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# **Pre Development Document**

**of**

# **Multipurpose Instant Messaging**

# **Software**

**Version 1.0.0**

**11 May, 2021**

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## Revision History

Name	Date	Reason For Changes	Version
Initial Copy	11/5/2021		1.0.0

# **1. Introduction**

## **1.1 Purpose**

The purpose of this document is to describe the software requirement specifications for WeChat Clone Software – phase 1.

Prospective developers, technical-assessment personnel, and interested end-users are the intended audience of this SRS document.

## **1.2 Product Scope**

The proposed system – WeChat Clone software presents a multipurpose smartphone application, going beyond the features offered by the recent similar type of applications. The multipurpose platform integrates a variety of services such as messaging, socialization, and mobile payment services, and steadily expands its functionality by integrating new services such as city services allowing users, e.g., to book transportation, delivery system etc.

In the context of social media use, the core functions of the proposed application include messaging services with other users and/or sharing photos/videos via the moments function.

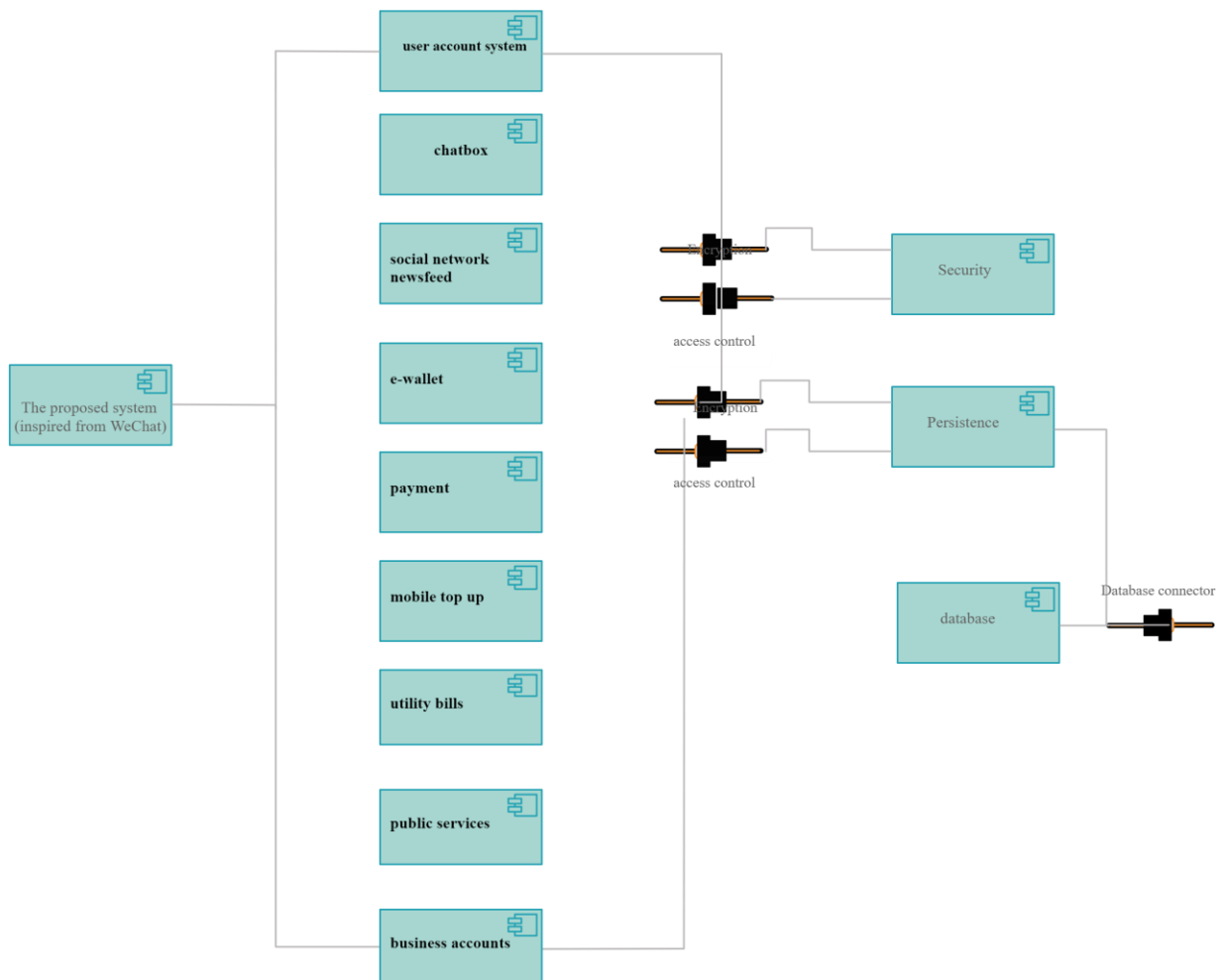
# **2. Overall Description**

## **2.1 Product Perspective**

WeChat is a multipurpose messaging and social media app released by Tencent. The platform comes with countless features that make WeChat much more powerful and advanced than any other social network. At present, WeChat is the largest social network in China which can count on a user base of over 1 billion customers. Since other popular social network platforms, like Facebook, are blocked in China, WeChat is a critical marketing channel for companies in China.

The proposed application in this SRS is a system inspired from the WeChat. The proposed system can be used by users for messaging functions as well as for buying goods and services, transferring money, delivering products, marketing purposes, and a lot more.

**COMPONENT DIAGRAM OF**  
**The proposed system**  
**(inspired from WeChat)**



**Figure: Component Diagram**

## 2.2 Product Functions

The proposed system is a multipurpose platform, its offering various types of services to the user. Mostly it is a instant messaging application, which supports text messaging, audio call, video call and also voice message. Besides the proposed system offers some valuable features to make a good impact on the user's life such as e-wallet including payment, bill pay, mobile top-up, etc facilities.

The proposed features of this system:

### 1. User account

- a. Sign in to the account with mobile number and password
- b. Sign up to the system to create an account – providing region, mobile number and password information.
- c. After verification by OTP code the user can create an account in this system.

### 2. Chatbox

- a. The proposed system supports both single person chat and group chat.
- b. Users can make instant text messages, voice messages, audio calls and video calls.
- c. Users can share files like pdf, doc file, etc through this messaging feature.
- d. Users can share media files like images, videos etc through this feature.

### 3. Social network newsfeed

- a. In this feature the users can share post or story on their newsfeed.
- b. One's newsfeed only can be seen by their contacts people.
- c. Users can share their newsfeed to other social media like facebook, twitter, etc.

### 4. E-wallet

- a. E-wallet refers to a digital wallet which will allow users to add money to the wallet from their bank account or others e-wallet.
- b. Users can cash out their money from the wallet.
- c. Users can send money to others e-wallet.
- d. Users can view their balance statement, transaction history.

### 5. Payment

- a. Users can make payments through this proposed system.

- b. Users can pay their various types of payments by scanning QR code or instant pay system.
- c. This payment system is secured and fast.

