KRISHOKER HASHI

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Jueal Mia, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

This project is on "**Krishoker Hashi**". This is an android/iOS-based application which needs an android/iOS device to run and this application is a community platform there have mainly three types of features those are Cultivation Method (Fishery, Animal Husbandry, Crop Production), Problem Solution (Fishery, Animal Husbandry, Crop Production), and Other Services (Communication, Question Bank, Usage). This application is more users friendly and so that user can easily find out the features what they need by their smart phone. In the development of this application the most essential elements were computer, an android/iOS device and a mobile application development tool. The development of this application is described in the project report. Using this application user will also get lot of facilities. After development session of this application we have tested it by different user and found it to be a well build application which works perfectly.

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CHAPTER 1

Introduction

1.1 Introduction

Most Bangladeshis acquire their living from agriculture. Agriculture remnant the most essential sector of Bangladeshi economy, contributing 19.6 percent to the national GDP and providing employment for 63 percent of the population. In our country 80% people are associated in the agriculture sector.

As the mobile app is the current tendency in the today's world, each and every domain has android/ios based applications. But it is comparatively less advancement in the technology in the field of agriculture. In this silicon era, where everything is advanced as a software and agriculture being the base of job of our nation, it is necessary that we have a software impact in this field as well. **Krisoker Hasi** will be a revolutionary android/ios based agriculture mobile application, which advice user to catching informed decisions by crack customized agricultural information related to their need. Our agricultural app will also provide instruction of latest technology, tools, methods, price and fertilizer. This project aid dynamic updating and acts as guideline for farmers. An analysis of the current technical movement of our country clearly indicates that there will be many multimedia-based gadgets which will be available at very modest cost and so such products will facilitate even common people like farmers to stay connected. This is the resolute with which this product has been developed. A strategically planned implementation of this product will have wide spread benefits across the agricultural domain.

1.2 Background

As I have stated before, keeping in mind the goodwill of our farmer we have decided to build an application that will provide proper essential information. Following the idea, we build a useful application which contains are Cultivation Method (Fishery, Animal Husbandry, Crop Production), Problem Solution (Fishery, Animal Husbandry, Crop Production), and Other Services **(**Communication, Question Bank, Usage).

Using the Cultivation Method user can easily find how to cultivate in proper way. Using our app user can find important contact list of agriculture officer in contact list section. In Problem Solution area there is already given various type of common problem of agriculture sector and also their solving method.

Finally, in Question Bank, which is the most important & unique feature of our project; here user can easily submit their problem and other user can suggest on that problem.

1.3 Motivation

The main motivation of **KRISOKER HASHI** application is to make a proper and complete agriculture related app. By using this app user can find easily technique and solution of agriculture sector and also submit their problem and get feedback from other users. It also creates user friendly features that helps user to find out how to communicate with agriculture officer easiest way in minimum time. Another motivation is, since our country will move forward to digitalization, so we want bring digitalization in agriculture sector.

1.4 Problem Statement

Without proper internet connection, all the facilities of this app are useless. Beside in case of our country, most of our farmers don't have proper knowledge in technology. So without proper knowledge of using technology they will need to go door to door for help. In server site if net connection isn't strong, then data will not retrieve properly, so user will see incomplete data.

1.5 Project Objective

- Providing proper information about agriculture sector.
- Providing information of diseases of agriculture & solution of those diseases.
- Providing useful contact list of agriculture officer.
- Farmer can easily submit their agriculture related problem in this app.
- After submitting the problem, this app will send the problem as a notification to all users.

1.6 Project Scope

- Providing information regarding Fishery, Animal Husbandry, Crop Production Communication, Question Bank and Usage.
- Designing a database for storing related data.
- Get notification from other users when share's their problem.

CHAPTER 2

Background

2.1 Introduction

We work on the area of Agriculture sector like technique, problem solving, contact list of agriculture officer & most important problem sharing for getting the feedback. Farmer can easily contact with agriculture officer. We have decided to do some work on this area to solve the problem and tried to make it less time consuming.

2.2 Related works

There has been a couple of works in the past regarding BD Agriculture. For example, there are some applications named:

2.2.1 Krishoker Janala

Krisoker janala contains of field crops, vegetables, fruits and other plant, pests, insects, or other reasons, the problem is the shortage of fertilizer; The problem and its solution has been added. Here are more than 120 different crops in 1000 as solutions [1].

Figure 2.2.1: Krishoker Janala

2.2.2 Ajker Krishi

"Ajker Krishi" An e-farming service provider for agricultural entrepreneurs of today's agricultural-generation. The initiative of this "Today's Agriculture" is to give all the information needed at the right time by utilizing IT based on this demand of the times [2].

Figure 2.2.2: Ajker Krishi

2.2.3 Krishi Tottho

“Krishi Tottho” contains of field crops, vegetables, fruits and other plant, pests, insects, or other reasons, the problem is the shortage of fertilizer [3].

Figure 2.2.3: Krishi Tottho

2.3 Comparative Studies

There is some existing application which has some limitations. Most of the applications have some problem. Different applications contain different features but there is no app which contains all features in one application. Such as Contact, Problem Solving and Problem Sharing.

But in one application we provide lots of feature such as Farming technique, Agriculture based technology, Important contact list of agriculture officer, Agriculture related problem solving and Problem Sharing along with Feedback. It also allows phone calling.

2.4 Challenges

Interactive Application:

In software projects one of the major concerns is interactions. Now a day's all the latest device use different types of sensor for offering various features. So, unique and interesting interaction creating will be very complex and time consuming.

Keeping the Application simple and Clear:

Complex apps aren't user friendly, so user will be become fade up of using app & give bade rating. So the functions of the app should be very simple & clear.

Mobile Content Management:

For surviving in mobile app business, content of the app is very important element. So, including rich, gorgeous & unique content such as images, animations is important.

Dealing with the different screen devices:

In app market there is various type of screen ratio devices exist. So our challenge is to keep in mind of various types of existing device for designing an app.

Maintaining the connection with the user:

Mobile application market is changing rapidly day by day. So we should always follow what user want & according to the user needs we should develop our product.

Performance:

One of the important challenges is to design well performing and bug free application which needs minimum charge of battery.

CHAPTER 3

Requirement Specification

3.1 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. it's can identify the different types of user of a system[4].

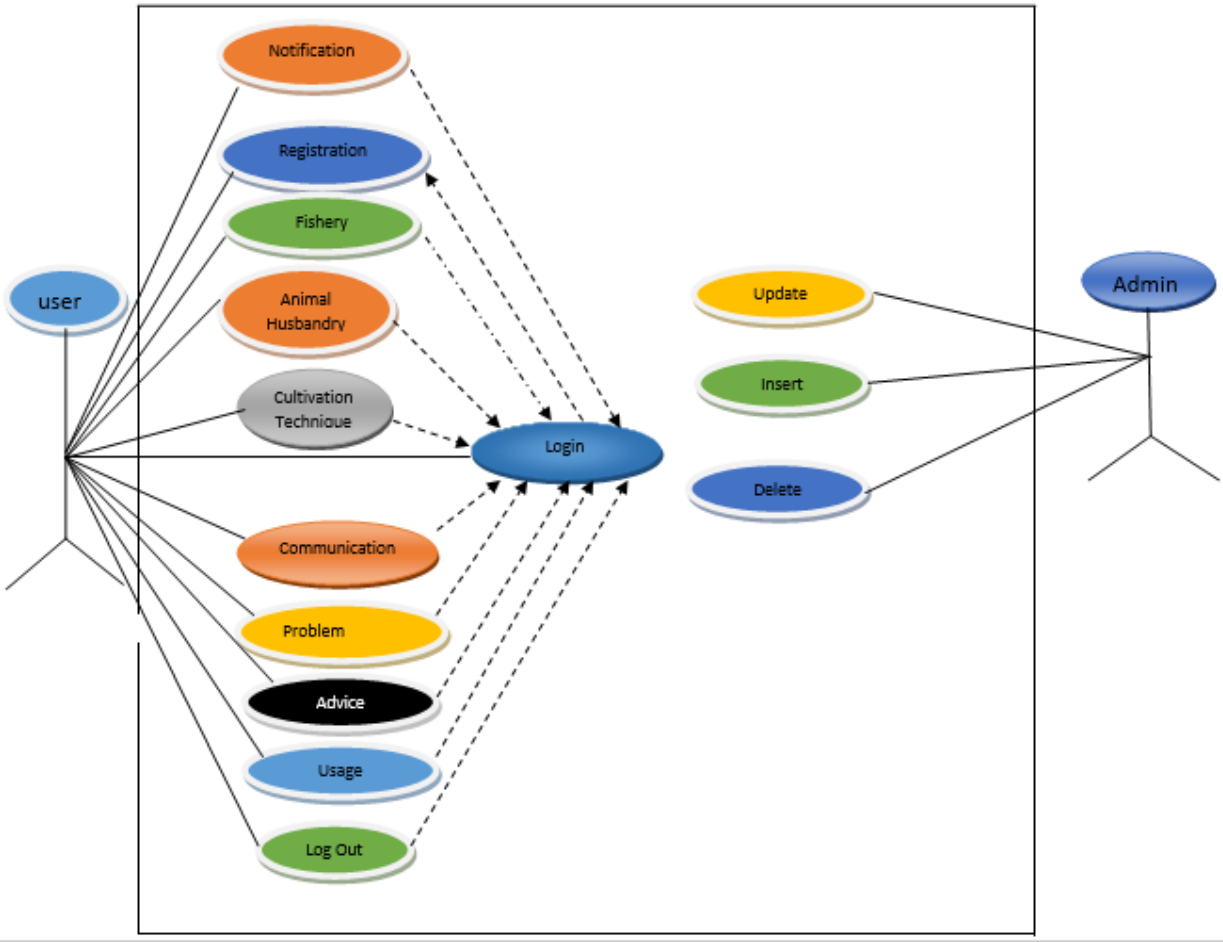

Figure 3.1: Use Case Diagram of Krisoker Hashi

3.2 Use case narrative for User

3.2.1 Registration

Use case: Registration

Actor: user

Pre-condition:

- Android OS/iOS based handset.
- Internet Connection.

Scenario:

- User must create an account to gain access in app by registering.
- User can see the account after registration.

Alternative Scenario: If user does not register then user will not be logged in the app.

Post-condition: Application will be running without an error.

3.2.2 Fishery

Use case: Fishery

Actor: User

Pre-condition:

- Android OS/iOS based handset.
- Internet Connection.

Scenario:

- User can see the information related to fisher

Alternative Scenario: If user does not turn on Internet connection, then user will not be see the item of fishery.

Post-condition: Application will be running without an error.

3.2.3 Animal Husbandry

Use case: Animal Husbandry

Actor: user

Pre-condition:

- Android OS/iOS-based handset.
- Internet Connection.

Scenario:

- User can see the information of Animal Husbandry.

Alternative Scenario: If user does not turn on Internet connection, then user will not be see the item of Animal Husbandry.

Post-condition: Application will be running without an error.

3.2.4 Cultivation Technique

Use case: Cultivation Technique

Actor: user

Pre-condition:

- Android OS/iOS-based handset.
- Internet Connection.

