BURGFEED: A Citizen Platform

BY

MD. IKBAL HOSSAIN
ID: 161-15-7583

MD. NAFIS FUAD
161-15-7153

S.M FOYSAL
161-15-7658

AND

ABU SHADAT AHMED
153-15-6628

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

Supervised By

Sheak Rashed Haider Noori, PhD
Associate Professor & Associate Head
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project titled **"BURGFEED"**, submitted by Md. Ikbal Hossain, ID No: 161-15-7583, Md. Nafis Fuad, ID No: 161-15-7153, S.M Foysal, ID No: 161-15-7658, Abu Shadat Ahmed, ID No: 153-15-6628 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 12-05-2019.

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Faculty of Science & Information Technology
Daffodil International University

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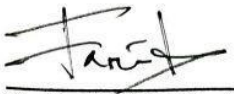
Senior Lecturer
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Shaon Bhatta Shuvo — **Internal Examiner**
Senior Lecturer
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University



Dr. Dewan Md. Farid — **External Examiner**
Associate Professor
Department of Computer Science and Engineering
United International University

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Sheak Rashed Haider Noori, PhD, Associate Professor & Associate Head, 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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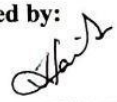
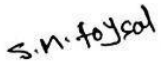


SheakRashedHaiderNoori, PhD
Associate Professor & Associate Head
Department of CSE
Daffodil International University

Submitted by:

Md. Ikbal Hossain
ID: 161-15-7583
Department of CSE
Daffodil International University

Md. Nafis Fuad
ID: 161-15-7153
Department of CSE
Daffodil International University



S.M Foysal
ID: 161-15-7658
Department of CSE
Daffodil International University

Abu Shadat Ahmed
ID: 153-15-6628
Department of CSE
Daffodil International University

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ABSTRACT

Burgfeed is an Citizen Journalism android platform mobile application. This application will helps us to send social problems which are happening around us to the respected authorities so that they can acknowledge the problem and take necessary steps for it. We use Firebase for storing our data as it is very fast and reliable and easy to use. This is an user based application where user can create account using his/her phone number. Their personal information won't show up to anyone. We use Firebase Realtime Database to store and load our user information, and post as well. They can post their complain with proof like images and can send email to appropriate authorities. All user can see the all category posts. We use Firebase Storage for storing users post images. We implemented different methods, used different libraries to make this application as easy as possible. User can comment on every posts. For posting a complain our application gets the incident location, auto gets the time and date, automatically fill the authorities email to reduce the time of posting. We uses JSouplibrary and using html parsing to retrieve the email from authorities website so that we can ensure the email is always up to date. User can see his/her own posts, profile and can delete post as well. We want to make an platform where user can post all social problems that are happening around us, discuss each other. And authorities can know what is happening around us and take immediate steps.

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CHAPTER 1
Introduction

1.1 Introduction

Burgfeed is an android based mobile application where people can post, comment and send email of social problems that are happening around them with proofs such as images to the respected authorities so that they can acknowledge the problem and take necessary steps.

1.2 Motivation

We live in a city which happens to be the busiest cities of Bangladesh. Everyday we are fighting to make our life easier. But not everything always go well. Everyday many problems happenaround us. And most of times these problems remain unseen to the authorities, remain unsolved. Among those problems, there are some problems which are crucial. Those problems need immediate solution. Some problems are solved by authorities but in late. Because they don't know when, where the problems are occurred. We want to solve this problems. We want to make a connection between user and authorities so that when social problems happen the authorities can know immediately and do whatever is necessary.

1.3 Objectives

1. To make a platform where user can easily post the social problems and discuss.
2. To help authorities to get the problems easily and can take action.
3. To make out life easier
4. To reduce the problems

1.4 Expected Outcome

1. We want to launch this application in the market
2. User will use it for reducing the social problems.
3. Make sure all the people use it.
4. Reduce the time of authorities for finding problems.

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1.5 Report Layout

We make this report in organized way with resourceful information as follows:

Chapter 1: In this chapter we discuss about our application such as Introduction, Motivation, Objectives, Expected Outcome.

Chapter 2:

Chapter 3: In this chapter we show the Business Process Diagram, Use Case Diagram, Logical Data Model and discuss about Requirement Analysis and Design Requirements.

Chapter 4: In this chapter we show our front-end design, back-end design and interaction of our application.

Chapter 5: In this chapter we discuss about implementation of database, back-end design, testing implementation and the results.

Chapter 6: In this chapter we talk about the discussion and conclusion of our application and scope for further developments.

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CHAPTER 2

Background

2.1 Introduction

Before applying our idea we have done some research on play store and took feedback from users. We found some application that are similar to our application. We got positive feedback about our idea. After that we start to develop our application.

2.2 Related Works

There are some application we found on play store that are similar to our application. We studied it and found some missing features and most of them have bad UI. There user experience is bad.

2.2.1 Vokta Odhikar & Ovijog

Using this app user can send complain about violation of Consumer Rights[1]. The UI design is not that great. Most importantly this application is only consumer rights based. Other social problem can't send through this application.