#### **6. Mobile top-up**

- a. Users can recharge their mobile through this proposed system.
- b. Users will select their operator from the list, enter the amount they want to recharge, and can make the recharge successful by OTP verification process.

#### **7. Utility bills**

- a. Users can pay their utility bills through this proposed system.
- b. Users will select their preferable utility services providing name or type, then entering A/C no or others information users can pay the bills easily.
- c. Users can track the transaction history, and can get a receipt for each transaction.

#### **8. Public services**

- a. Through this public services feature, users can get some services like, ride sharing, delivery system.
- b. These services will work as mounted app in this system.

#### **9. Ecommerce product showcase**

- a. In this feature users can view the ecommerce products.

#### **10. Business accounts**

- a. The merchants can create business accounts through this proposed system to maintain their businesses.

### **2.3 User Classes and Characteristics**

1. Users, who wants instant and secured messaging system.
2. Users who wants to share their lifestyle with others through their newsfeed.
3. Merchants and normal users who wants a secured and easy-to-use e-wallet system.
4. Businessman who needs business accounts for their organization.
5. Less earning people who has no bank account but wants to save money and make transaction online.
6. Users who loves shopping or buying products online.
7. Users who wants to share rides.

8. Users who wants to deliver their products through a delivery system.

Mostly this app is a multipurpose platform, so every stage of people needs this proposed system.

## 2.4 Operating Environment

The proposed system will be developed on nodeJS (Backend). For instant messaging, node socket system will be used, for audio calls and video calls node stream system will be used. So this technology supported by Android and iOS. So minimum smart phone including android or iOS basic versions operating system will be required to run this proposed system peacefully.

## 2.5 Design and Implementation Constraints

In this proposed system technology plays an important part to secure, fast and make functionalities more easy to use.

MongoDB, NoSQL database will be used to make data driving more smooth and fast. This will be a challenging part for this proposed system to ensure storage availability and secured data transactions.

As this proposed system offers instant real time communication through audio and video calls, it'll be challenging to maintain this live communication through node streaming.

This proposed system allows money transactions, so it is a basic need for this proposed system to ensure high class security.

## 2.6 User Documentation

For each features there will be some instructions on how to use the feature.

### ➤ Account creation

For creating an account there will be some instructions on the application to be followed by the user to create an account.

### ➤ Chatbox

For each and every element of chatbox, user will get an instruction for the first time when they open it.

### ➤ Social network newsfeed

User will get a video tutorial on 'how they can use newsfeed feature'



➤ **E-wallet**

When a user will connect their e-wallet with their bank account or create an e-wallet with their mobile phone they will get a video tutorial.

➤ **Payment**

For each payment, user will get an option to view video tutorial.

➤ **Public services**

For ride sharing and delivery system, user will get descriptive hints on each step of the process.

## **2.7 Assumptions and Dependencies**

In this SRS, mentioning features, public services including ride sharing and delivery system. Those systems are like mounted app on this proposed system.

## **3. External Interface Requirements**

### **3.1 User Interfaces**

#### **1. Same UI and Business Logic in All Platforms**

Flutter doesn't need any platform-specific UI components to render its UI. The only thing Flutter needs to show the application UI is a canvas to draw onto.

#### **2. Custom, Animated UI of Any Complexity Available.**

### 3. Simple Platform-Specific Logic Implementation

Besides the UI, many real-life mobile applications rely on advanced OS-level features, such as fetching GPS coordinates, Bluetooth communication, gathering sensors data, permission handling, working with credentials, etc. Many of these are available when developing a Flutter application through a ready-to-use plugin supported by Google.

## 3.2 Hardware Interfaces

Android app that supports all kinds of versions that are above the 5.1 and up and more.

## 3.3 Software Interfaces

### ➤ Back-End: NodeJS

Advantages of using it:

1. Choose it for its speed, which originates from the V8 engine's unique ability to compile machine code and have it run near instantly.
2. Furthermore, one of its biggest advantages is scalability – the ability to add nodes to existing systems quickly.
3. Stable updates are released regularly.
4. NJS is a cross – platform framework, allowing programmers to build for multiple platforms (desktop, web, mobile).
5. Single-page application
6. The user ultimately gets to see the content faster.
7. Rest APIs
  - a. Server side architecture
  - b. Allows for the creation of responsive, lightweight, and efficient APIs.

As all of the aforementioned solutions involve a large number of users and quick responses. Which are exactly the kind of requirements for our proposed system.

### ➤ Database: MongoDB

- a. Handle Large Volumes of Data at High Speed with a Scale-Out Architecture.
- b. The scale-out architecture of NoSQL systems provides a clear path to scalability when data volume or traffic grows.

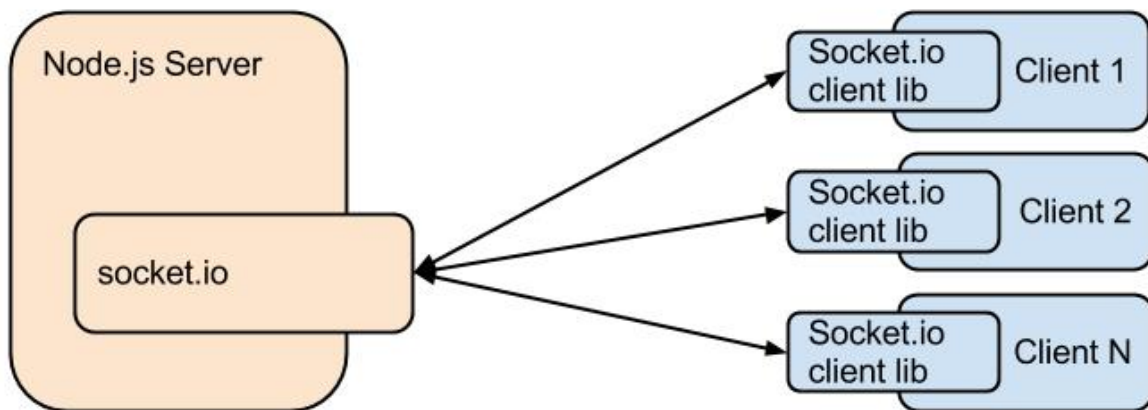
### ➤ Mobile UI Front-End: Flutter

- a. Reduced Code Development Time.
- b. Flutter development framework functions quicker than its alternatives.
- c. Custom, Animated UI of Any Complexity Available.
- d. Separate rendering engine.

### 3.4 Communications Interfaces

#### 1. Chat systems

- Node Socket Interface
  - i. Handling the massive traffic.
  - ii. Maintaining great message delivery speed.



**Figure: Node Socket Interface process**

## **2. Streaming Services**

- Node streaming interface
  - i. Input/output model by NJS makes the live communication very handy for streaming.
  - ii. In particular, Active connections, allow users to upload and download data simultaneously.