Scenario:

- User can see the information of Cultivation Technique.

Alternative Scenario: If user does not turn on Internet connection, then user will not be see the item of Cultivation Technique.

Post-condition: Application will be running without an error.

3.2.5 Communication

Use case: Communication

Actor: User

Pre-condition:

- Android OS/ios based handset.
- Internet Connection.

Scenario:

- User can see the contact list of agriculture officer according to division of bd.
- User can make a direct call or send message or mail to the agriculture officer.

Alternative Scenario: If user does not turn on Internet connection, then user will not be seeing the Contact List of officers.

Post-condition: Application will be running without an error.

3.2.6 Problem Sharing

Use case: Problem Sharing
Actor: User
Pre-condition:

- Android OS/iOS-based handset.
- Internet Connection.

Scenario:

- User can share their problem along with picture or video file.
- User can comment on problem sharing post.

Alternative Scenario: If user does not turn on Internet connection, then user will not be able to share their problem.

Post-condition: Application will be running without an error.

3.2.7 Advice

Use case: Advice

Actor: User

Pre-condition:

- Android OS/ iOS-based handset.
- Internet Connection.

Scenario:

- User can submit their suggestion on problem sharing post.

Alternative Scenario: If user does not turn on Internet connection, then user will not be able to submit their suggestion.

Post-condition: Application will be running without an error.

3.2.8 Usage

Use case: Usage

Actor: User

Pre-condition:

- Android OS/ iOS-based handset.
- Internet Connection.

Scenario:

- User can find necessary guideline of using this app.

Alternative Scenario: If user does not turn on Internet connection, then user will not be able to see the guideline.

Post-condition: Application will be running without an error.

3.3 Business Process Model (BPM)

Business process model is the operation of show up processes of an enterprise, so that the present process may be resolved, improved, and automated. The term 'business model' is thus used for a spacious range of unceremonious and ceremonious descriptions to show up core perspective of including motive, operational processes and policies [10].

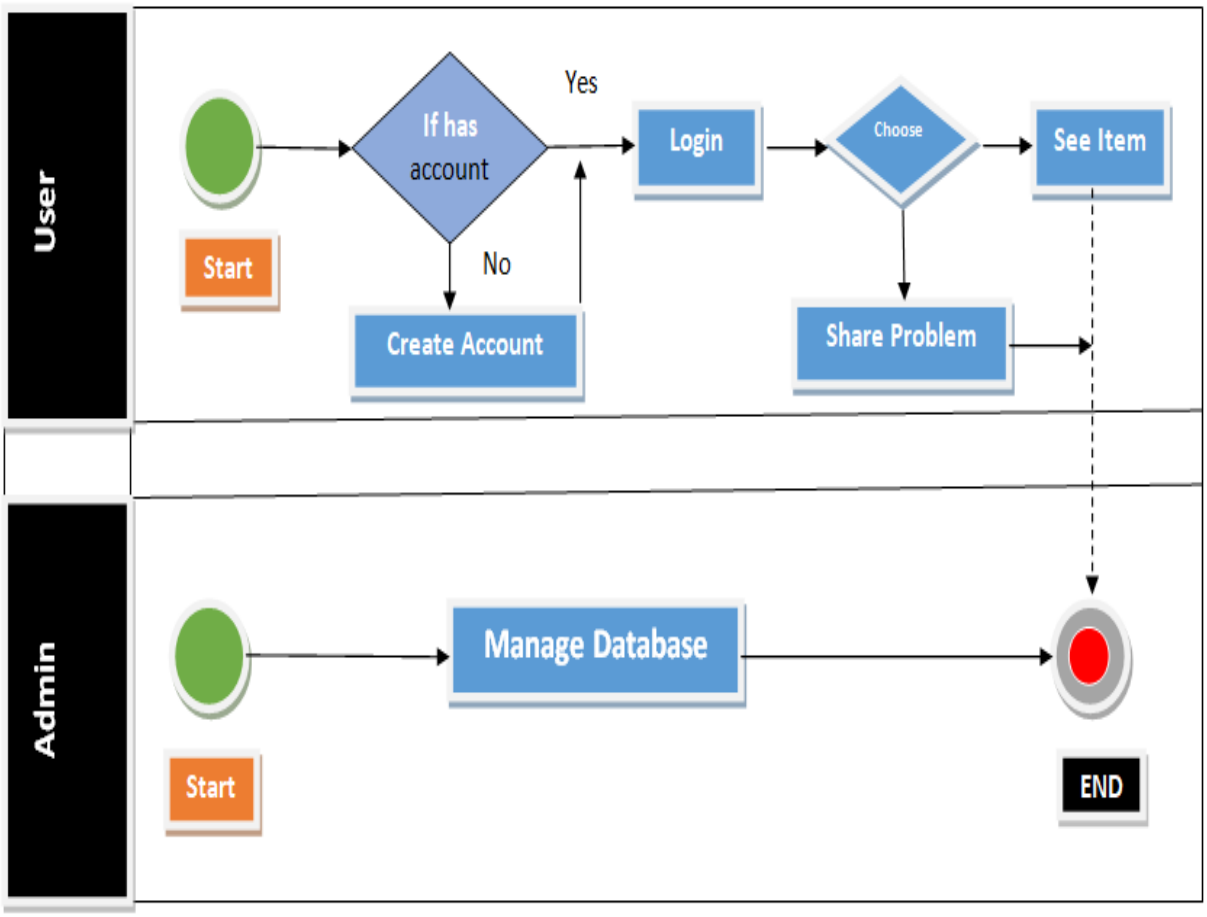

Figure 3.2: Business Process Modeling (BPM)

3.4 Data Flow Diagram (DFD)

A Data Flow Diagram (DFD) graphically representing the function, or process taking, manipulate, store and distribute data between a system and its environment and between components of a system. It's represent unlike a basic structured flowchart which focuses on control flow, or a UML activity workflow diagram, which offering both control and data flows as a unified model [12].

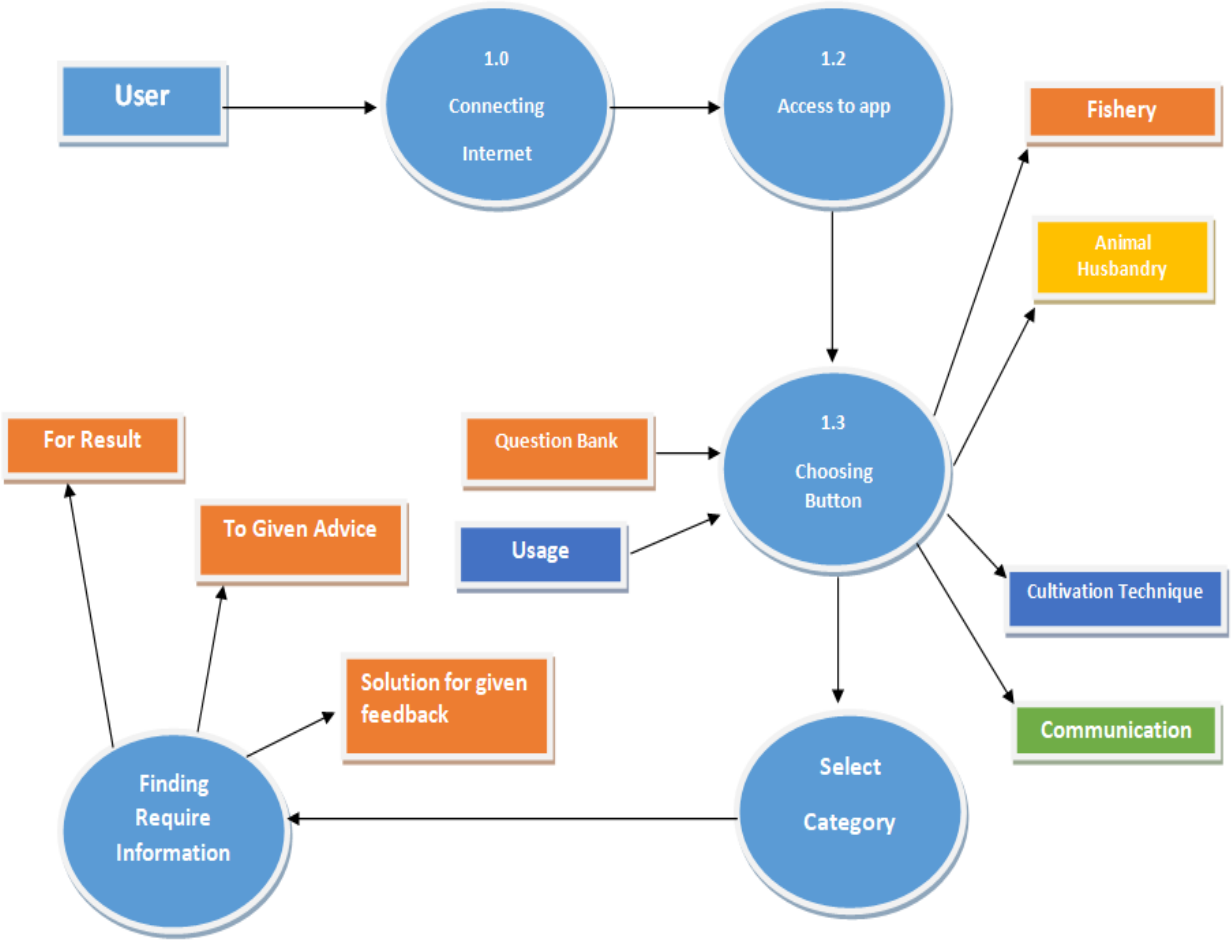

Figure 3.3: Data Flow Diagram of the System

3.5 Non-functional Requirement

- Help text will be provided in Bangla.
- The process of using the application will always be available.
- There is no user limit for browsing the application.
- This application can be used both on android & ios.
- During browsing through the application system responses should be no more than 5 second.
- Only Admin can modify the information of the application.

3.6 Usability requirement

- An android OS/ iOS-based handset with internet connection.
- The interface of the application is suitable even for the color-blind people.
- Anyone who knows Bengali or English can use this application.

CHAPTER 4

Design Specification

4.1 System Architecture

System architecture defined in terms of system of elements, constraints, interfaces, process, structure and behavior of a system. Actually it's show how the system works and how it interacts with users [7].