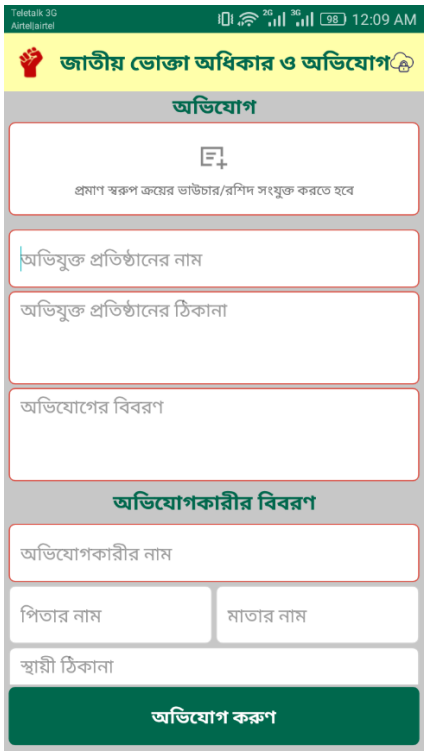

Figure 2.2.1: VoktaOdhikar&Ovijog

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2.2.2 Dhaka City Corporation (South)

In this application you can see where their offices located, different forms, list of services they provided[2]. Basically this application is just for the information about DSCC.

Figure 2.2.2: Dhaka City Corporation (South)

2.3 Comparative Studies:

We found some application that is related to our application. We studied their application and found some problem, some missing features, lack of UI, not design according to user experience. Some of the application is for read text only. Some of them have lot of input text that have to be written by user. Nowadays, people want fast solution. They are not willing to spend time to write text. And most of the application is based on single category. So, if user need to user govt services he/she need to install many application, which a user don't want. So, we thought something different besides that. We created an user friendly platform that not just based on single category, not just send the complain to them, we make it more usable, fast for users. With our application user can complain within a minutes. Unlike other

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application with our application all users can see all the complains in one place and can comment in each posts. We make it simple, fast and usable for users with cool UI and designed it according to user experience.

2.4 Scope of the Problem:

Making an application like that we faced so many problems as it is our first real life project. We need to study about UI and User Experience to make our application perfect for users. Feature like sending auto email, getting email from website is challenging for us. We need to ensure that anyone can use our application without help of other.

2.5 Challenges:

We faced so many challenges for making our application. Database design, making app less weight, compress image size, making an chat system was core challenges for us. We need to deal with many libraries to make our application more suitable for user. We overcome those challenges and able to make our application. In future more challenges will come. We will add some more great feature in our application. Database structure was difficult for us to manage. To make flawless interaction between database and our application we worked hard to overcome those challenges.

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CHAPTER 3

Requirement Specification

3.1 Business Process Modeling:

This figure shows the main structure of this application. At the beginning if user don't logged before, the login screen will appear. Then user need to give phone number to access. After that, OTP will sent user's given number and after successful verification the Post Feed will appear where all users post is shown. If user is new then user have to registration first with his/her phone number along with full name and username. After verifying the number user can upload his/her photo if user want. Then the Post Feed will start. User can access some other options also.

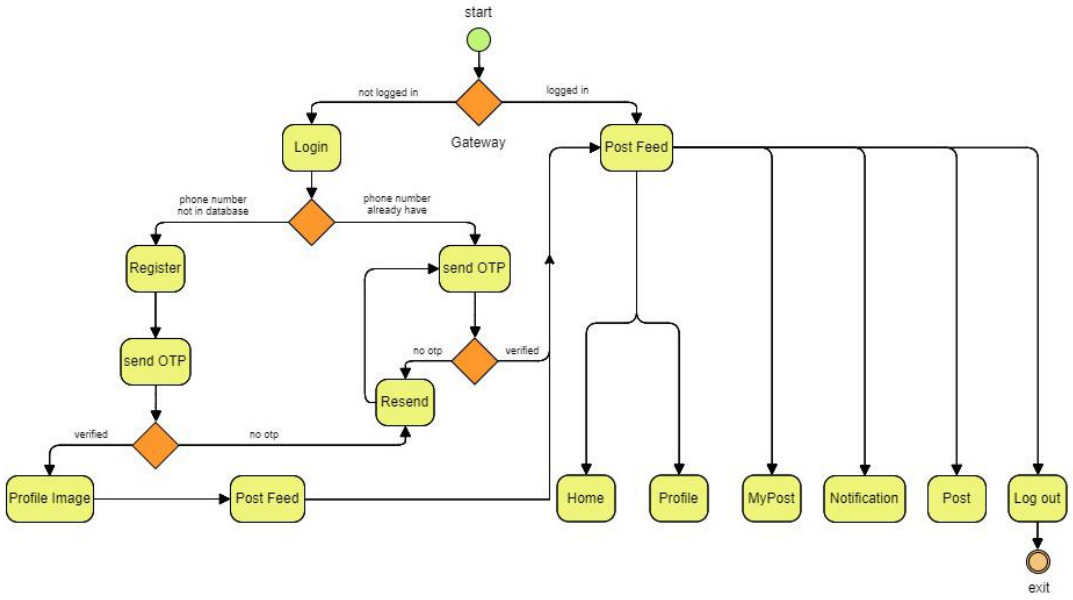

Figure 3.1: Business Process Modeling

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3.2 Requirement Collection and Analysis:

For completing this application we used Android Studio Software. We use JAVA language to build this application. And for data store we use Firebase as it is secure and reliable. We also use many HTML parsing using Jsoup library for getting the email from website. After doing all of that we tested to some user. We changed some of UX design part according to user choice.