## Real-Time Data

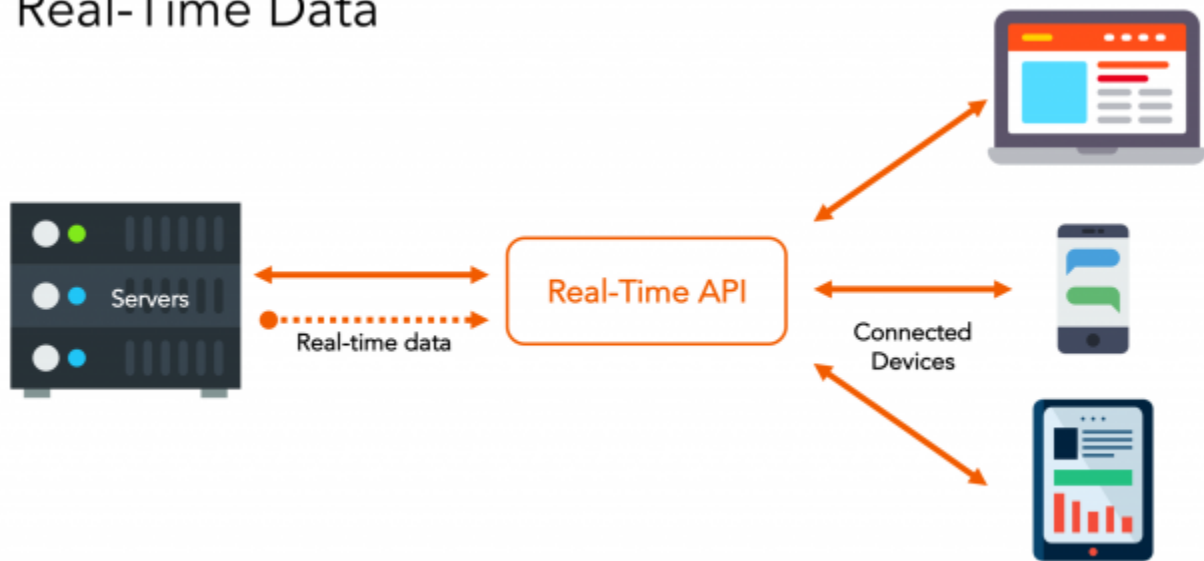


Figure: Node Stream Interface Process

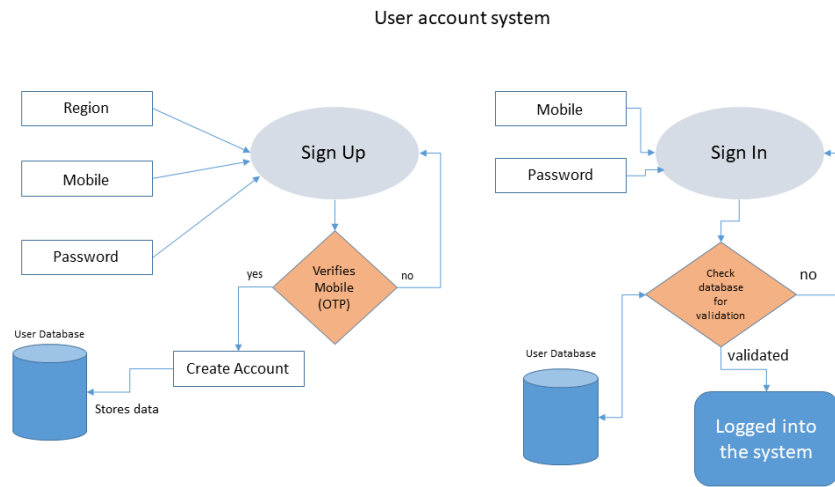
## 4. System Features

### 4.1 User Account System

After downloading and installing the proposed system, the user can sign up for the system with the following ways:

- Sign up with mobile
  - Choosing the region code

- Entering the mobile number
- System will send a OTP code to the mobile number
- After verification the user will get a account in the system.
- set a password



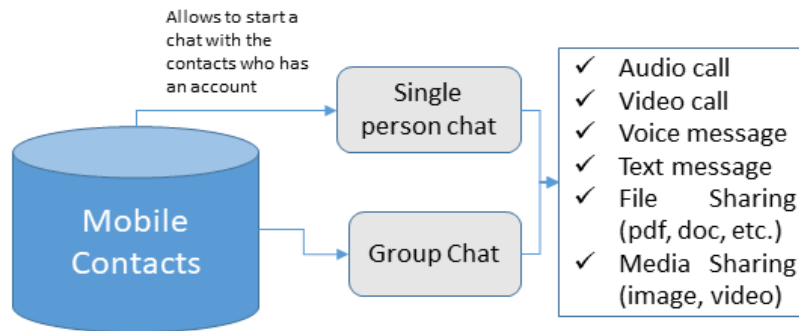
**Figure: User Account System Diagram**

## 4.2 Chatbox

The proposed system allows for the exchanging of messages between users (single person & group chat).

- The messaging functions include text and voice messaging, video calls and conference calls.

## Chatbox

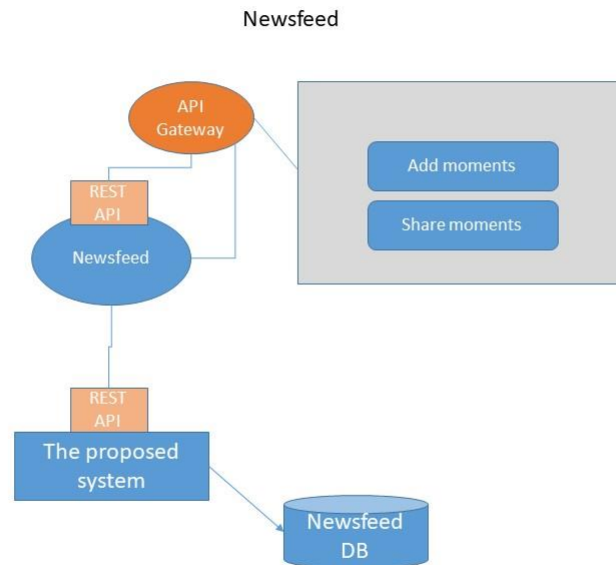


**Figure: Chatbox System Diagram**

### 4.3 Social network newsfeed

User can use the proposed system's Moments to post images and text, share music and to comment on likes with their friends. All the content posted through Moments will be visible only to their group of friends.

There will even an option to link their Moments to a Facebook and Twitter account so that their News Feed will automatically be posted on those two platforms.

