QR Code Based Microtransaction

GROUP MEMBERS

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About The Members

▶ **Ramsha (33062)**

 Main contribution was of all the reporting including the research paper and also contributed in overall project.

▶ **Sana Saeed (33060)**

 All the coding related to database and front end moreover contributed in backend coding too along with equal participation in research paper

▶ **Misbah Aslam (33188)**

 Main contribution in backend coding along with equal participation in report work

Introduction

► We plan to bring about a collateral change in our society just like how Careem and Uber did. They challenged decades old industries and won them over. Our goal here is to transform the local payment system in Pakistan and enable people to pay for every small thing with just their phone so that we can save our time.

► QR code stands for quick response and for the last few years, most people quick response to seeing a QR code is to move right along, expecting little more than a redirect to a marketing website. QR codes quickly went through a phase of near ubiquity after they went mainstream, however there often just wasnt much substance to the content they linked users to, and people stopped taking QR codes seriously. But, sometimes, it just takes a little time and innovation to make the most of a new technology.

QR codes are coming back in a big way, facilitating mobile payments for users around the globe.

Problem Statement

The problem is how to make cashless transaction .How will the transaction be handled through QR code ? Will it be applicable for all type of smartphones? Now Use of smart phones has increased rapidly and making use of this opportunity we introduce an app which will help people get rid of carrying cash around everywhere for small daily transactions.

Our goal here is to transform the local payment system in Pakistan and enable people to pay for every small thing with just their phone so that we can save our time.

State of the art

Some well-known existing solutions to this problem are as follows:

QR PAY

QR Pay is a specialist technology company that focuses on the new and thrilling area of Mobile Payments and QR Codes.

MasterPass

Master pass QR is a new payment solution that allows consumers to pay for goods and services using mobile phones at merchant outlet. Master pass QR is secure, smart and simple,providing a gainful alternative to cash payments**.**

Easypaisa

Easypaisa is a Pakistani mobile wallet, mobile payments and branchless banking services provider. It also provides digital payment service through QR code in partnership with MasterPass**.**

Proposed Solutuion

▶ **Motivation**

In Pakistan even the small vendors on the side of roads has smart phones and despite being illiterate they know how to use at least all of the applications, keeping in view the current situation we plan to launch an application for money transaction that can help the vendors mostly, as well as all the people that gets engaged in everyday transaction, the app will help them make cash free transactions. Moreover QR code transaction helps improve customers relationship with the help of QR code a kind of track record is created which also plays an essential role in maintaining customers relationship between vendors vs. customers and between developers vs. users(i.e. customers and vendors), strong relationship creates loyal customers.

▶ Challenges

Most of the population has smart phones, even then the smaller percentage that do not have this facility cannot be ignored, this lack of facility is a challenge for our project.

Another challenge to attract the customers is that our app will not be pre-installed any device the application needs to be installed which sometimes is hectic for most of the customers. Moreover being developer we also faced many challenges for the creation of QR code, being beginner in this field we were not well aware of android studio in the first place, after thorough studies and research we got to know that there are already libraries in android studio which helps create the QR code according to our own requirements. While developing this app we being developers have in mind all the challenges that occurs in the present as well as future and one of the future challenge is that if the customers have a few bad experiences with the transaction they are less likely to use the app in future.

► Aims and Objective

We are three members in our group and we have evenly distributed our task for developing this application. This application contributes allot in the society by bringing a collateral change just as Careem and Uber did. Our application will help all those who are tired of carrying cash everywhere along with them. We expect to give the cash free environment, where everyone including from big malls to small tea stalls will be using this facility, which is already happening in china, wherever renting a bike you just need to use QR code scanning for the transaction. The procedure of having digital accounts will be further discussed in this report.

▶ **Methodology**

We will be using Android studio for our front and back end of the application, the data will be stored by the help of firebase which is a built-in database in the android studio and we are also using QR code which is fast and secure in use. The reason of using this technique is to secure our transaction as well as to get the payment fast. Our team chose the Java language for the current project because it is easy to use and compatible for the QR scan project moreover our team have much understanding to this language. This language is used in both software and web development which is an Open Source Code programming language and therefore helps to give good insight into the language, it enforces an object-oriented programming model.

Java can be used to create complete applications that may run on a single device or be distributed among multiple devices and our project is to make and android app for which we must use this language.

Benefits and Outcomes

The distinct advantage that QR code payment has over NFC in the mobile payments space is that it is incredibly efficient and straightforward. The Nation breaks down the benefits of QR payments: "One unique feature which the QR-based payment system provides is its ability to support more than one user at any given time. Moreover an additional feature would be of requesting loan on a single click, where one user is out of money so he or she does not have to follow all steps of depositing in case of emergency.

A digital savings account can be opened in a single name only and cannot be operated jointly, so digital accounts are very beneficial. One person can open only one digital savings account in his name. That is how digital accounts of our own will help us in many aspects such as privacy and convenience etc.

To improve customer satisfaction, we wanted to digitize micro transactions with Mobile QR Codes. It will help save time and moreover the need of carrying cash and credit cards everywhere for even small transactions, our app will be providing a digital account for each customer where user will also be able to check there available balance and history of past transaction as well.