3.3 Use Case Modeling and Description:

In our app there is only one actor which is User. So user can access all the options, features available in the application. User can register via his/her phone number. After verifying user can enter the application. User can logout if he/she wants. User also able to change his profile picture anytime but can't change his phone number. User can post, choose images and can send email to the authorities. In navigation bar user can access the profile section, my post section (in this section the user only see his/her own posts), home section (in this section all post will show up and will add new post when any user do a post) and log out option. After log out, user need to login for accessing the application and it will complete by verifying the registered number. Every time user logged out he/she need to login via phone number. In Post Feed section when user starts the application, user can sort out the category to see the specific authorities related posts. User can comment every user's post. User can also delete his/her posts when user wishes.

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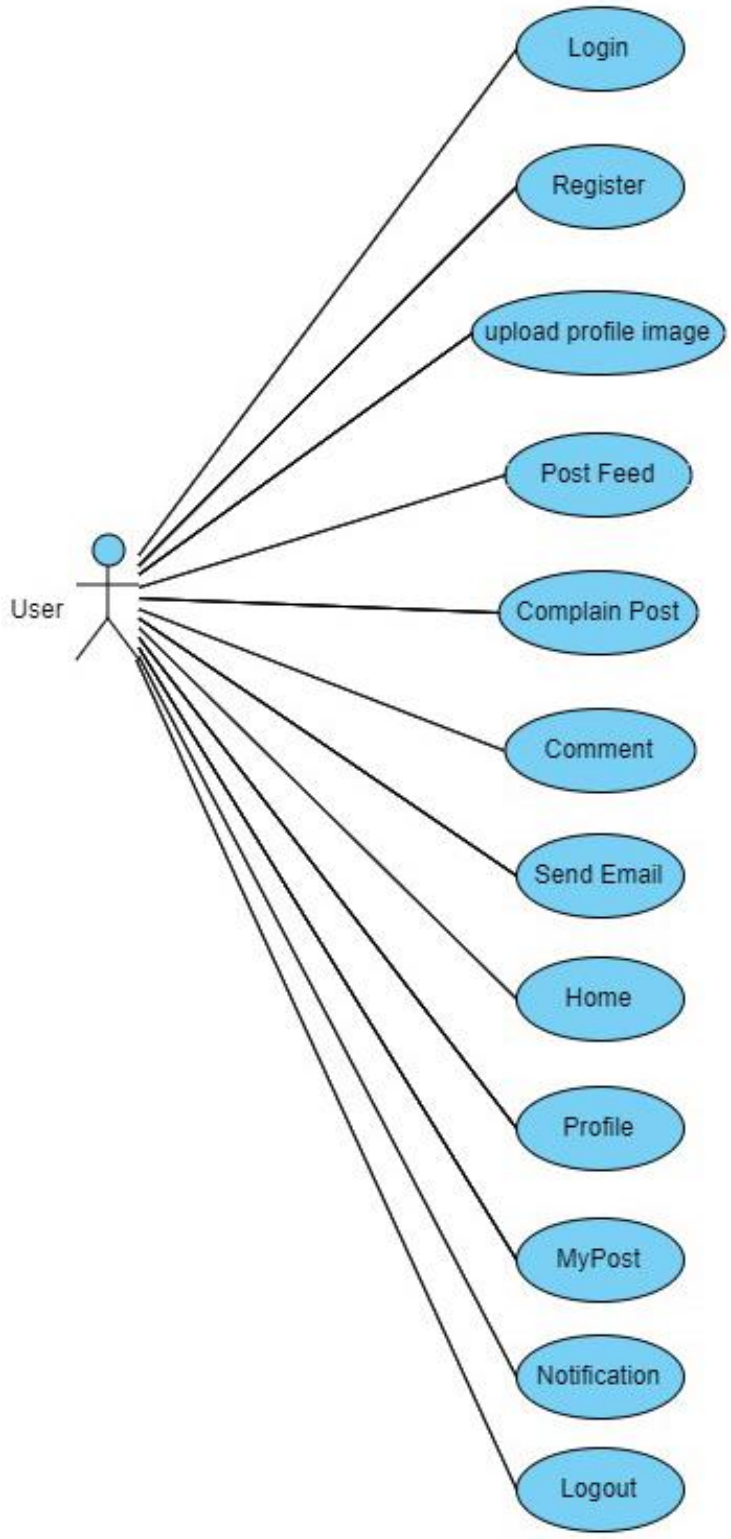

Figure 3.2: Use Case Modeling and Description

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3.4 Logical Data Model

In our application there are some activities are connected each other and have relation with another activity. In this model we have all our entities of activity classes. And relation between them.

