Hello QR - Scan, Generate & Share QR Codes

M.V.N.D.S.Sashank
B.Tech Student,
Department of Information Technology,
AITAM, Tekkali,
Andhra Pradesh 532201, India.

J.Uday Kumar
Assistant Professor,
Department of Information Technology,
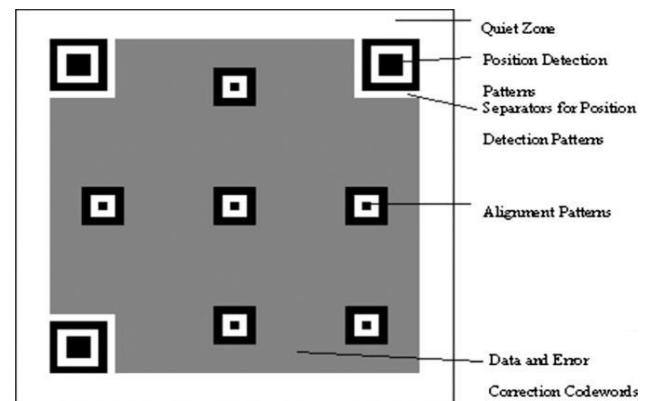AITAM, Tekkali,
Andhra Pradesh 532201, India.

Abstract:

QR code is the trademark for a type of matrix barcode two-dimensional barcode, is often used to provide access to information through a mobile phone. A barcode is a machine-readable optical label that contains information about the item to which it is attached. Hello QR is a fantastic tool for a small entrepreneur for promotional purpose. In marketing there are 7 P's and one of them is "Promotion". So, here I have chosen Promotion form 7P's and started working on it then Hello QR is its outcome. Whenever we go to any shop in a market, the shopkeeper may not be free at all the times at the same time you want to know the price of a product, then it will be somewhat difficult to him to tell the price orally. For this, the solution is Hello QR.

Using Hello QR, each product can be assigned with a QR Code sticked on it and when a customer comes he need not to wait for your answer to know the price, he can simply open Hello QR in his mobile and scan the QR of the product that he wants to purchase and know its price details within seconds and thus, customer's valuable time will be saved. Hello QR gives fine look and great marketing environment.

QR codes:

QR codes are 2 dimensional matrix. It allows to store a large volume of unique data. Bar-codes are one dimensional vector. So compare to bar-codes QR codes are having more storage capacity. QR codes can hold up to 7,089 numeric characters and up to 4,296 alphanumerical letter values as an information. The following figure shows the structure of a QR code.

Entrepreneur:

A person who sets up a business by taking on financial risks in the hope of making profit. There are many types of entrepreneurs all over the world.An entrepreneur has to attract his customers in different ways like discounts,offers,lucky draws etc but apart from this he can also pull attention of the customers technically.When any entrepreneur introduces a new technology in his stores,customers prefer his stores rather than the other stores because they are very curious to know about what's new over there.

Cost Cutting:

In earlier days,most of the entrepreneurs were using barcode scanning guns in order to know the MRP of any product,which costs around 1000-1500 INR and also it occupies some extra place.So,barcode can be replaced with QR code which is very famous all over the world.As QR Code scanning is very quick,time can also be saved.

Cyber Physical System 4.0:

Cyber Physical System (CPS) includes Internet of Things, Big Data, Cloud Computing and Wireless Networks are the core technologies allowing the introduction of the fourth industrial revolution, Industry 4.0.Along with the advancements in information technologies, smart manufacturing is becoming the focus of global manufacturing transformation.Considering the competitive nature of industry,it requires manufacturers to implement new methodologies.

Introducing new technologies to attract customers is one of the smart marketing strategy

Functionality of Hello QR:

Hello QR is a mobile application which can be installed both in Android & iOS.This application allows user to scan the existing QR codes and know information about it and also allows user to generates QR code with his custom message,phone number, url,email etc after generation of the code even it can be shared over different means of sharing options available on the mobile.Another great feature of Hello QR is it even works in offline mode.

Cost-effective:

This does not require any external scanning guns to scan the QR codes unlike barcode. Once if you install this application in your device,phone camera itself acts as a QR code scanner.Even in dark places also you can scan the codes by using flashlight of your mobile phone.

