certain foods may prompt customers to purchase these items Discrimination. The self-catering menu also allows the restaurant service Faster than usual. Verified using self-service, an application that does not need to add an additional host to the floor to provide superior services [4].

One of the most common restaurant mistakes is finding or finding serving food that the customer did not order. According to an article entitled "The Most Common Restaurant" Complaints are among 1,003 people. A common complaint about restaurant services is explored. The highest percentage is "not food you obey" This means that 62% of orders are often incorrect It slows down the service process. It also affects hygiene Sales reports, which can affect accounting for the restaurant. It may be time for a restaurant order by hand [5]. When customers are still trying to call the waiters to decide on orders. Some guests want to change their decision at the last minute. Manual command hosts need to repeat it all the host ordered the guest to confirm everything is fine. Manual ordering can be risky and errors due to manual download. Administration of it will be easier to order through the restaurant. App about order arrival in the kitchen automatic [6].

Ordering through the QR scanner app saves time, money and customer and restaurant efforts. Therefore, a QR code is included in the system. Developed by researchers. QR code is technology. Easy to use That even first-time users will easily learn how to use it [7]. It is possible to scan QR code for information and engage with customers [8]. Scanning the guest QR code a table can be an uncomplicated way to get to the restaurant menu instead of typing through the phone browser. Most smartphones are built into QR Code scanners today direct them to the website. Although not the application is limited to smartphones with QR code scanner [9-11].

3 QR code technology background

3.1 History of QR

In the 1970s, IBM developed a 13-hole UPC signal that could be automatically converted into a computer. UPC codes are still widely used in point of sale (POS) devices. Code 39 was developed in 1974 and can encode 30 alphanumeric characters. Then, in the late 1980s, multi-level code characters were developed that could store 100 to 16,000 codes and 49-character codes. The development process has been extremely fast in recent years, with increased memory capacity and the addition of more languages. A total of QR codes created in 1994 can contain 7,000 characters.

3.2 Backdrop of QR

The QR (quick response) code is a scanned code. In the case of QR codes, the data is converted into a single two-dimensional square structure (of different shapes). If a QR code scanner is installed in these boxes, it will decode the rating into the original data format.

2D barcode	**Data Matrix**	**QR**	**PDF417**	**GM**
Layout	Matrix	Matrix	Layers (1D layout)	Matrix
Max capacity	1.5KB	3 KB	1 KB	2 KB
Readable direction	Full direction	Full direction	Upward/downward	360o full direction
Image "dead point"	Yes (no tarnishing for positioning image)	Yes (no tarnishing for positioning image)	Yes (no tarnishing for positioning image)	No
Chinese encoding efficiency	Bad (16bit)	Bad (16bit)	Bad (16bit)	Good (13bit)
Photoelectrical sensor (core part of a reader)	Made in Japan or US	Made in Japan	Made in Japan or US	Made in China
Intellectual property rights	US	Japan	US	China
Sample picture				

Fig 2. A summarized comparison between various QR code in four countries.

3.3 Elements of a QR code

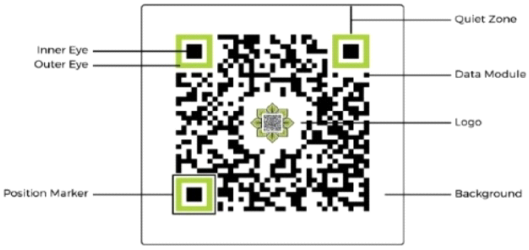

Fig 3. Elements of QR code

- Data Modules: A simple black rectangle on a white background (colour composition may vary). Most QR codes contain these data module settings.
- Position Marker: Each QR code consists of three placeholders, The purpose of the detector is to assist in locating the code detector data mode. There are internal and external eye features.
- Quiet Zone: The Quiet Zone area is empty, including the location and media information. It also aims to find easy code with a scanner.

4 QR Code Methodology

The QR code-based application system is an mobile application, to use this application a user needs a mobile phone and internet connection. These applications have been developed with React.js, java and Mongo DB database. On each table there is different QR code by which user can scan QR code from the application and make order their food. When user land on home page they get three different main component ADMIN LOGIN, USER LOGIN and KITCHEN ADMIN LOGIN.

4.1 Placing order without a waiter

Each table in the restaurant has a unique QR code for that restaurant. The Guardian requires your phone and the Scan & Messaging application to be displayed on your phone. Security can use the application to scan the QR code. After scanning the code, a menu will appear in the application. Users can find details about different foods, prices and so on and then post products from within the app. Chefs and customers have direct contact, saving time by shooting in the middle. Chefs also receive orders on time, reducing the likelihood of invalid orders.

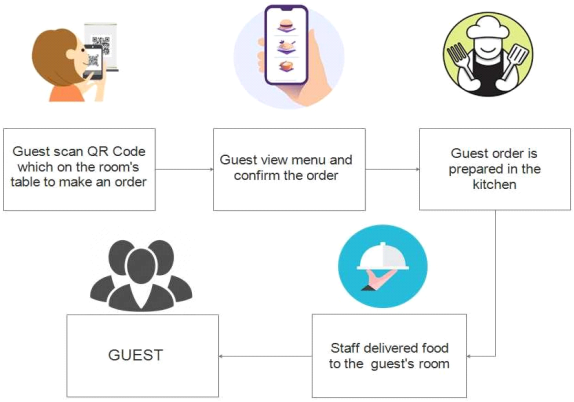

Fig 4. The process flow of QR Method

4.2 Payment without cash

Customers can enjoy their meal after ordering. The last part of the cycle is the payment. The "ScanKaro" app also controls the payment of orders. With UPI, users automatically receive an invoice for the application, including direct payments from the application.

5 Advantages and limitation of the method

Restaurants, implementing QR code technology in restaurants. The owners benefit from several benefits such as the elimination of the traditional ordering phase which is the main factor of waiter are wasting time. There are more details on this. The reason why menus with pictures compared to paper menus customers have a better and more favourable option. There is no pressure on the customer to issue the order and he can place his order with peace of mind. Other the strength of this scheme is to pay bills electronically which prevents pollution of currency exchange. It also has one significant impact on protecting the environment due to non-use paper bills. Another feature of the electronic menu for the

restaurant has to remove or disable the order click of a food if its row content is not available. a better and easier. Manage shop during peak hours and avoid overcrowding this model has other advantages over the checkout counter. This model prevents the ordering error that can be caused by error of the waiter or bill calculation done in the traditional way.

6 Conclusion

While there is a certain glamour and nostalgia for traditional dining room styles and face-to-face relationships, modernity and circumstances require a change in organization. Everyone in the world uses a smartphone, and with the rapid development of technology, it is necessary to replace or improve the traditional restaurant system with technology. Many improvements can be made to the app, such as adding some entertainment settings while customers are waiting, but using such technology enhances the customer and staff experience. There is room for improvement in the system that promotes innovations and helps restaurant managers improve the experience of customers and staff.

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