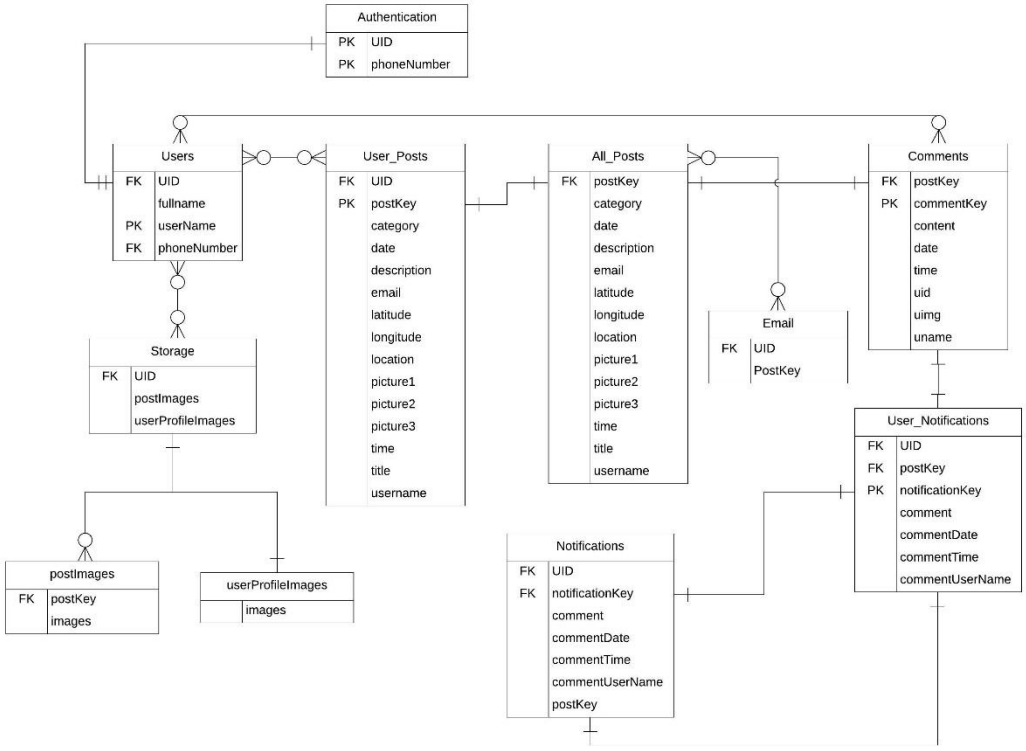

Figure 3.4: Logical Data Model

3.5 Design Requirements

For designing our application logo, UI design we need to know the design skill, good color concept. Need to know database designing skill so that database looks organized and can used in easy way. We make our logo in Adobe Illustrator and the application UI design also in Illustrator. We design all our screen in xml resource file. We concentrate on design more deeply because most of the people install or use application by looks of it. After that they experience the application. Design needs to be user friendly, not many text or colors. UI design is very important for any application

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CHAPTER 4

Design Specification

4.1 Front-End Design:

Front-End design is very important for enhancing user's experience. User's can easily understand the objectives of application if front-end design is good and perfectly arranged every portion using UX design skill. In our application we make front-end design simple, attractive and arranged everything so that user don't need any other help.

We apply some background images which is done in adobe illustrator and apply it in xml file.

4.1.1 Login Screen

Our application starts on Login Screen[3]. If user is new or user logged out both will see this login screen.

4.1.2 Verify Screen

After login screen when user input his/her registered number the next step will verify the number. Firebase will send an 6-digit OTP code and it will automatically verify number when code arrives. If not user can press resend code button after 60 seconds.

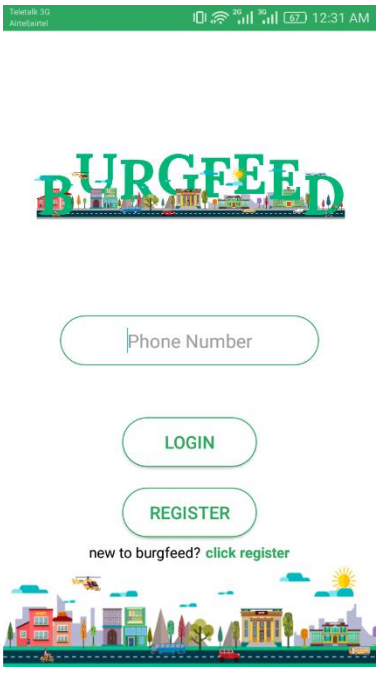

Figure 4.1.1: Login Screen

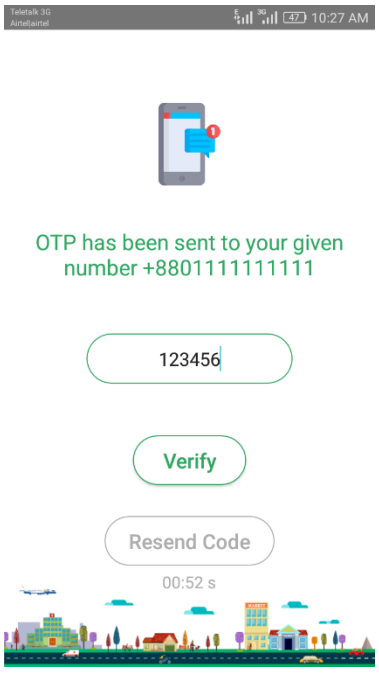

Figure 4.1.2: Verify Screen

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4.1.3 Registration Screen

If user is new he/she needs to register using full name, username and phone number. Username and phone number must be unique. After inputting the information we need to verify the new number. So, the verify screen will show up (Figure 4.1.2).