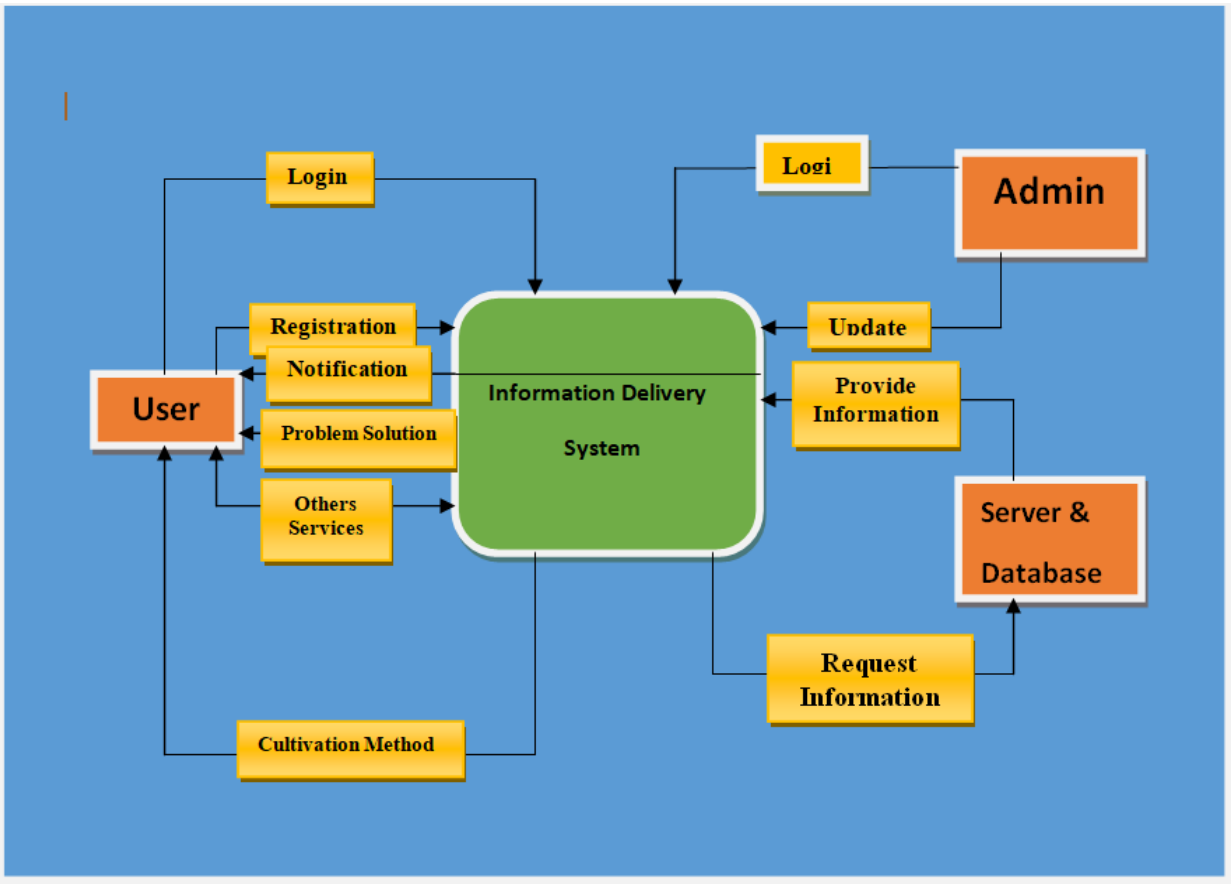

Figure 4.1: System Architecture

4.2 Server & Database Design

Server & Database design is the process of producing a detailed data model of database.

Figure below dictates the Database Design of our developed application which situated in our dedicated server. This database acts as host of data from which the application can fetch data whenever it needs. The first, second and third part of designated database design is shown in fig. 4.2, 4.3 and 4.4.

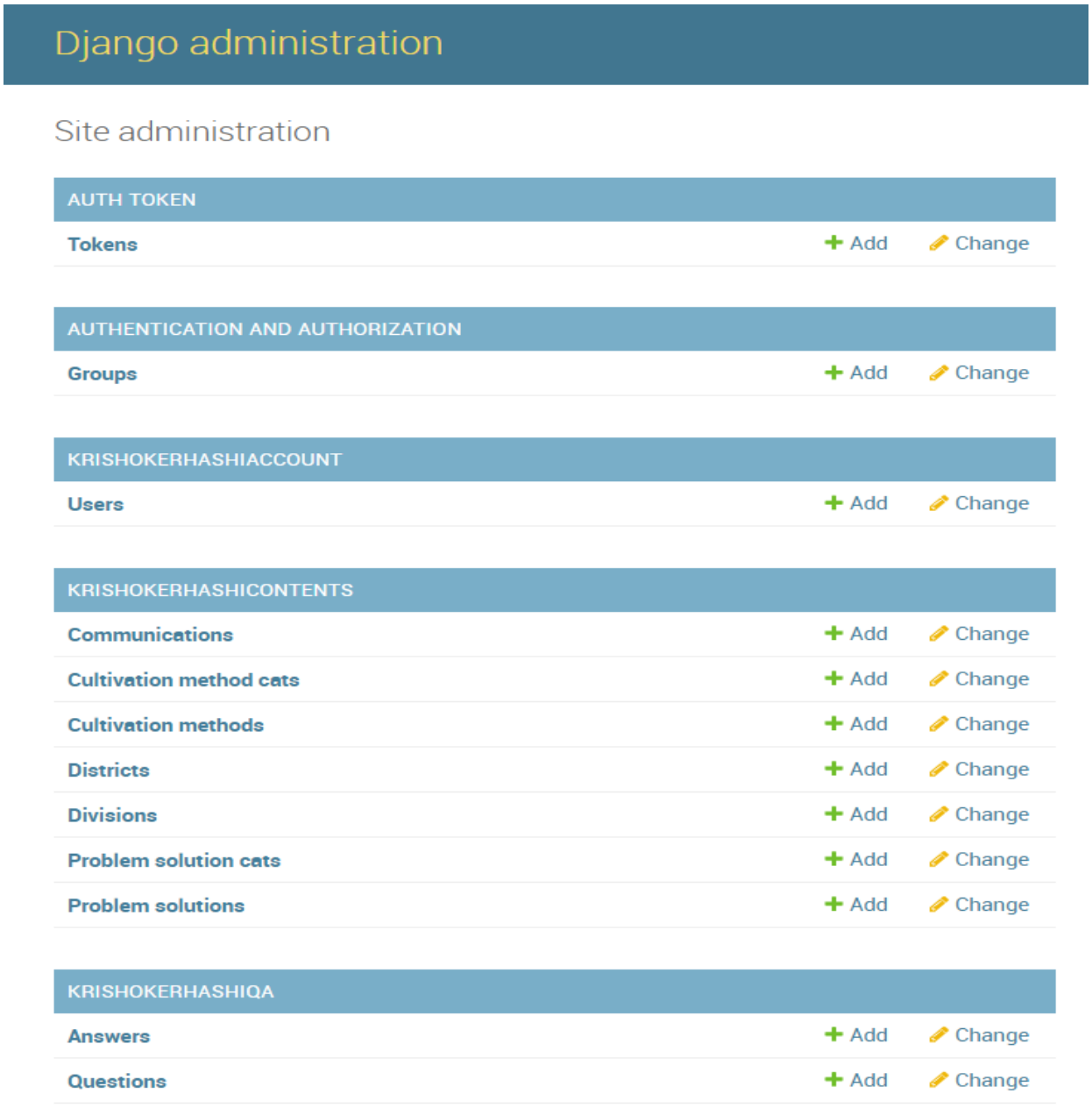

Figure 4.2.1: Server & Database Design for mobile App (Part1)

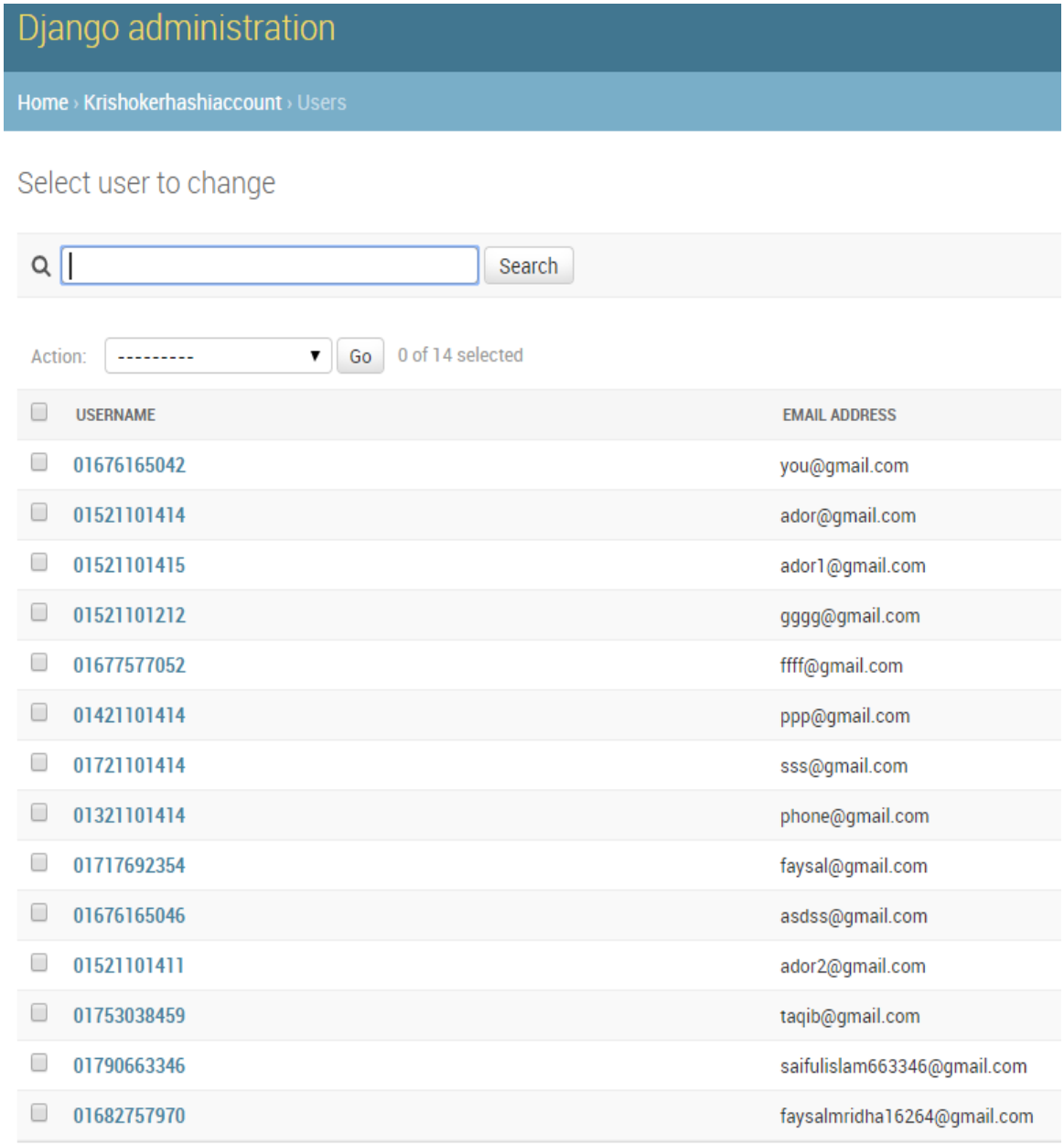

Figure 4.2.2: Server & Database Design for mobile App (Part2)