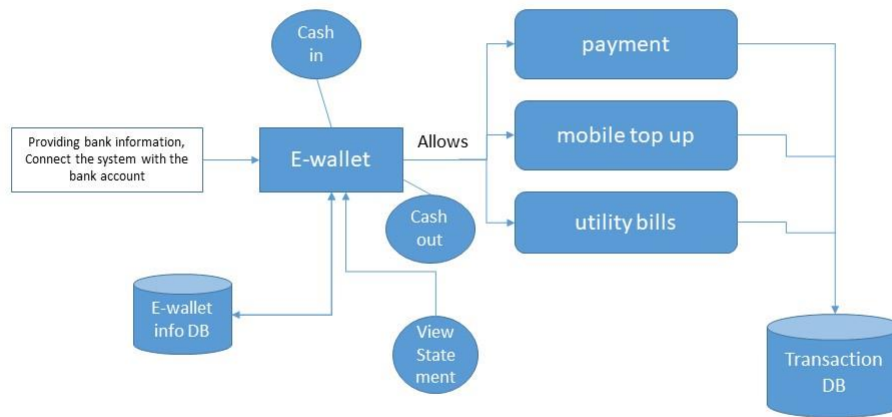


**Figure: Social Newsfeed System Diagram**

## 4.4 E-wallet

E-wallet connects the app with bank account or credit card. Once the E-wallet has been set up, user can use the system to make payments by scanning a code on your mobile device.

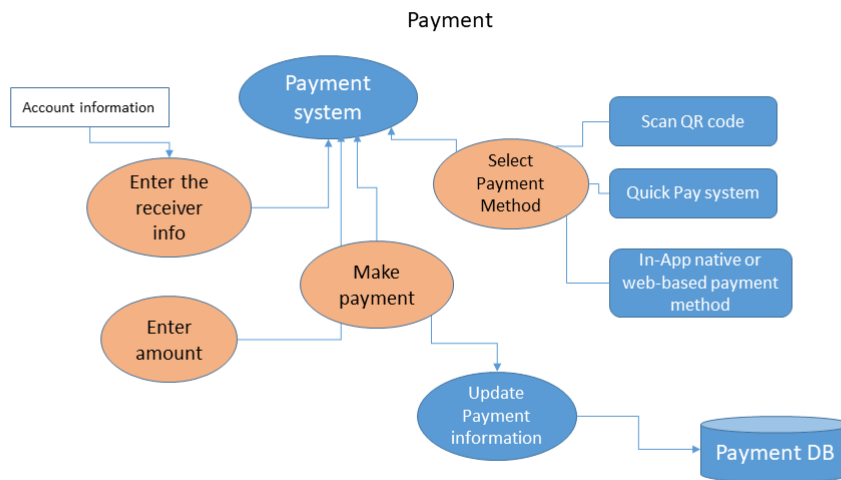




**Figure: E-wallet System Diagram**

## 4.5 Payment

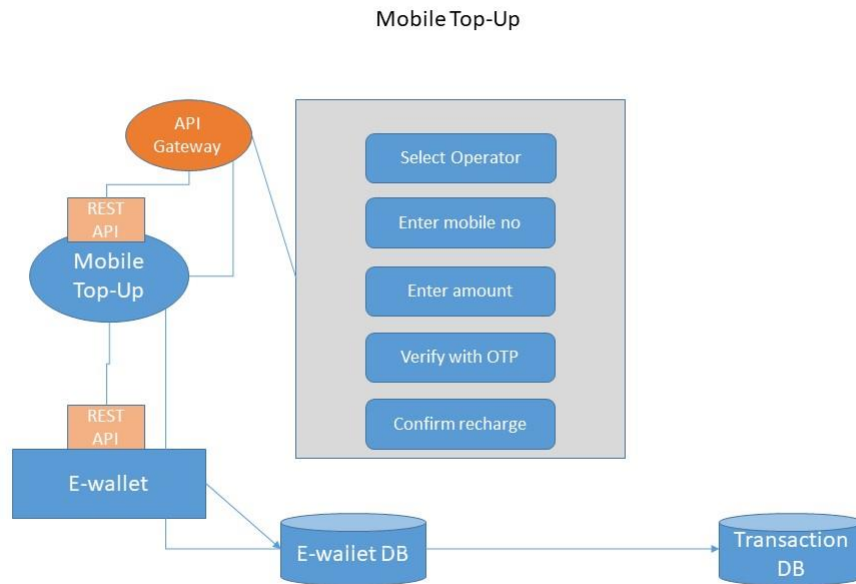
There will be a payment system integrated into the system. It allows the user to complete a payment quickly using a smartphone. The payment can be completed by scanning a QR code, Quick Pay system, In-App native or web-based payment method.



**Figure: Payment System Diagram**

## 4.6 Mobile top up

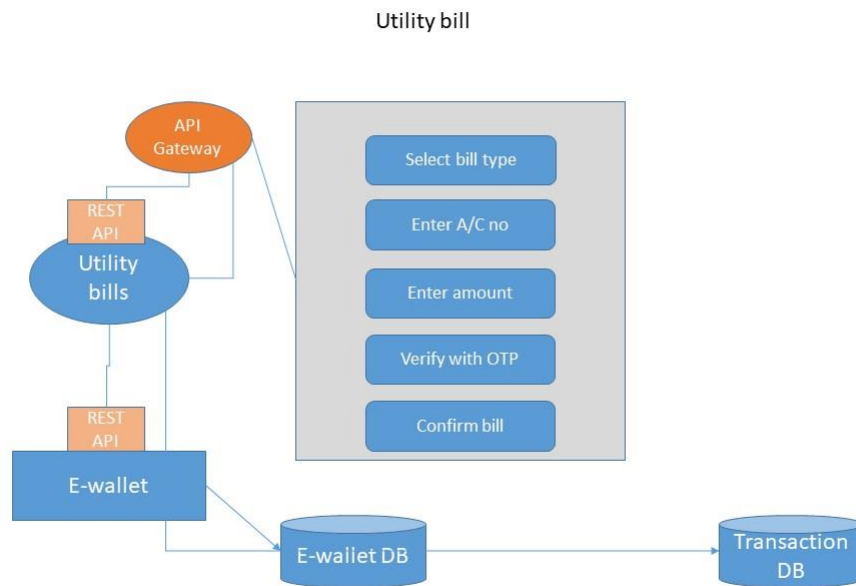
If the user run out of credit on their mobile phone, they don't need to waste their time going to the nearest phone company office. They can simply use the proposed system to top up your mobile phone.