4.1.4 Profile Image Upload Screen

After successful registration, user can upload a profile picture[9]. We make this optional as user profile image is not important for our application. But user can anytime change his/her images. We included image cropper system so when user choose a picture he/she need to crop it and then upload. As picture size is important for loading and storage of database, we keep the same resolution but uses cropped image. It will helps to load the image faster and doesn't take much spaces of firebase storage.

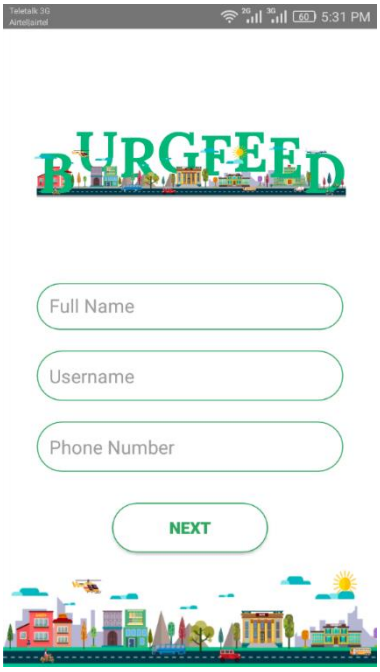

Figure 4.1.3 Registration Screen

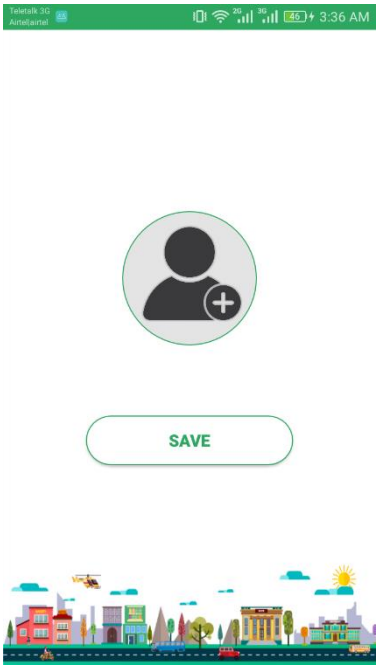

Figure 4.1.4: Profile Picture Upload Screen

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4.1.5 PostFeed Screen

After successful login or registration user can see the PostFeed Screen where all user's posts are shown[4]. User can scroll down to see more posts. We organized each post to see maximum information in small portion. User can see who post this, the location, time, date , category, title, description and images. User can also see the total comments of that post.

4.1.6 Filter Spinner Item

In PostFeed Screen we add a spinner with 4 items where user can filter the post in 4 categories[5]. When user select the specific category our app retrieve the data from database and show the results in PostFeed Screen.

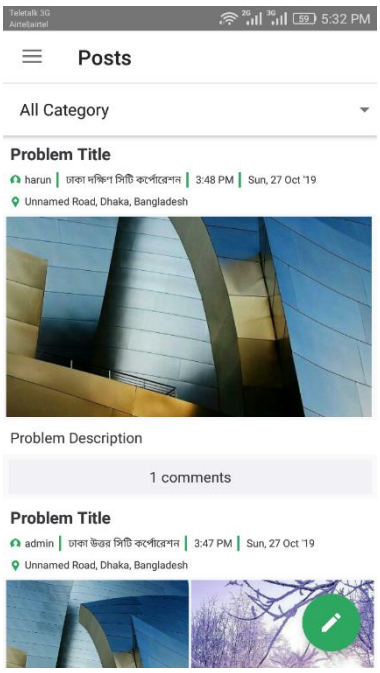

Figure 4.1.5: PostFeed Screen

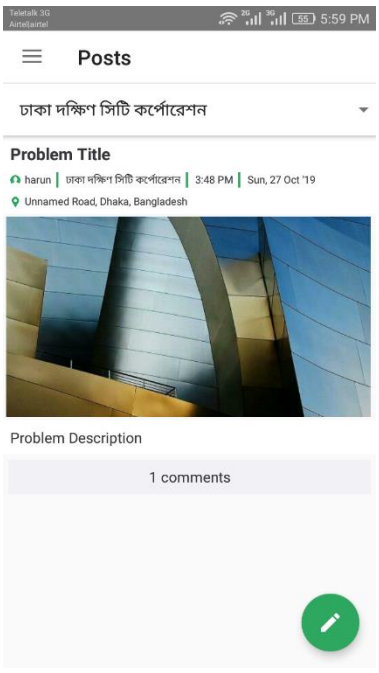

Figure 4.1.6: Filter Spinner Item

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4.1.7 Full Screen Image PopUp

In post section we arrange max 3 images in a small size[6]. When user click any of images the full screen popup will appear and show the full image with dimming background. When user click outside of the images it will close.