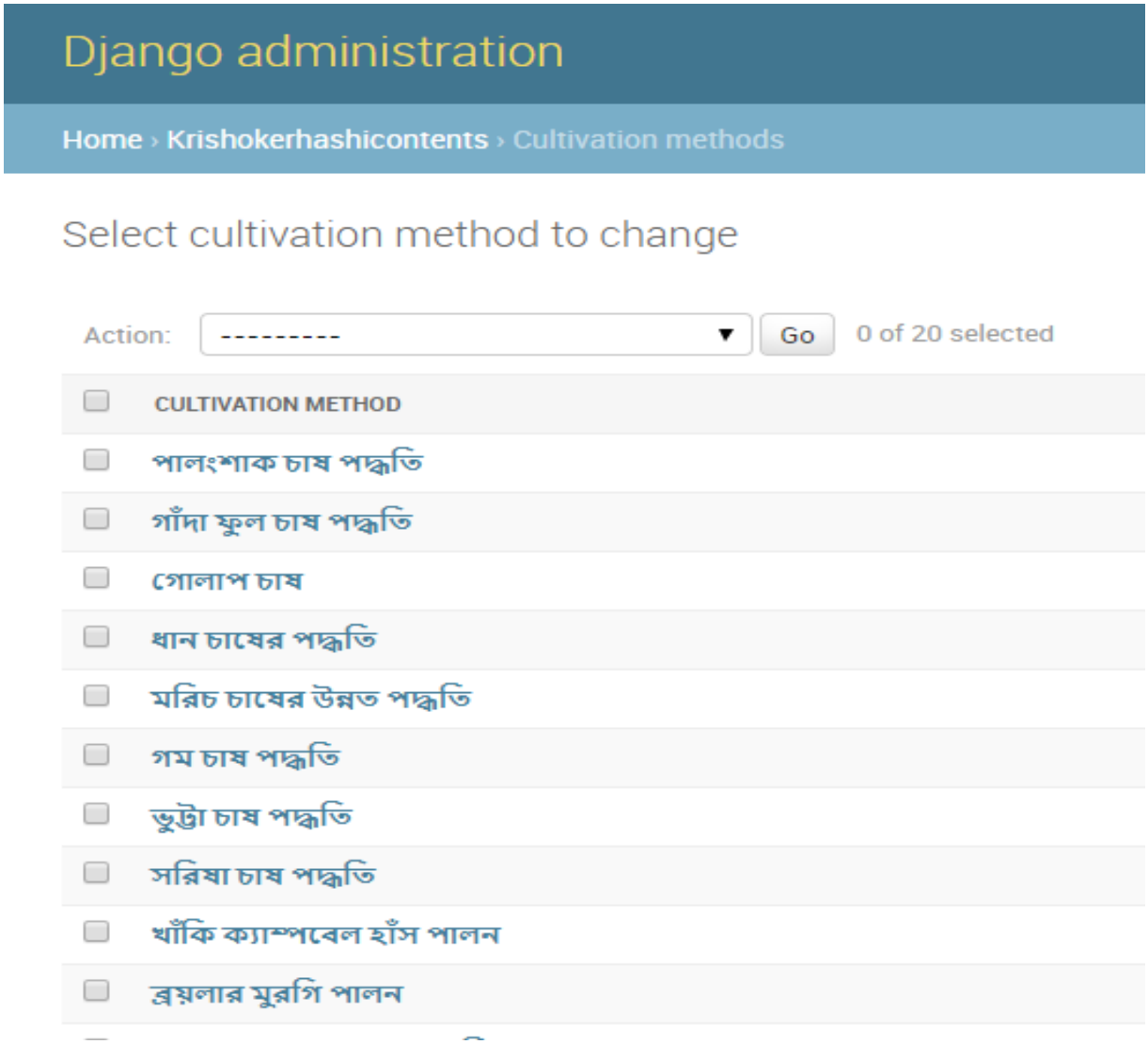

Figure 4.2.3: Server & Database Design for mobile App (Part3)

4.3 E-R Diagram

E-R diagram is a diagram used to lead data design activity. It narrates the relationship between data and used E-R diagram to perform data designing [6].

Person, object, event or concept about which data is to be maintained by the entity. Relationship Associated with the paradigm of one or more entity types. Attributes is named property or characteristic of an entity.

Following figure shows the total E-R (Entity-Relationship) diagram.

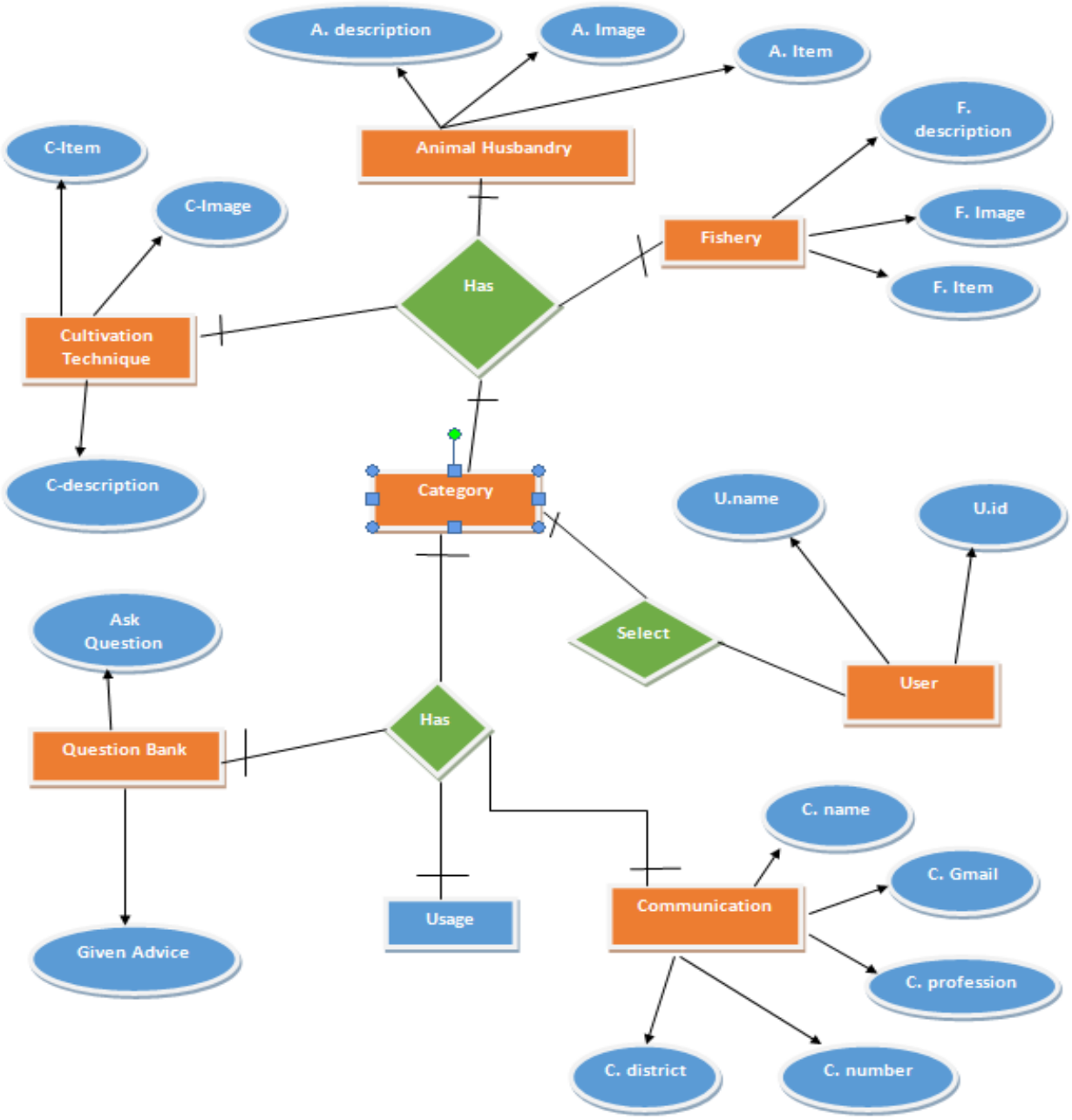

Figure 4.3: E-R Diagram of Krishoker Hashi

4.4 UI Design

User Interface (UI) that allows user to interact with the mobile devices or other electronic devices. UI design usually refers to the design of Graphical User Interface (GUI), but can also refer to others, such as natural and voice user interfaces.

4.4.1 Login

Login screen if user have account then he can logged in & enter into home screen. If user don't have account then he/she have to be registered for create an account.

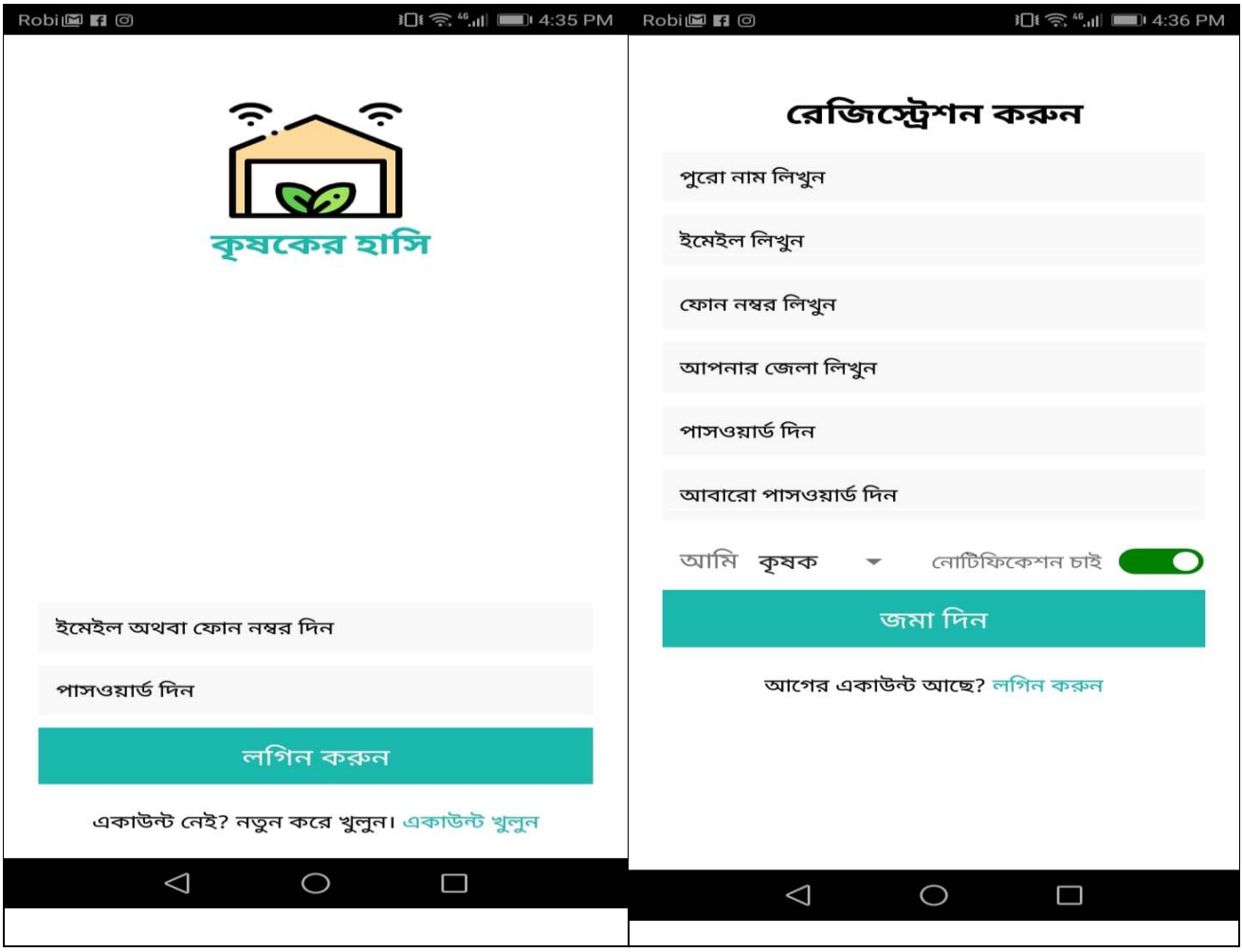

Figure 4.4.1: Login & Registration

4.4.2 Home Screen

Home screen shows nine items like Cultivation Method (Fishery, Animal Husbandry, Crop Production), Problem Solution (Fishery, Animal Husbandry, Crop Production), and Other Services (Communication, Question Bank, Usage).