Target Market

► Food, livestock, agribusiness, Textiles, clothing, footwear Entertainment, tourism, sport/recreation

Technology used

There are two type of technologies that are core to our project
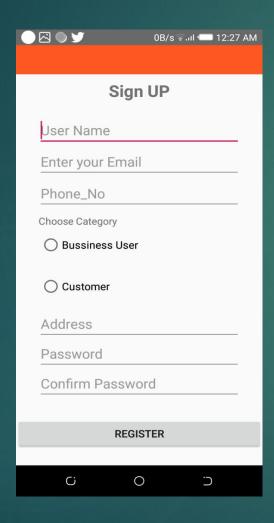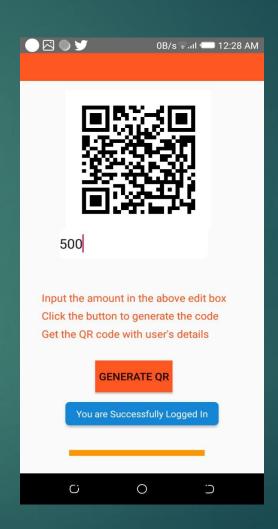
▶ **Internet of Things**

The Internet of Things consists of any device with an on/off switch connected to the Internet. This includes approximately anything you can think of, range from cell phones to structure maintenance to the jet engine of an airplane. Medical devices, such as a heart monitor can move data over a network and are members the IOT. If it has an off/on switch, then it can, hypothetically, be part of the system.
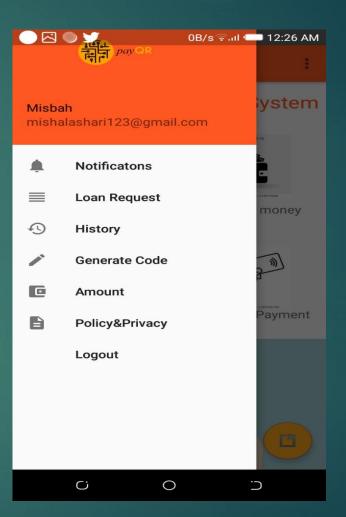
▶ **QR (Quick Response)**

A QR code (short for quick response code) is a type of barcode that contains a matrix of dots. It can be scanned using a QR scanner or a smartphone with built-in camera For example, scanning a QR code with your phone might open a URL in your phone web browser.
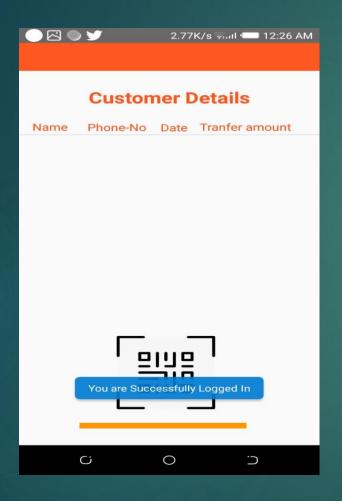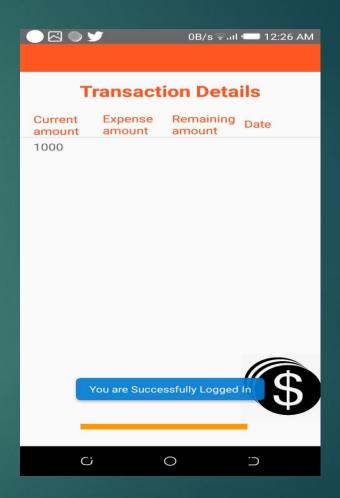
Snapshots of the Interface

Business Canvas Model

Business Canvas Model

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
1-The top problem is robbery from small eating places. 2-Security is also a big problem. 3-Crowd of people while dealing with shopkeeper.	We can overcome this problem by QR Code Transaction, that we are currently working on. 1- It can safely transfers the money. 2-QR code has good fault tolerance. 3-It is fast in performance and in 1 minute it can scans 100 QR codes	Our App basically facilitate not only the elite restaurants but also the small eating places, and that they can make their lives easier. The user can request for loan to his friend even from remote location with the help of app.	1- Monitoring through proper channels to avoid misuse 2-Legal tax paying routine. 3-Unique Algorithm or the equation. 4-Copyrights	The target Customer are those customer categories who go to eatery, they can be teachers, office workers and students users of smart phones. The Customer scans the code and it will automatically transfer to the receiver account.
	Key Metrics 1-The app should generate QR code that contains the calculations of adding and subtracting the balance. 2-The app should scan QR code and complete transaction. 3-The user should be able to withdraw from or recharge the digital account by any means .		**Channels** 1-Advertisement 2-Bill Boards 3-Those who are already customers are provided with discount coupons so they invite others. 4-Seminars	

Cost Structure	Revenue Streams
hosting cost=0 Distribution Cost=0 Other Costing Structure is 5000PKR ,5000PKR	Revenue stream is 0 because initially we are working on prototype, No Gross Margin It is short term Project

Conclusion

Of late, QR codes are gaining wide usage in the business sector, with employment basically in the payment systems. The drive to a cashless society makes this the most advanced technologically and most convenient contactless payment method. One needs to use a smartphone application for them to scan, store and share their code scans for purchases, making the payment process for business and individual a lot more easy.

And it takes not much to use the QR codes, no need for special equipment. Once you enter any outlet or store, and you find a QR code of any amount, you just scan it using the smartphone application and be in position to access all the information stored in the code.