4.1.8 Complain Screen

User can go complain screen after clicking the fab icon. This is the main part of our application. In this section user need to write the title, description and choose the images (max 3 images). The rest item our app will do automatically. User select the category from the spinner and our application collect the email from selected authorities website. In Complain Screen our application will get the location automatically. User can choose maximum 3 images. We use compress library to reduce the size of selected images for faster loading and helps us to maintain the Firebase storage. We added 2 check boxes of sending email with users information. User can check the boxes which he/she want. After posting we again pop up an alert dialog box so that user can see where and which information user about to se

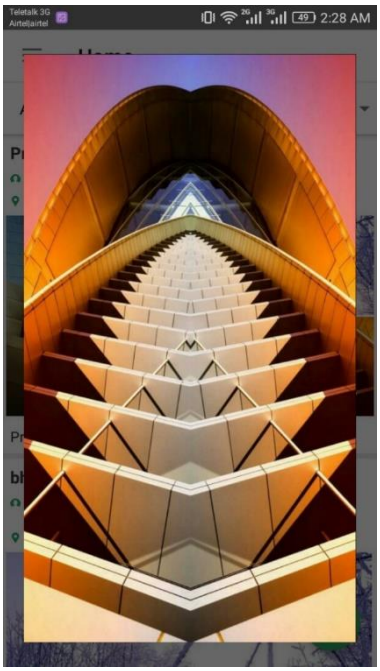

Figure 4.1.7: Full Screen Image PopUp

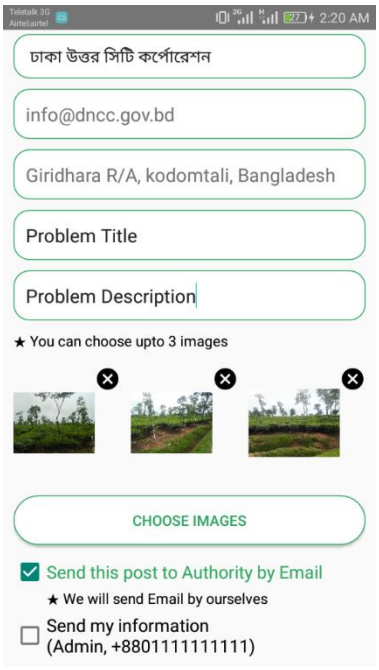

Figure 4.1.8: Complain Screen

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4.1.9 Email

After fill up all the field of complain item user can now post and email at the same time[7]. If in previous activity user don't check the email option we again ask if user want to email with his/her information or not. If user check the boxes then we will send email with user information otherwise not. The best part about this is user don't need to open gmail app to send the email, we send the email using our gmail address and send it in the background process. We applied 3 libraries to send email in background. To make the process easier for user we add this feature. User can choose to email or not.

4.1.10 Comment Section

User can comment everyone's posts by clicking the posts in PostFeed and MyPost section. We will show only the user username in comment section and our application will take time and date automatically. User can express their opinion about the problem. We show this activity in pop up style to give user friendly experience to users. Every post the user click it will pop up and user can comment, check image with this style. When user click outside the pop up will close.

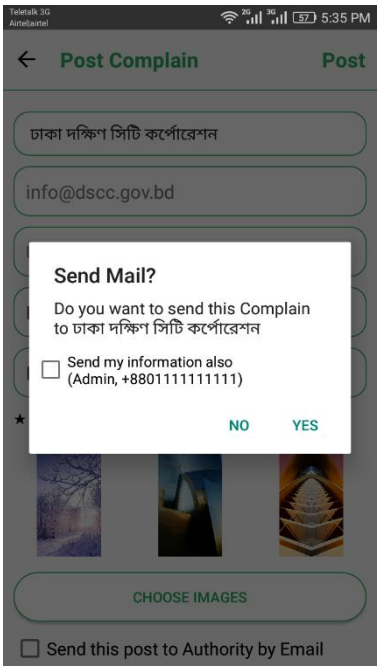

Figure 4.1.9: Email

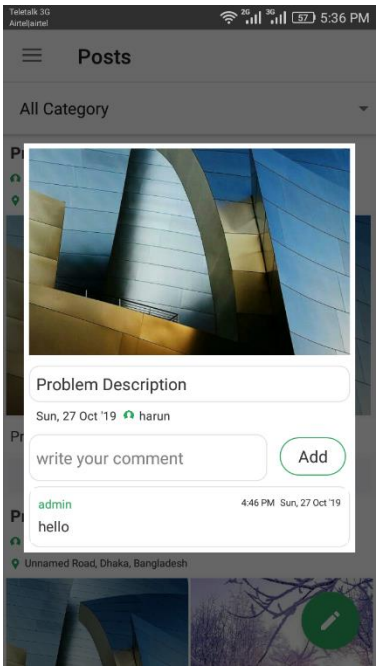

Figure 4.1.10: Comment Section

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4.1.11 Navigation Drawer

In our navigation drawer user can see his/her photo, full name and phone number. User can choose options easily from there. Here user can change his/her profile picture instantly by clicking the + icon. User can upload image from camera or gallery. And it will instantly upload. Our application will compress the images and store it in firebase database. User can also see the total post number that user posts all time. In Home section user can see all the posts that have been posted by users. In My Post section user can see his/her posts as well. Profile section user can see his/her profile details. In Notification section user can see all the notification that user get with time and date. And last log out section user will sign out from the application. Before logging again, user need to verify the number.

4.1.12 Profile Screen

In navigation drawer user can choose profile to see the information. Here user can change the profile picture but not the other things.