Figure 4.4.2: Home Screen

4.4.3 Cultivation Method

As the three buttons (Fishery, Animal Husbandry, Crop Production) work in the same way, so we are describing the procedure for the Fishery button only.

Clicking on the Fishery button user will see various types of fishery item. When user select any of the item then user will see the details.

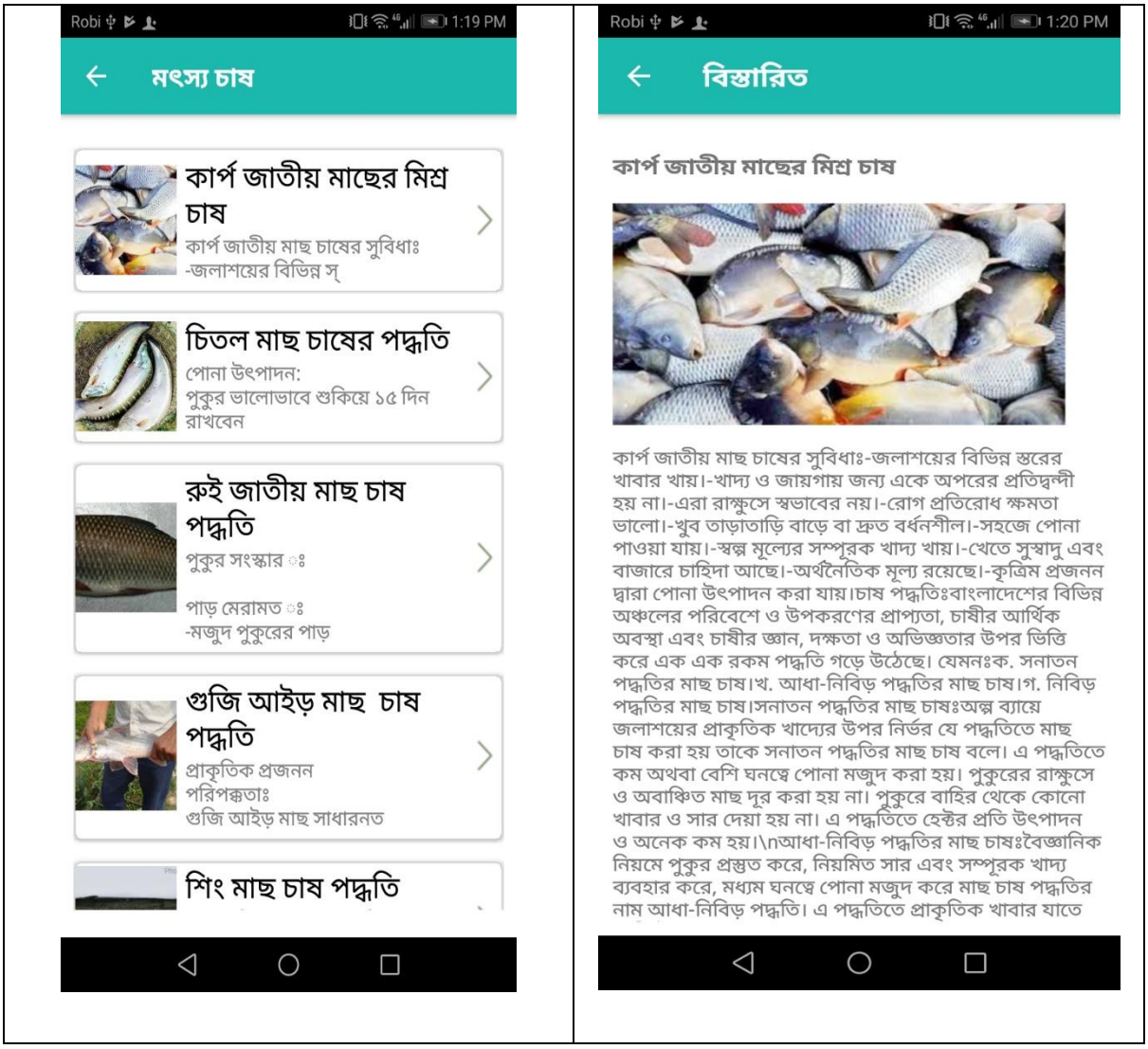

Figure 4.4.3: Cultivation Method

4.4.4 Problem Solution

As the three buttons (Fishery, Animal Husbandry, Crop Production) work in the same way, so we are describing the procedure for the Animal Husbandry button only.

Clicking on the Animal Husbandry button user will see various types of Animal Husbandry related problem item. When user select any of the item then user will see the details.

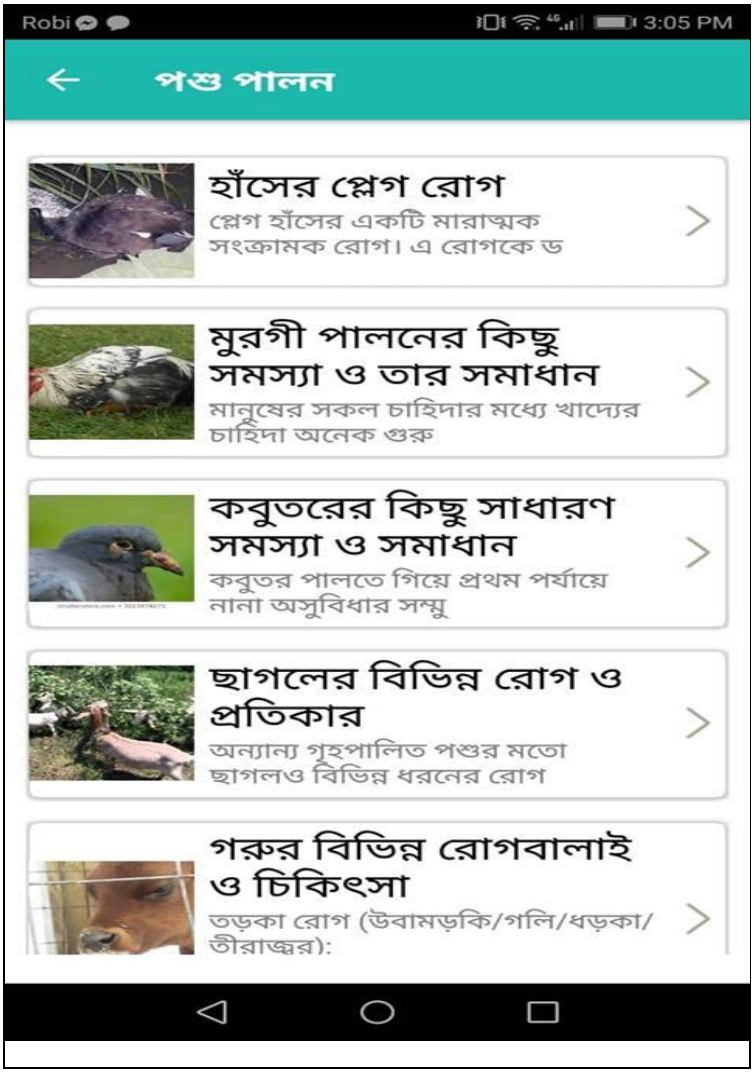

Figure 4.4.4: Problem Solution

4.4.5 Other Services

Other services include of three different views like Communication, Question Bank & Usage. Now we will describe every view accordingly.

4.4.5.1 Communication

When user select communication button, user will see division area of Bangladesh in another activity. When users have to select any of the division, then he will see the all available contact list of officers according to district wise. User can also send mail to officer.