**Figure: Mobile Top-up System Diagram**

## 4.7 Utility bills

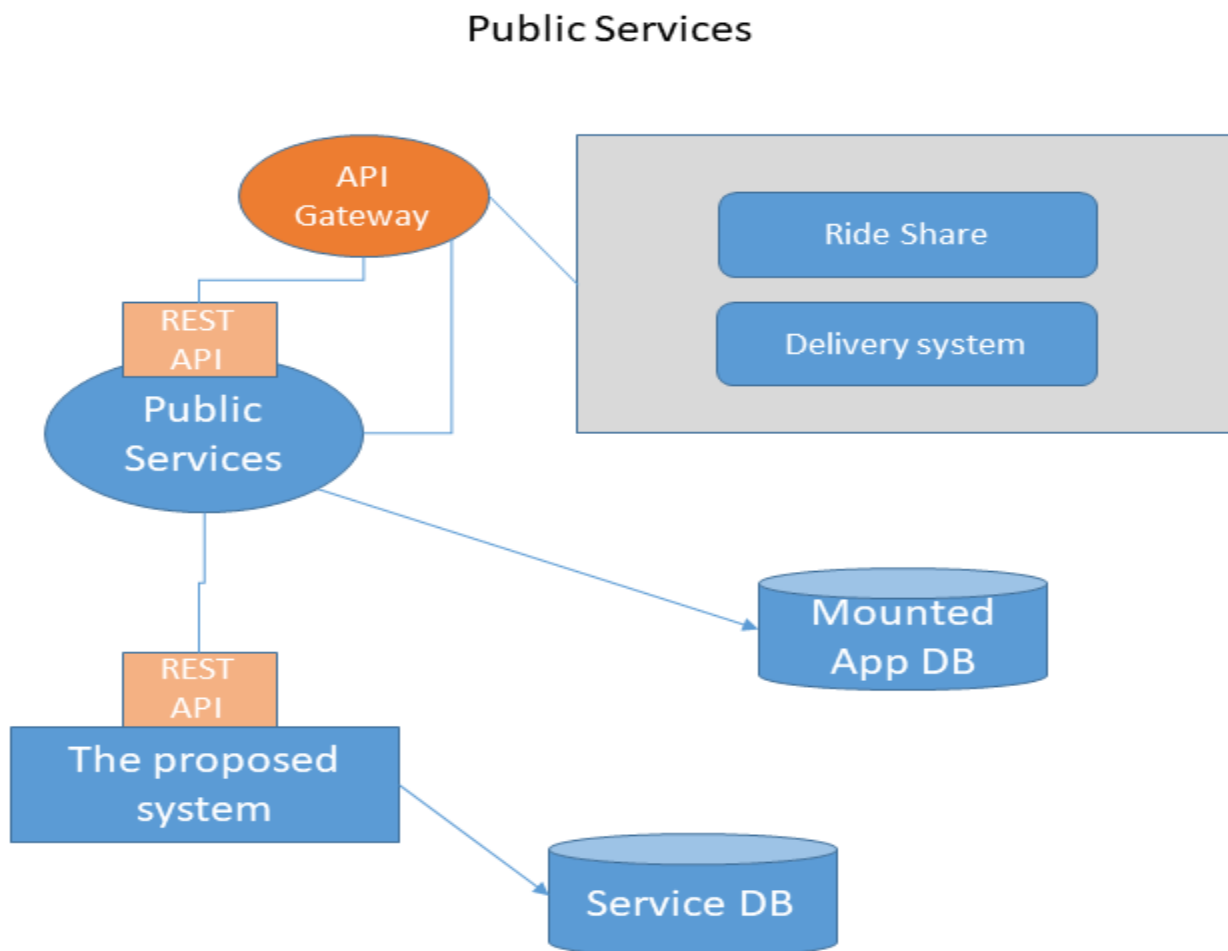
By entering some personal details to activate the service user can use the proposed system to pay their water, electricity, heat, phone and internet bills.



**Figure: Utility bills pay System Diagram**

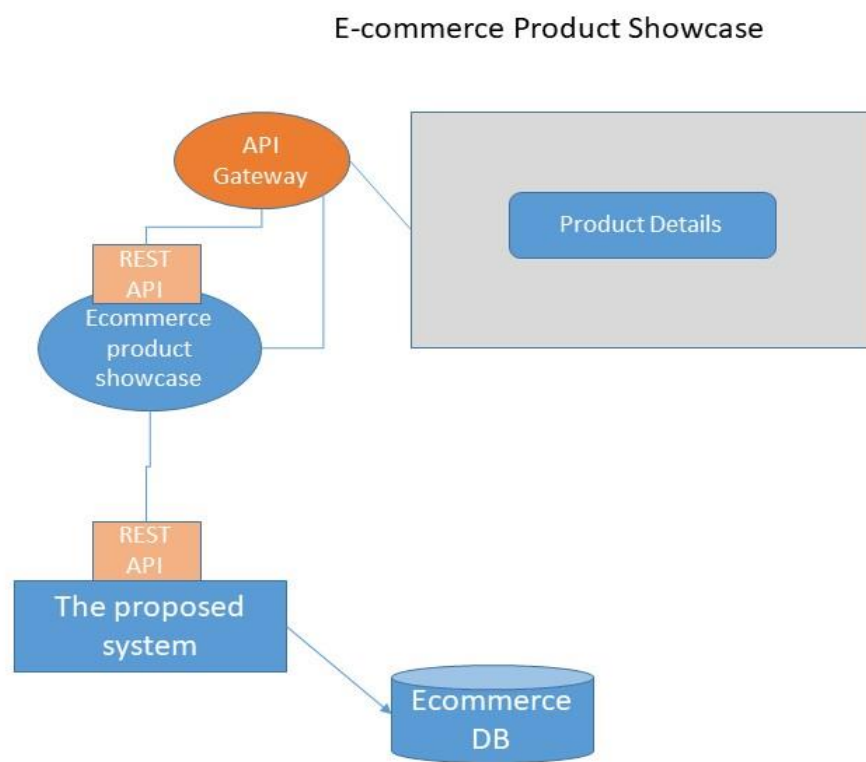
## 4.8 Public services - ride sharing, delivery

This section allows user to have quick access to public services like ride sharing, delivery system.

**Figure: Public Service System Diagram**

## 4.9 Ecommerce product showcase

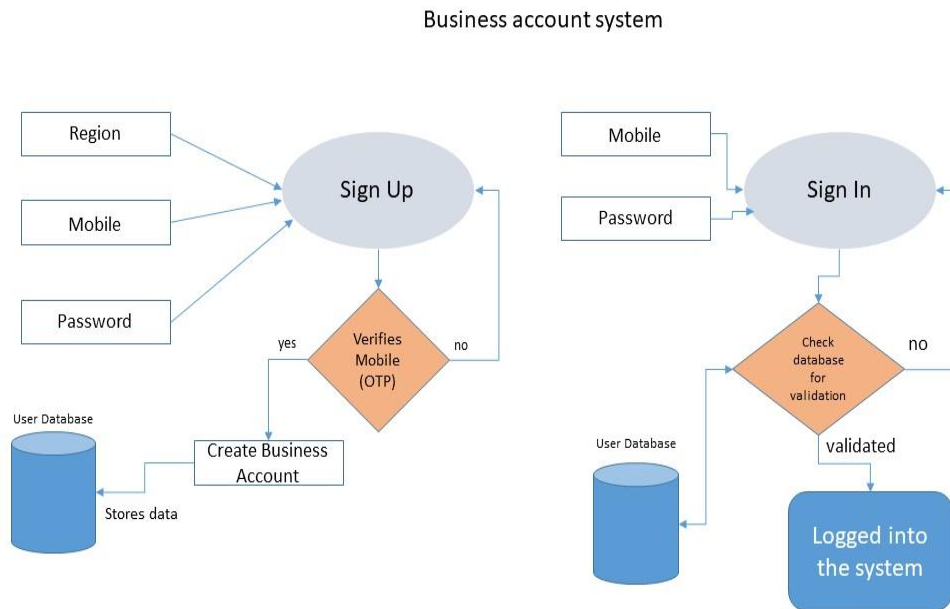
In this feature e-commerce product will be showed