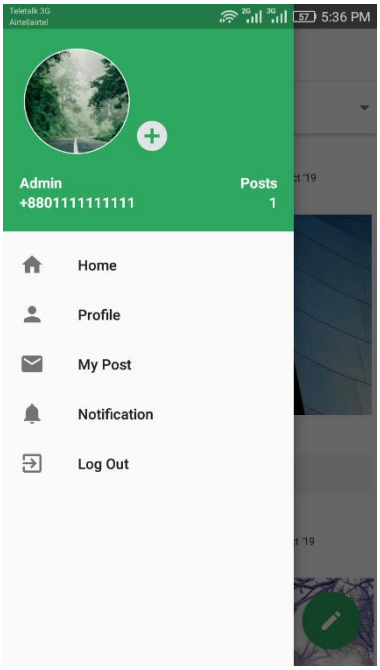

Figure 4.1.11 Navigation Drawer

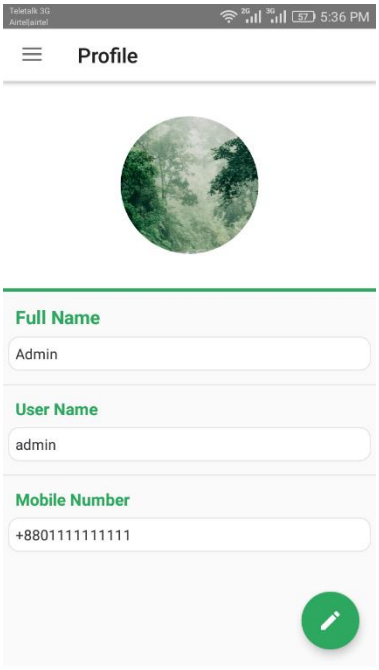

Figure 4.1.12: Profile Screen

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4.1.13 My Post Screen

User can also choose My Post option from navigation drawer and can see all his/her post.

4.1.14 Notification Screen

In this section a user can see all the notification he/she have. When a user comment on other users posts a notification will be send to that users in notification section with time and date. The time and date is automatically get from users mobile. After getting any notification, when user click any of that a new screen will show up with that comment on that post. User can only see that comment when it was given. There will be a button called show all comments when user click that button, all the comments will show. User can also comment there.

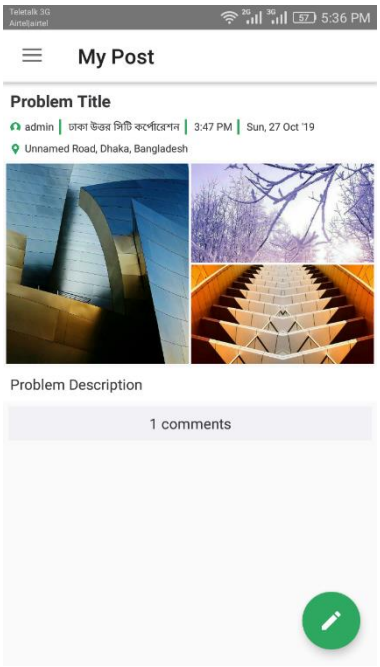

Figure 4.1.13: My Post Screen

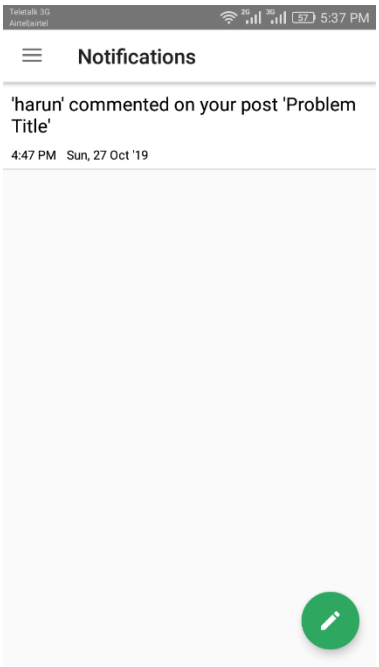

Figure 4.1.14: Notification Screen

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4.1.15 After Notification Screen

When user click a notification another activity will appear with that notification images, date, username and the comment of that user. We don't retrieve all the comment just show the exact comment that user click on the notification. But user can also want to see all the comments so we add a button to show all the comments on that posts. When user click all the comment will appear. If the user comment on that post all the comments will also appear.

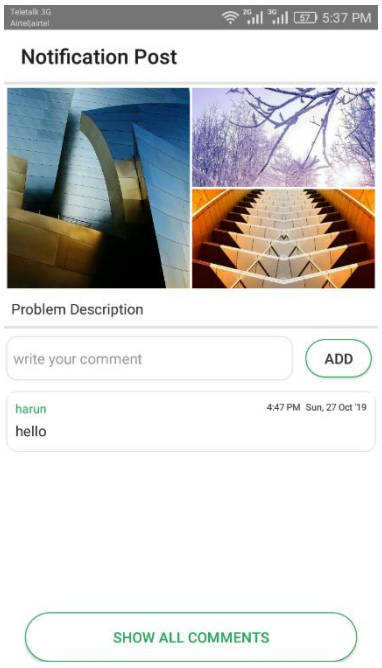

Figure 4.1.15: After Notification Screen

4.2 Back-End Design

In the back-end part we uses JAVA for making our application. We use Firebase authentication to register user and send OTP code to mobile. We uses Firebase Realtime Database to store and getting the data. Their server is much secure. No need to worry about leaking user information. For storage we uses firebase storage.