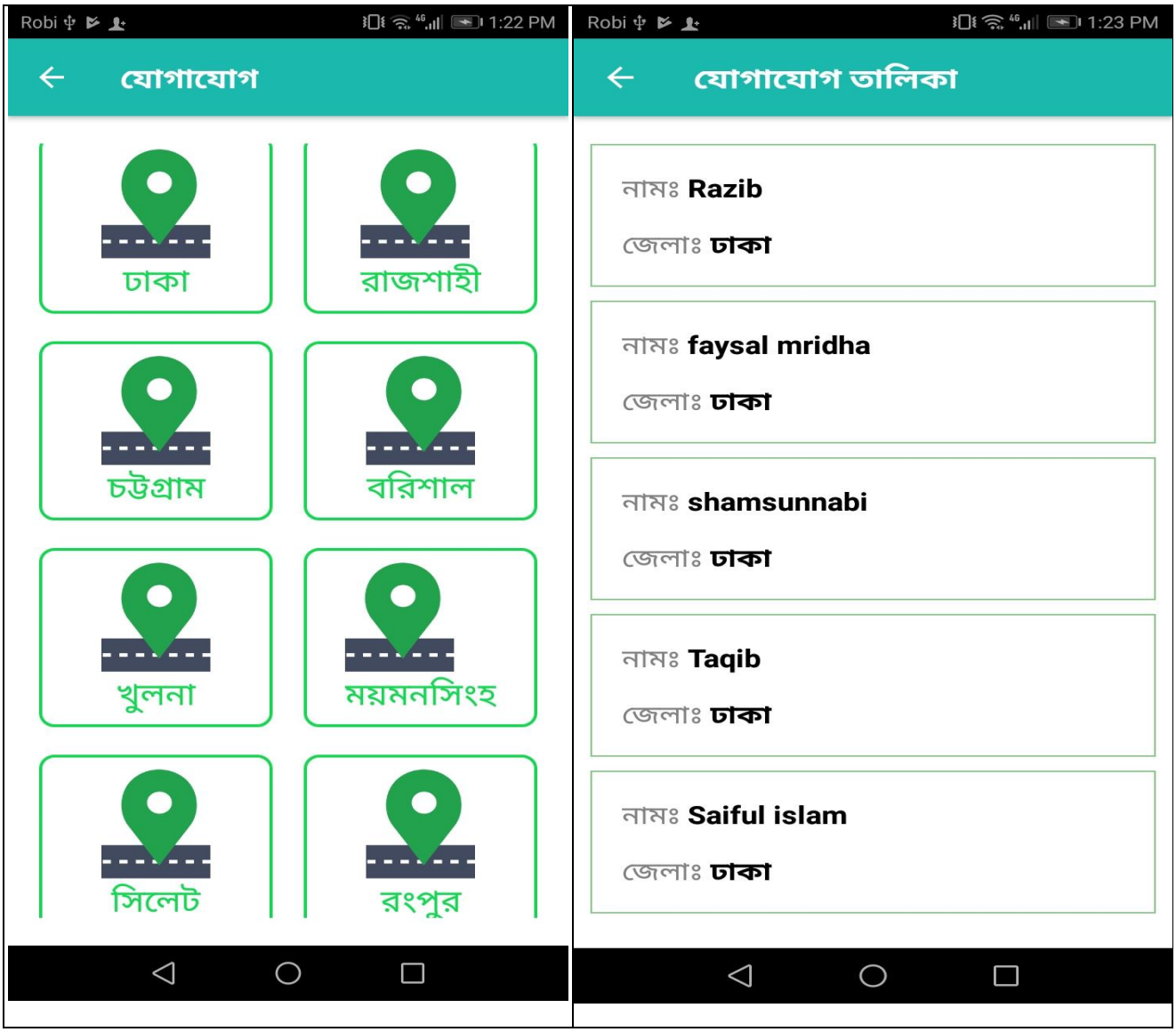

Figure 4.4.5.1: Communication

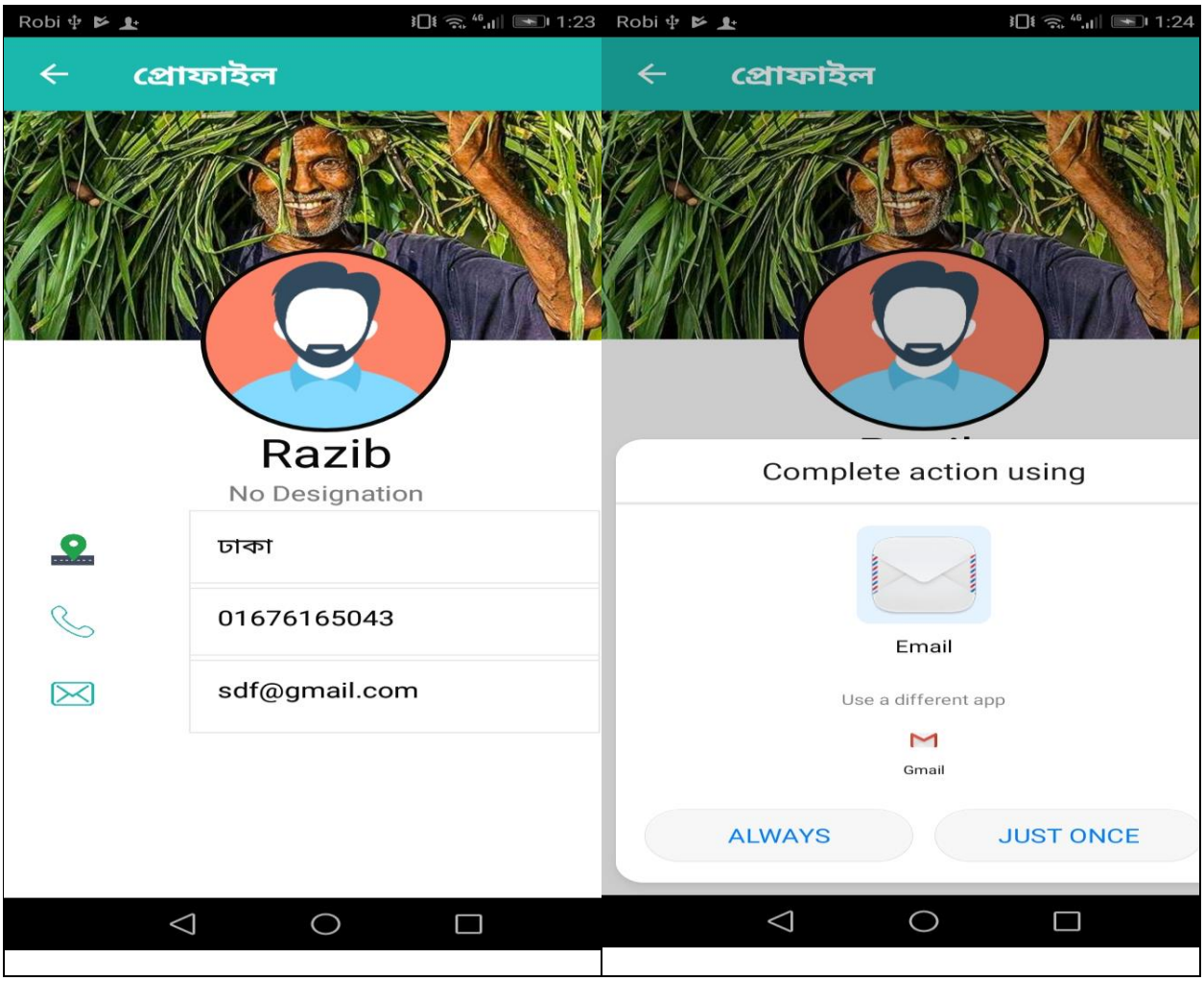

Figure 4.4.5.1(2): Communication System

4.4.5.2 Question Bank

Here user will find all the available solution of agriculture related problems when other user shares their problems. Beside user can also submit their problem along with problem picture/video. And user especially agriculture officer also gives their advice on any of the problem post.