**Figure: Ecommerce product showcase Diagram**

## 4.10 Business accounts

Merchants can create business accounts

**Figure: Business Account System Diagram**



## 5. Other Nonfunctional Requirements

### 5.1 Performance and scalability

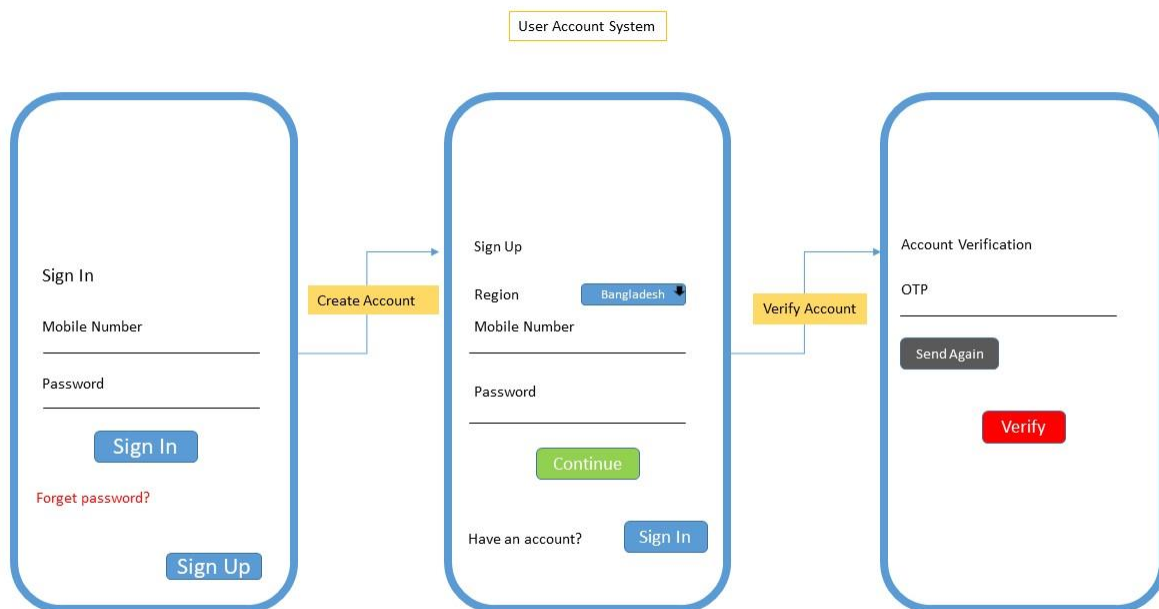
The proposed system requires high performance as there are many real time transactions to be happened. Scalability is an important requirement for the proposed system to maintain massive traffic.

## 5.2 Portability and compatibility

Portability and compatibility are required for the proposed system.

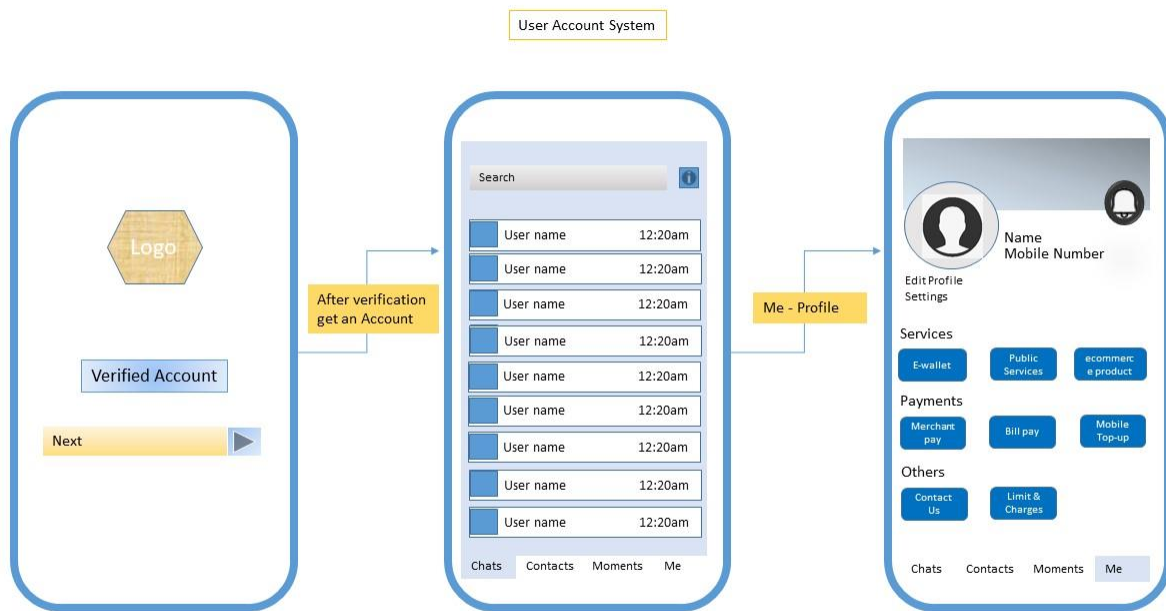
## 5.3 Security Requirements

Money transaction, e-wallet services require security in this proposed system.