Technologies Used:

- Flutter(Framework)
- Dart(Programming Language)
- Android Studio(IDE)
- XCode(IDE)

Flutter:

Flutter allows you to build beautiful native apps on iOS and Android from a single codebase. Flutter is an open-source mobile application development framework created by Google. It is used to develop applications for Android and iOS.On December 4th, 2018, Flutter 1.0

was released at the Flutter Live event, denoting the first "stable" version of the Framework. Later on February 26th 2019, Flutter 1.2.1 was released which is the latest stable version.

There are three main reasons which made Flutter to be used as technology. The reasons are as follows:

Fast Development:

Paint your app to life in milliseconds with stateful Hot Reload. Use a rich set of fully-customizable widgets to build native interfaces in minutes.Flutter's *hot reload* helps you quickly and easily experiment, build UIs, add features, and fix bugs faster. Experience sub-second reload times, without losing state, on emulators, simulators, and hardware for iOS and Android.

Expressive and Flexible UI:

Quickly ship features with a focus on native end-user experiences. Layered architecture allows for full customization, which results in incredibly fast rendering and expressive and flexible designs.Delight your users with Flutter's built-in beautiful Material Design and Cupertino (iOS-flavor) widgets, rich motion APIs, smooth natural scrolling, and platform awareness.

Native Performance:

Flutter's widgets incorporate all critical platform differences such as scrolling, navigation, icons and fonts to provide full native performance on both iOS and Android. Flutter's widgets incorporate all critical platform differences such as scrolling, navigation, icons and fonts to provide full native performance on both iOS and Android.

Dart Programming Language:

- Dart is a general-purpose programming language originally developed by Google and later approved as a standard by Ecma (ECMA-408). It is used to build web, server, desktop, and mobile applications.
- Dart is an object-oriented, class defined, garbage-collected language using a C-style syntax that transcompiles optionally into

JavaScript. It supports interfaces, mixins, abstract classes, reified generics, static typing, and a sound type system.

- Dart is designed by Lars Bak and Kasper Lund in 2011.
- A Dart program takes ".dart" extension.

Android Studio:

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems.It is a replacement for the Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development. Android Studio was announced on May 16, 2013 at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014.The first stable build was released in December 2014, starting from version 1.0.

XCode:

Xcode is an integrated development environment (IDE) for macOS containing a suite of software development tools developed by Apple for developing software for macOS, iOS, watchOS, and tvOS. First released in 2003, the latest stable release is version 10.2 and is available via the Mac App Store free of charge for macOS High Sierra and macOS Mojave users.Registered developers can download preview releases and prior versions of the suite through the Apple Developer website.Xcode supports source code for the programming languages C, C++, Objective-C, Objective-C++, Java, AppleScript, Python, Ruby, ResEdit (Rez), and Swift, with a variety of programming models, including but not limited to Cocoa, Carbon, and Java. Third parties have added support for GNU Pascal, Free Pascal,Ada, C#, Perl, and D.

Hello QR has two modules they are Scanner and generator

Module 1.Scanner:

QR Scanner is the first module of Hello QR.It is responsible for the perfect scanning of QR Codes.As this application was built using Flutter framework and it provides many wide methods related to QR codes,among them we use scan( ) method to scan the QR code and variety of packages,"qr_flutter" is one of the packages.This package contains all the required methods related to QR Code and url_launcher is used to redirect the links.

Module 2. Generator:

Not only sharing but also generating a QR code is an additional feature of Hello QR.This module is also done using Flutter Framework.It provides many packages and this particular module imports a package called "qr_flutter". QRImage is a widget to generate and display QR Code in Flutter.After generating QR Code sharing it also comes under this module only. The main purpose of creating QR Code is to share with others and this can be done using different sharing applications installed in your phone.

Conclusion:

So, I here by I conclude that Hello QR is very useful and powerful application which is able to bring a gradual change in the marketing system. And it was tested with hundreds of test cases. Because quality is prepotional to testing.

References:

[1] https://flutter.dev/ https://www.dartlang.org/

[2] https://en.wikipedia.org/wiki/Android_Studio

[3] https://en.wikipedia.org/wiki/Xcode

[4] https://link.springer.com/chapter/10.1007/978-3-319-95282-6_31

[5] https://pub.dartlang.org/packages/qr_flutter https://pub.dartlang.org/packages/url_launcher