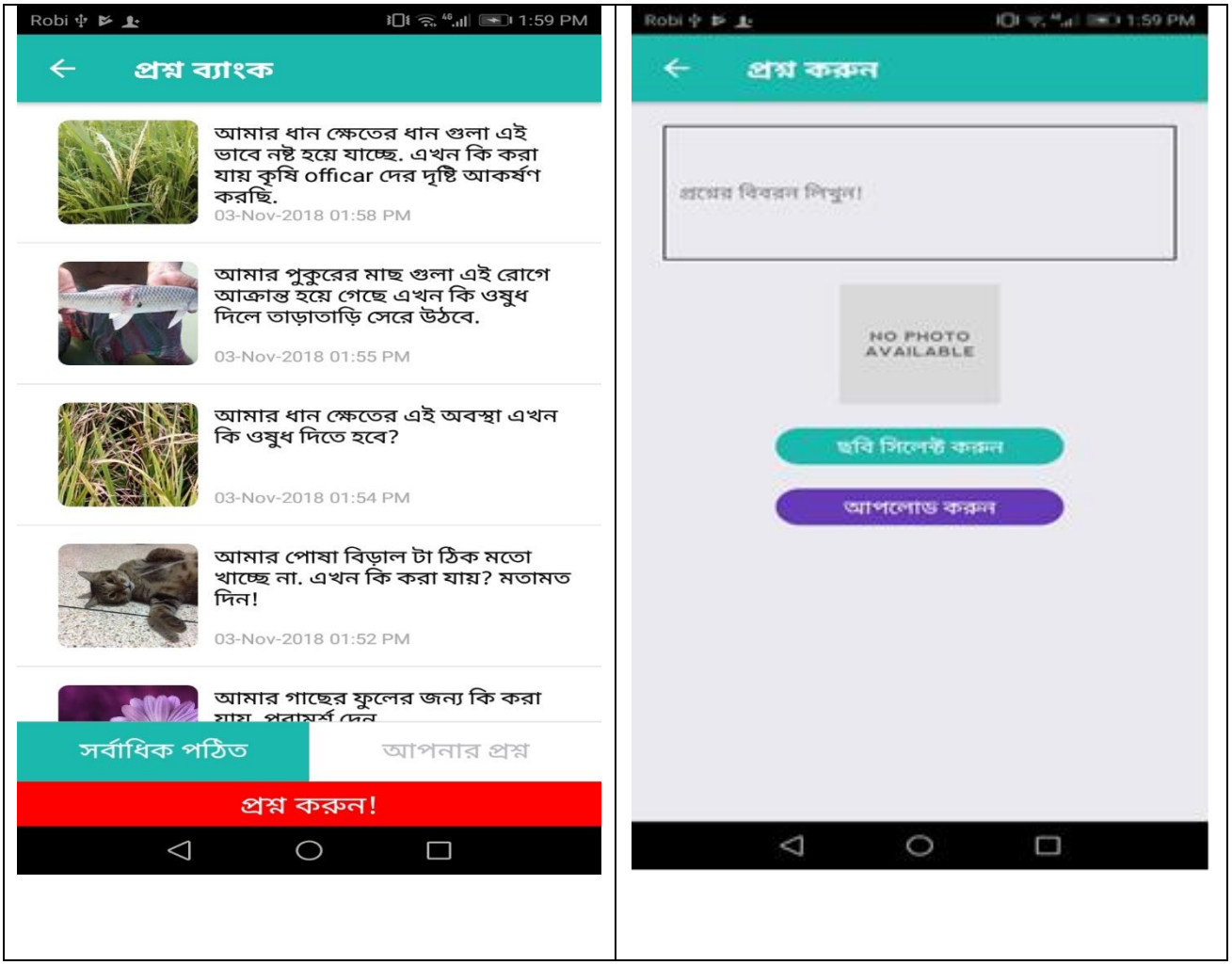

Figure 4.4.5.2: Question Bank

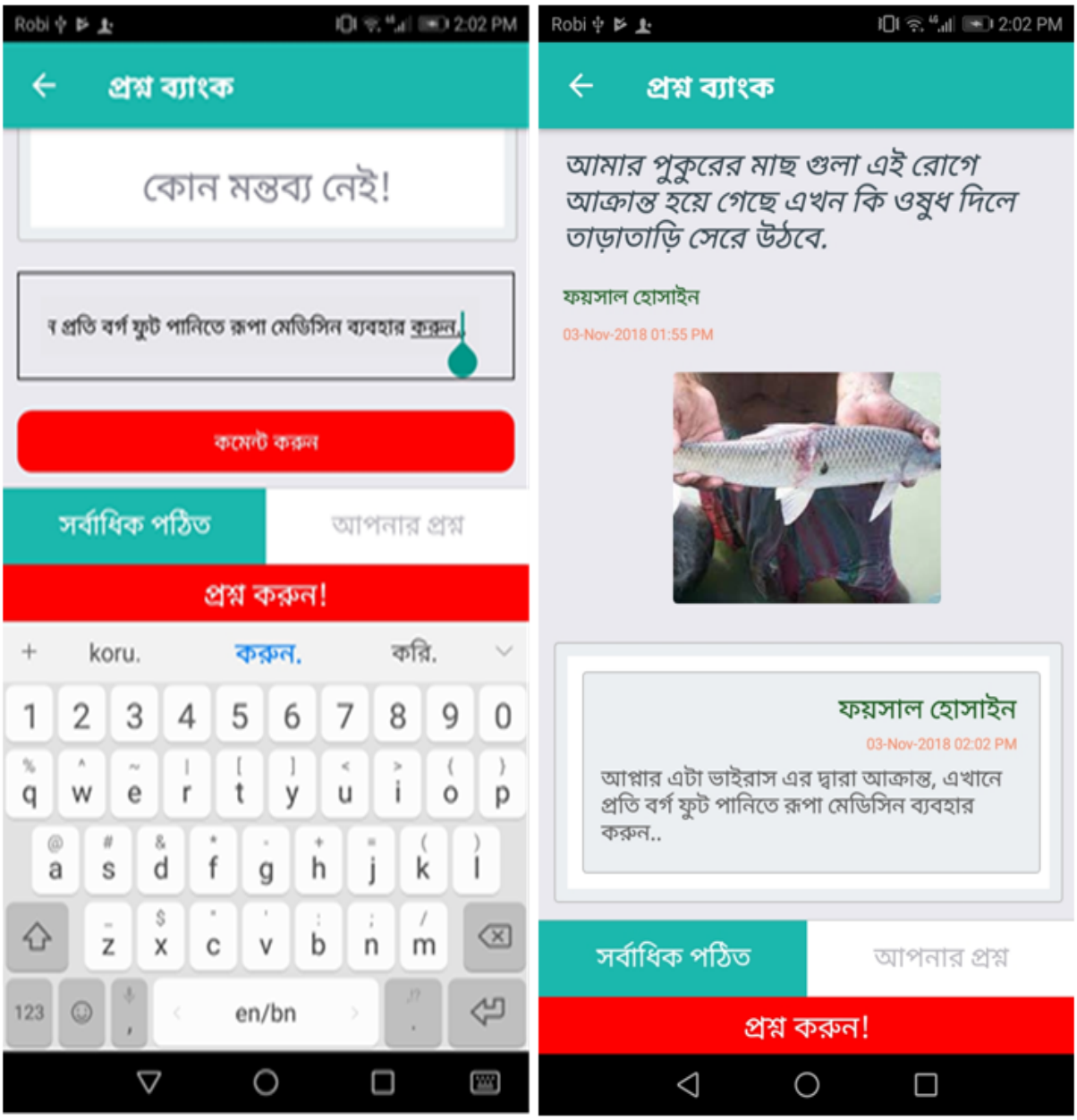

Figure 4.4.5.2(2): Comment Section

4.4.6 User Profile

User profile is one of the features of this application. There for user can store their information into their account. User can also manage their information by update or delete their personal details.

Figure 4.4.6: User profile

4.4.7 Notification

In notification area user will get all the latest update of share problems and also advice.

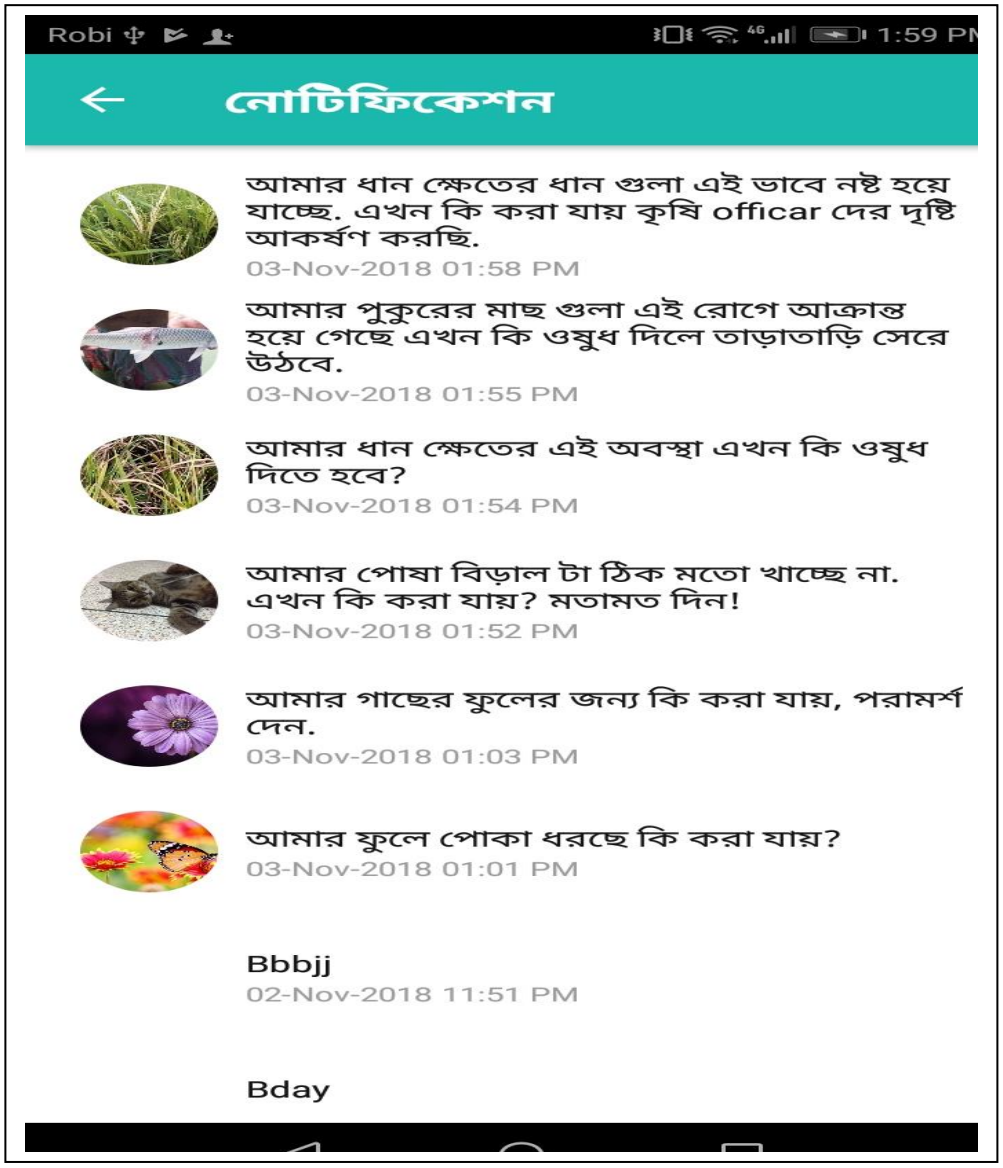

Figure 4.4.7: Notification

4.4.8 Calling

If user clicks on the colorful auto link number, a number will be shown on dialer and user can call in that number if he wants. The bellows figure shows the number in dialer and an ongoing call in process.

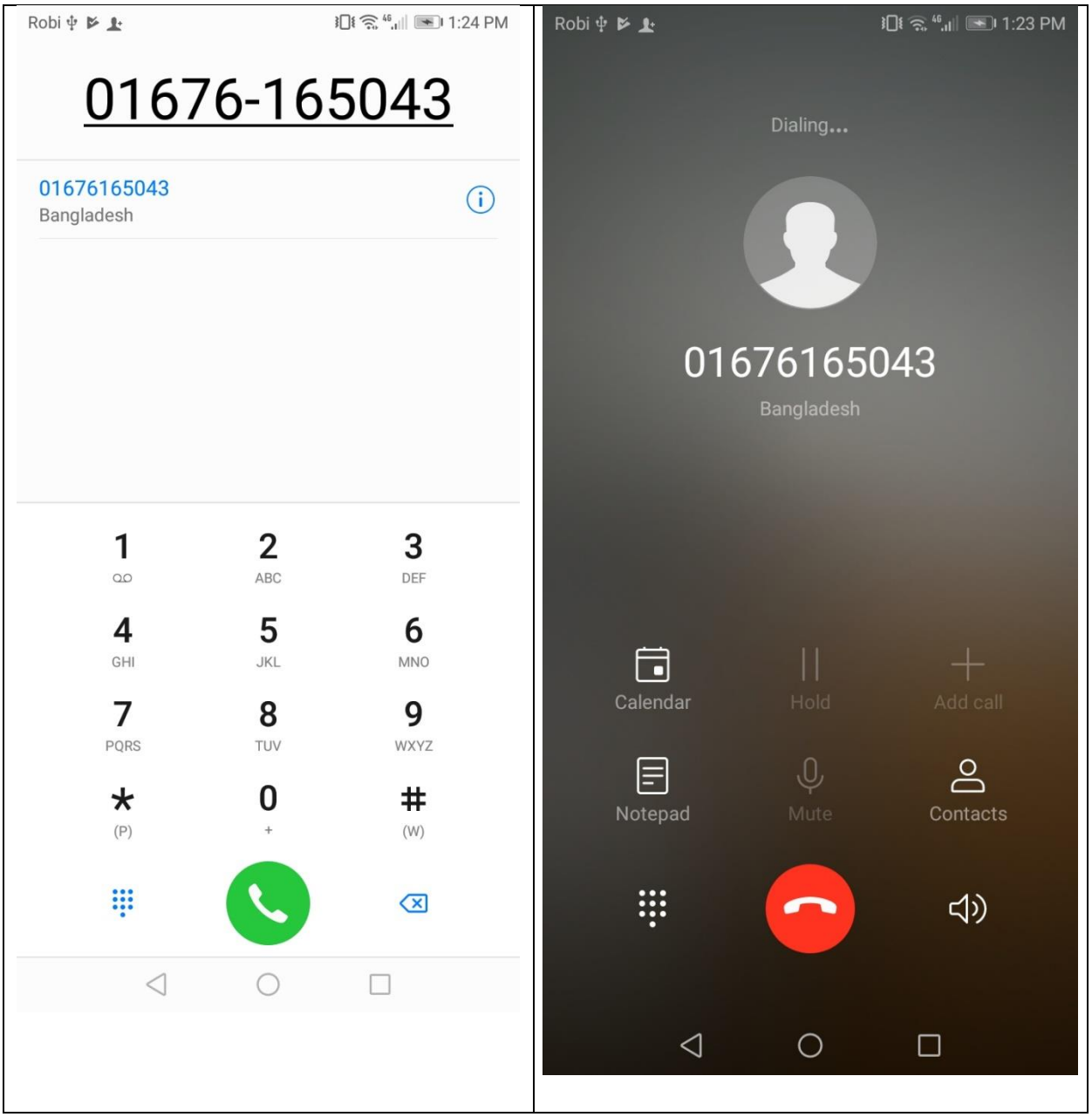

Figure 4.4.8: Calling

4.5 Design Requirements

4.5.1 React Native

React Native is an exciting framework that enables web developers to create pithy mobile Applications using their subsisting JavaScript knowledge. React Native currently supports both Android and IOS and has the possibility to stretch to future platforms as well.

4.5.2 Django

Django is a high-level Python Web framework that cheers swift development and clean, technological design. Built by experienced developers, it takes care of much of the dispute of web development. It is free and open source.

4.5.3 Android Studio

Android Studio is the integrated development environment (IDE) for android operating system. It designed specifically for android application development. Using android studio, we developed our application.

4.5.4 Android SDK

Android SDK provides the API libraries and developer tools necessary to build, test, and debug android applications.

To develop Android application, Android SDK is the vital tool. This SDK is very extensive tool that contains not only the library for development, but also comprehends the simulator to test the application.

4.5.5 Microsoft Visual Studio

Fully-featured integrated development environment for Android, iOS, Windows, web, and cloud.