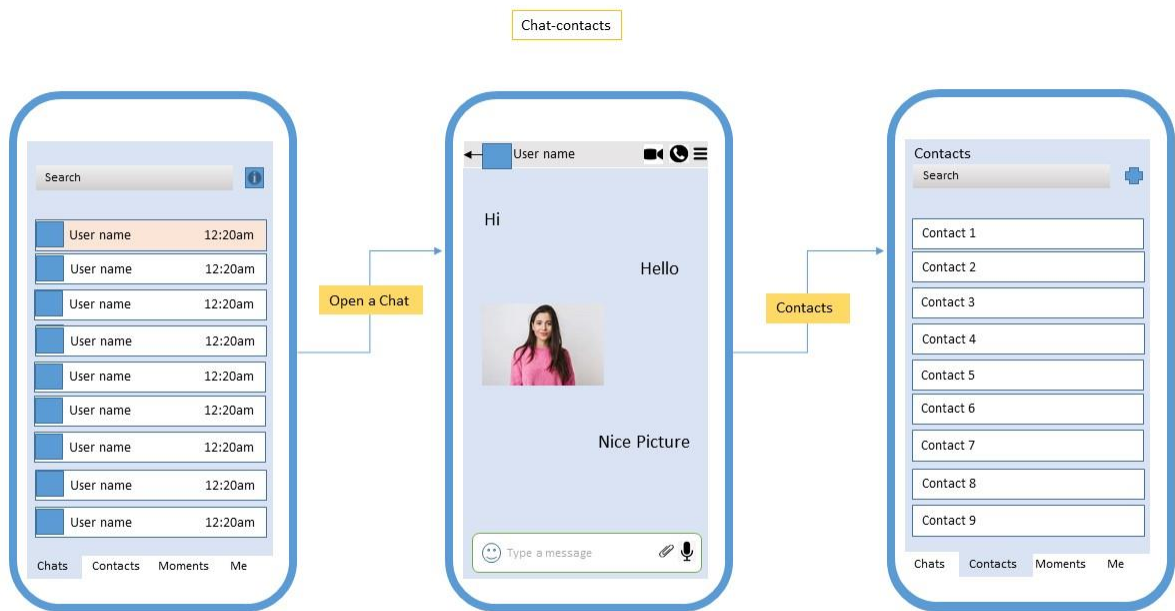
## 6. Proposed system's mockup



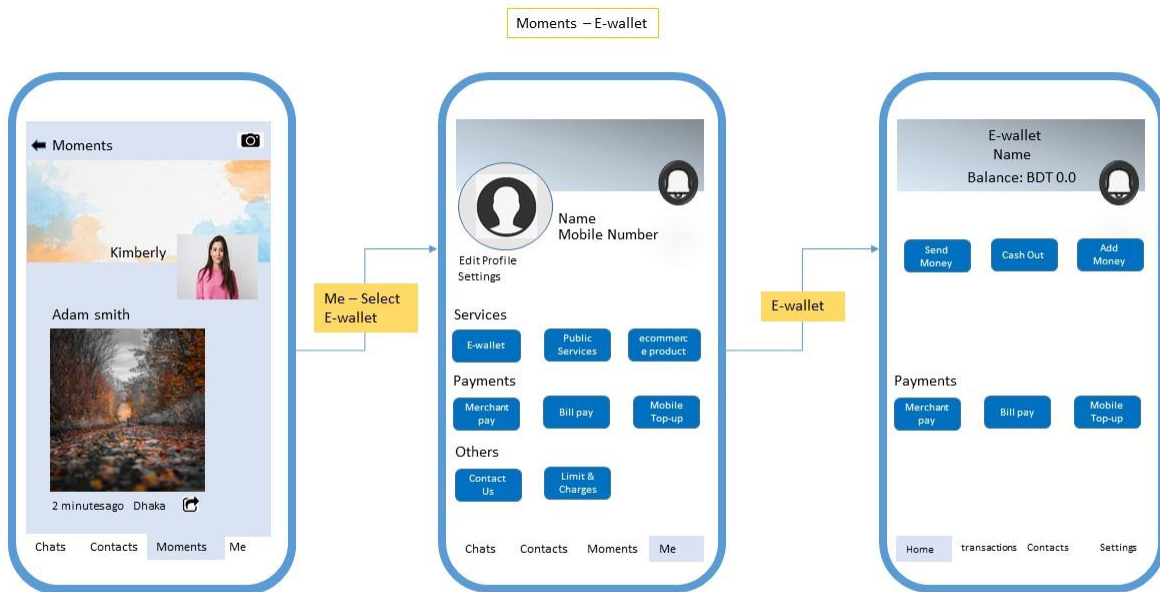


## Mockup: After Verification Account Creation

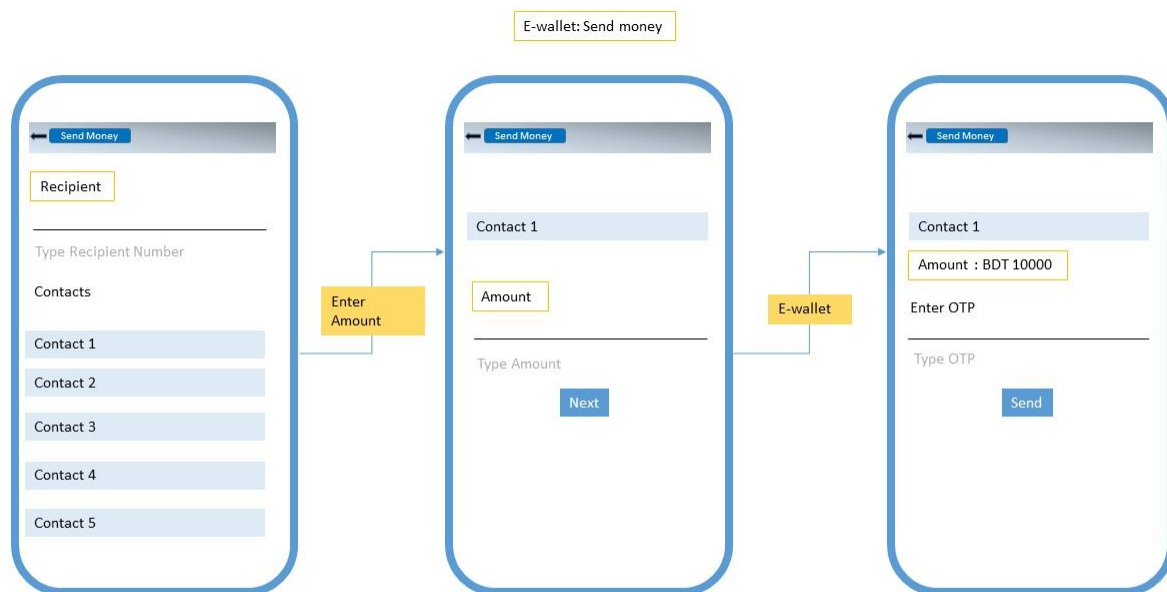




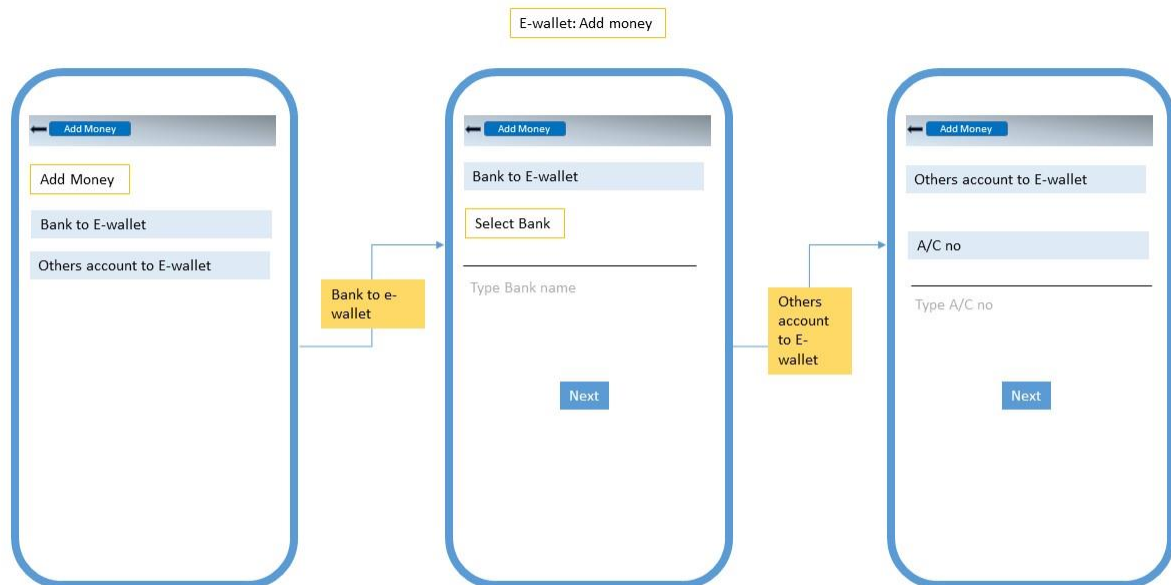
Mockup: Chat - Contacts



## **Mockup: Moments and E-wallet**

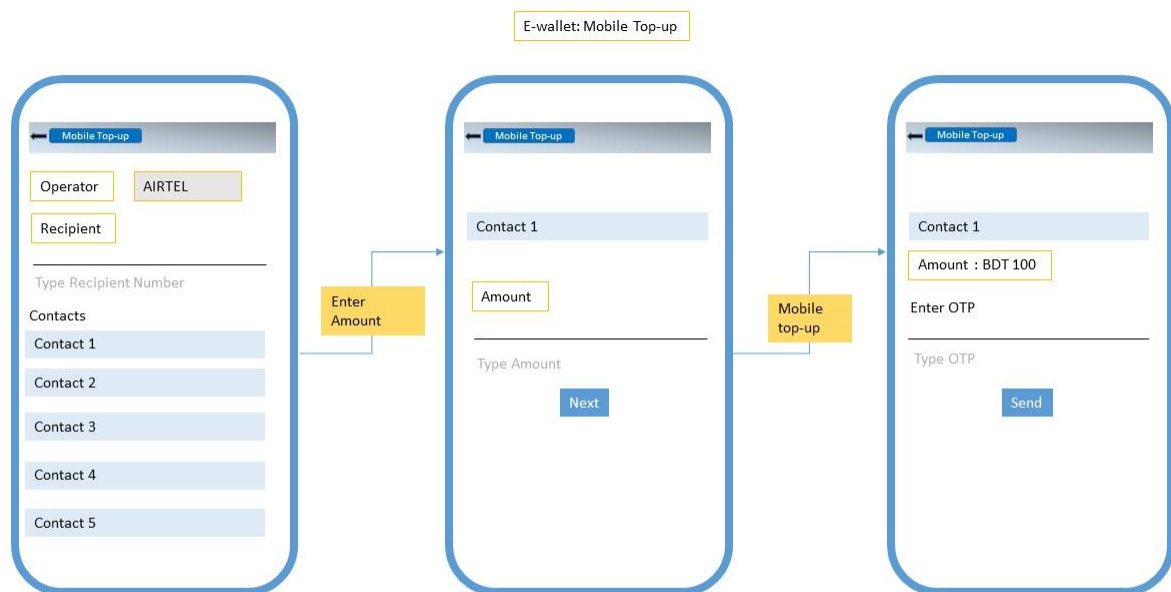