4.3 Interaction Design and UX

UX design is very important for any application. Because the success of application depends on user choices. If we can't give user what they need, what they want, then user don't use our application. We keep in mind the users choices and make the

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application as easy, as simple for users. We choose the green color as our main theme for our application as green color is color of life, natural color and energy. We keep our login authentication using Phone Number because it easy for any user to login quickly and hassle free. Our application get auto location address to save time for writing the address by user. And user don't need to send the email by thyself our app will send it. We keep everything as easy and usable for everyone .

4.4 Implementation Requirements

For making this application we need to learn many things. For applying some feature we faces lot problems. To solve those problems we learn a lot. We uses JAVA, Firebase to complete the project and many things. We invested so much time for designing. We implement different libraries to make our application simple and easier. We tried to make our app more efficient and enjoyable to user.

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CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

For database we user Google's Firebase Realtime Database. It's fast, secure and easy to use[8]. We design our database as simple as possible. Every entity of our database are related to each others. Each time we need to access our database when user open the app we keep in mind that the data will load faster and accurately. We designed it to do that. We keep our database data organized so that if we need to search something can get it quickly. Every reference have unique key and entity into it. We will keep our database update and make it more reliable.

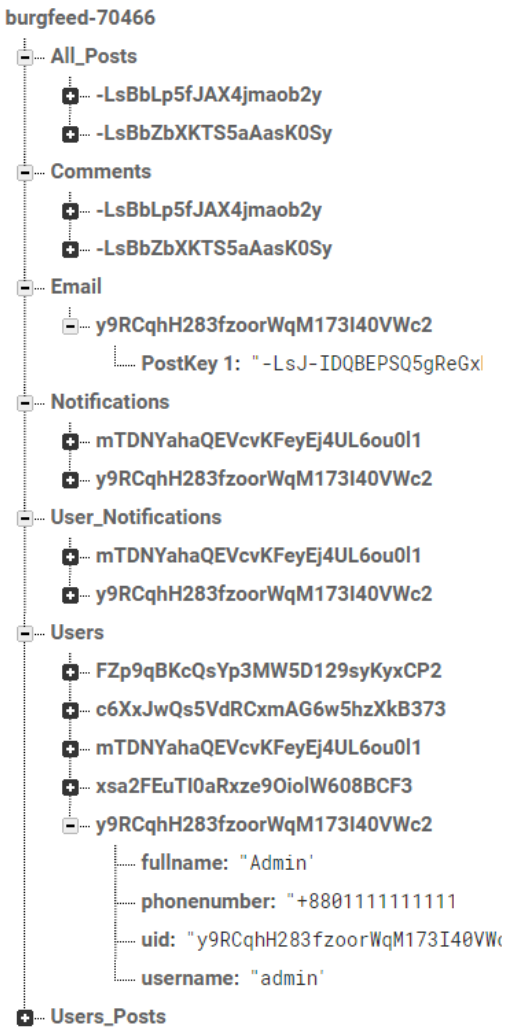

Figure 5.1: Implementation of Database

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5.2 Implementation of Front-End Design

Using XML we design our application UI. We design our user interface as simple and elegant as possible. We uses many png which we created in Adobe Illustrator add it to make our application more beautiful. We also uses vector assets from Android Studio default resource file. Some images we added from some website. All of this together we make our application looks more beautiful.

5.3 Implementation of Interactions

After starting our application it started to interact our firebase database. We keep all the user information, images to database so that our application remain lighter. When user keep interact with our application at the same time our application continue communicate to database to provide information as user want. In PostFeed all the post that are stored in database keeps showing in our application.

5.4 Testing Implementation

After completing our projects we tested it in our mobile and everything works find as we expected. We updated our code every-time when we found some bug while testing. Now our application can interact with firebase and give or take information as it should be.

5.5 Test Results and Reports

After developing our application we tested it to some user and thankfully we got more than 95% positive feedback. They liked out user interface and likes the way we create a platform for reducing the social problem. While testing our application we asked some question to user about our application (Appendix A).

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CHAPTER 6

Conclusion and Future Scope

6.1 Discussion and Conclusion

Social problem is one of the common problem in our city. Many problems occurs every day each side of our city. It's not possible to our authorities to take those problem quickly under consideration. Sometimes they don't even know where the problem happens. To overcome those barrier and help our authorities to solve those problem quickly our application is the way to do this. With our application people can complain the problem, post it and can send to the authorities. So that, authorities can know where which problem is exists. With our application we expect to reduce the social problem and let know everyone about it. Sometimes people don't complain because of his/her identity reveal. Using our application users can post, complain anonymously. For now, our application only available in Dhaka city and only 4 authorities category. If our application gets positive feedback from user, in future we will add more city's and more category and make our application more useful and will add more features to according to user expectations.

6.2 Scope for Further Developments

Currently our application have few features but the main theme is completed. In future we will improve our application to make it more useful and more usable to users.

1. Will add more cities and more category.
2. Will add chat system so that user can communicate each other.
3. We will add video upload feature in our application.
4. We will provide location based problems not all problems.
5. We will add search system in our application.

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Appendix

Appendix A: User Testing Question

1. What do you think about idea of that design?
2. Do you think our application can help the authorities to solve the social problems?
3. Do you face any problem to use our application?
4. Do you like that feature?
5. What do you think which feature we need to add on our application?
6. What do you think about our authentication system?

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