4.5.6 Android Virtual Device (AVD)

The Android Virtual Device manager provides a graphical interface which runs the android application called Emulator. A QEMU-based device-emulation tool that can use to debug and test applications in an actual Android run-time environment.

CHAPTER 5

Testing and Evaluation

5.1 Usability Test

In usability testing basically, we as testers tests the ease with which the user interfaces can be used. It is tests that whether the application is user-friendly or not. We ran a survey among 50 users, aged between 22-50, where 45 of them were male and 5 were female. Few questions were included in this survey which had parameters to confirm the success of this survey. The pattern of the survey form with questions is given in the Appendix. The output of the survey is given below as a bar chart:

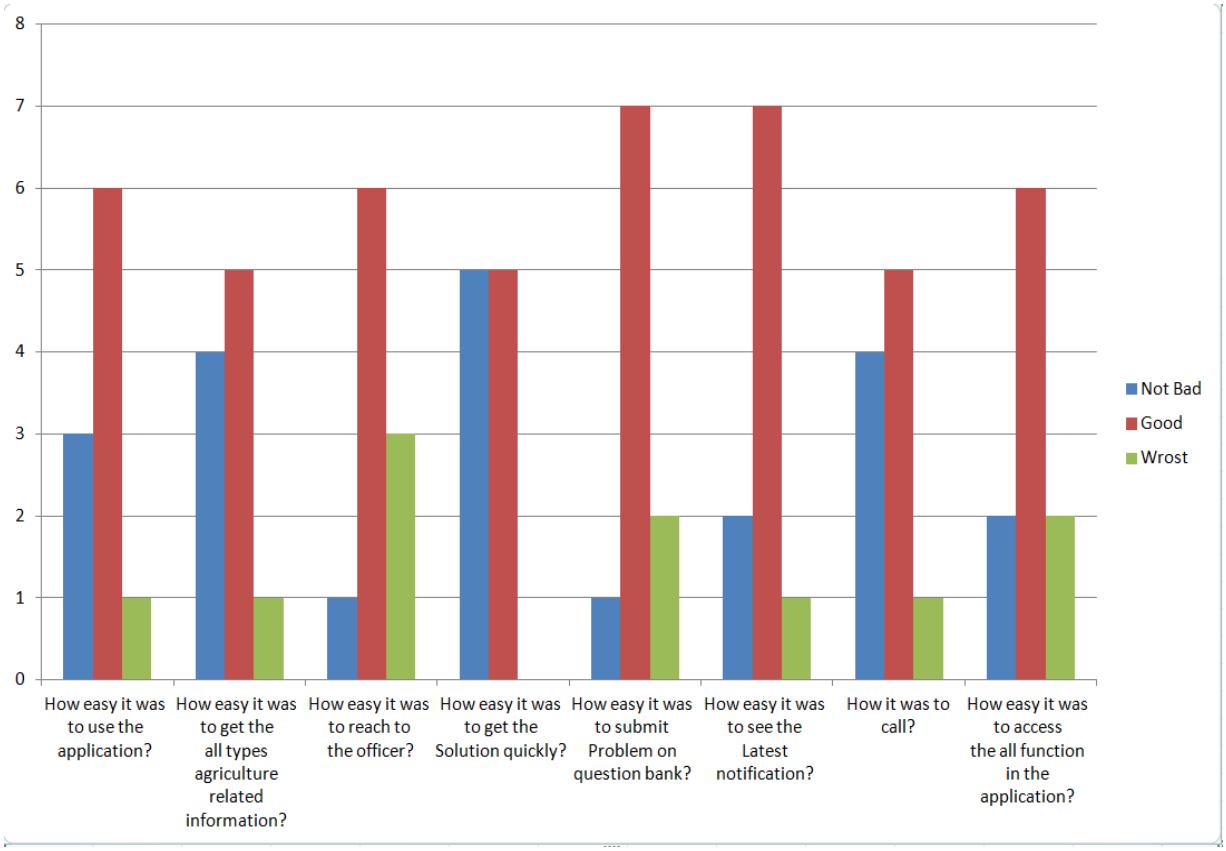

Figure: 5.1: Survey Result

So, at the end we can carry out the results as the benefits of usability testing to the end user or the leaner:

- Better quality Application.
- Application is easier to use.
- Application is more readily accepted by users.
- Shortens the information for new users.
- Better UI.

5.2 Unit Test

Unit testing is used in a details modeling and implementing of a project [9]. Unit testing is a method of application development in which the smallest testable parts of an application, called units, are individually and independently tested and implemented after passing the test. Unit testing includes only those characteristics that are essential to the performance of the unit under test [9]. The Unit test was done in time of implementing the codes of this application and also upon completion of this project. Test case is a combination of conditions or variables that will determine if a system fulfill or satisfies the requirements or not.

The results of the Unit test are shown in Table 1:

5.2 Result of Unit Test:

Table 1: Result of Unit Test

Test Case	Test Input	Expected Output	Actual Output	Result
Interface visibility	Tested on AVD	Interface are display correctly.	Interface are displayed correctly.	Pass
Correct Response for each button	Tested on AVD	Display correct activity	Displayed correctly	Pass
Click Call Button	Tested on AVD	It should make a Call	Successfully Calling	Pass
Click Usages Button	Tested on AVD	It should go Usages activity	Go successfully Usages activity	Pass
Notification	Tested on AVD	Give Notification properly	Successfully Given notification	Pass
Click Logout Button	Tested on AVD	It should leave from account	successfully logout	Pass
Click network connectivity button	Tested on AVD	It should connect with internet	Successfully connect	Pass
Click Back Button	Tested on AVD	It should go back	Go Back Successfully	Pass

CHAPTER 6

Conclusion and Future Work

6.1 Conclusion

Krishoker Hashi is an android/iOS based mobile application which supports the agriculture sector's people in their short time by providing information regarding their desired Cultivation Method (Fishery, Animal Husbandry, and Crop Production). It also provides problem posting functionality for getting advice from user/officer. It also provides the information of agriculture officer according to division which is very handy for finding nearby officer for the user. User can also call to the officer easily using this app. Using this application, user getting desired information & problem solution which will be benefited greatly by farmers & agriculture officer.

6.2 Future Work

We want to build a comprehensive agriculture app which will be cover every sector off Bangladesh agriculture so that at the same time farmer/buyer/officer will be benefited from each other easily. In near future we want to implement a system in this app where there will be integrated agriculture technology & digital market system. When digital market system will be included then farmer can easily sell their product easily using this app in good price so that they farmer can benefited economically; on the other hand, buyer can buy their product directly from farmer, so there will be created a good relationship between farmer & buyer.

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APPENDIX

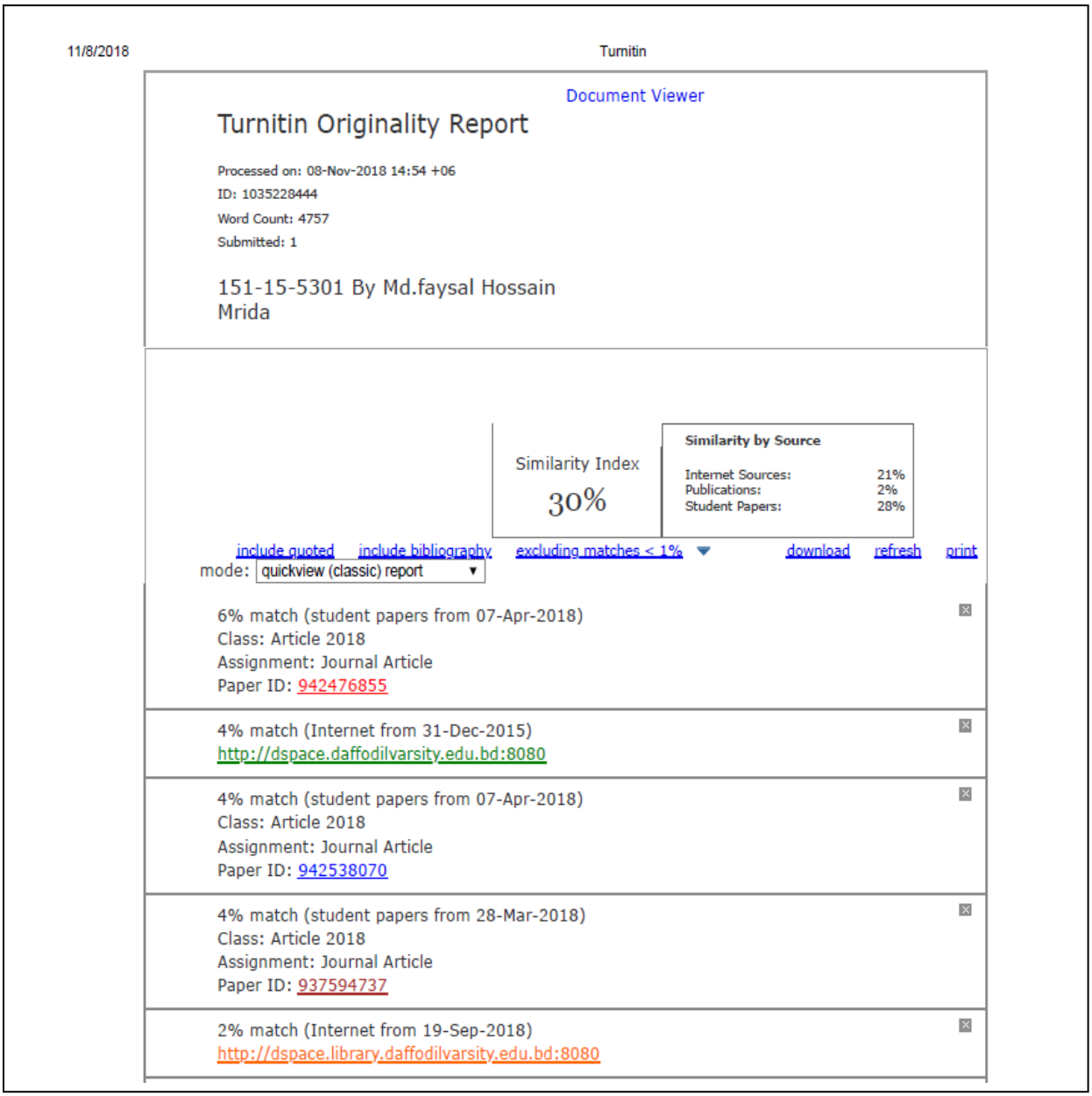
Appendix A

Survey Form for application

Serial no	Query	Easy	Medium	Difficult	Very Difficult	N/A
1	How easy it was to use the application?	☐	☐	☐	☐	☐
2	How easy it was to get the all types agriculture related information?	☐	☐	☐	☐	☐
3	How easy it was to reach to the officer?	☐	☐	☐	☐	☐
4	How easy it was to get the Solution quickly?	☐	☐	☐	☐	☐
5	How easy it was to submit Problem on question bank?	☐	☐	☐	☐	☐
6	How easy it was to see the Latest notification?	☐	☐	☐	☐	☐
7	How it was to call?	☐	☐	☐	☐	☐
8	How easy it was to access the all function in the application?	☐	☐	☐	☐	☐

Appendix B

Plagiarism Check Report



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