**Mockup: E-wallet Send money**



### **Mockup: E-wallet Add money**



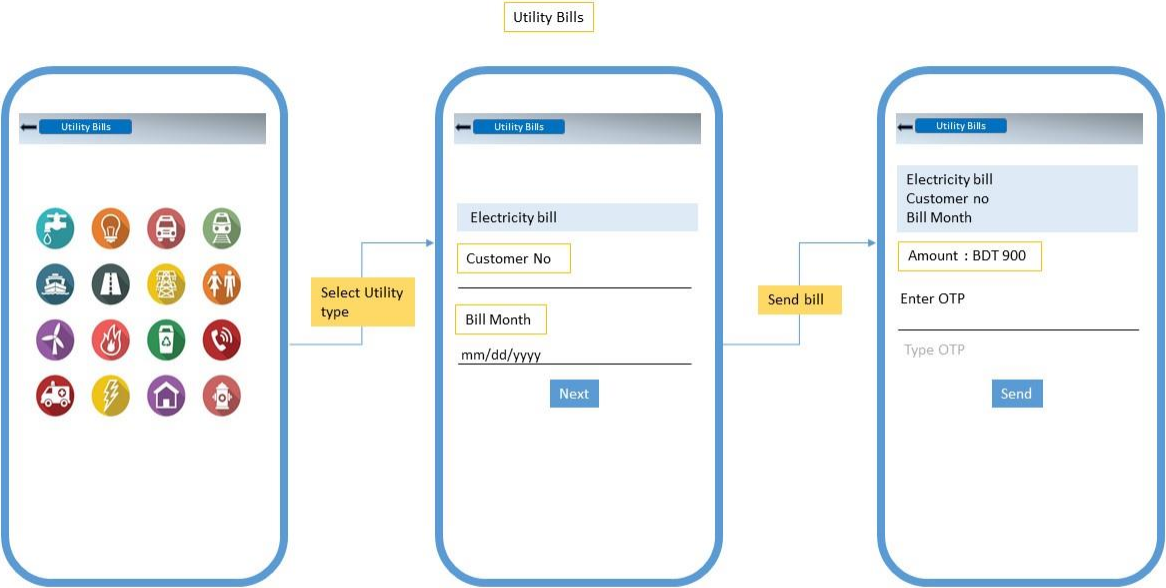


## **Mockup: E-wallet mobile top-up**

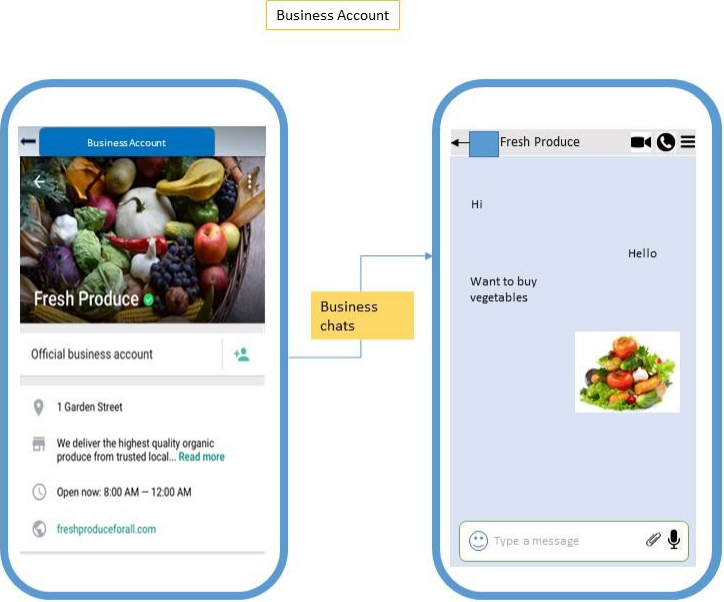
E-commerce Product Showcase & public services



## **Mockup: E-commerce Product Showcase & public services**



## **Mockup: Utility Bills pay**



## **Mockup: Business Accounts**