Unnayan Apps

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Abstract

In our daily life we go to a lot of organization like hospital,school,college,shopping mall etc.We face a lot of problem in there .But we did not find the specific person for complaint.That's why we did not complaint and this problem is unsolved day by day.On the other hand if we know the procedure for give the complain but we did not interest for lost of time.For all things research we want to make a system that's solve all of the problem.The user just login and select organization then give their complaint simple.

Acknowledgements

First of all, we would like to thank Almighty Allah. We would like to express our deep and sincere gratitude to our project supervisor **Mr.Suman Ahmmed** Director, Center for Development of IT Professionals (CDIP) and Assistant Professor, Department of Computer Science and Engineering at United International University. His sincerity and motivation and continuous support is inspired us to put extra effort on the project. We would also like to offer our special thanks to our course teacher **Dr.Hasan Sarwar** Professor, Department of CSE at United International University. He is a very kind and helpful person, as well as a good guardian of us who is always ready to provide every support that we need in our projects. We are also thankful to all faculty members of our department for teaching us various important subjects that we need for solving computational challenges. Last but not the least, We owe to our family including our parents for their unconditional love and immense emotional support.

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Chapter 1

Introduction

In this chapter, we discuss the overview and motivation of our project project, goals and objectives of our project, methodology, project results and organizational reports.

1.1 Project Overview

This section should clearly present the background and a problem statement that your project aims to solve.

1.2 Motivation

When people go any type of office or organization for getting services, they can not get the sufficient service or support for that organization,Because of the slothfulness for the management team. For this harassment people want to complain the higher authority but this is not possible for the general people to meet up them.People also face some others problem:
1.Customers do not know the channel for complaint and how to file complaints from customers.
2.Customers spend a lot of time on complaint.
3.Customers do not have channel for tracking complaint.

The other think is customer complaint handling becomes the important factor of the organization, thus the organization should pay attention to the customer complaint and should solve problems as fast as possible. In contrast, the current complaint management system still has problems [3]. the problems of complaint management are as follows:

1.The redundancy of complaints from organizations.
2.The details of complaints are unclear and insufficient.
3.The organization do not have channel for asking further information about complaint and providing feedback.

4.Complaints are not related to the responsible department.

For solving this type of problem we want to built a Applic‘ation where people through their complain simple and the complain should receive the higher authority.

1.3 Objectives

In this section we will discuss about the goal and objectives of our project.
Goal- Implement the easy and fluent complaint system.
Objective- To implement a new web and mobile based system for Bangladeshi organization which can support the organization's authority and customer to maintaining the complain system. Where customer can give their opinion or complain for the authority and the authority receive the complain and give the feedback and takes steps.

1.4 Methodology

1. Research and data collection includes needs assessment, literature review, and small scale research. The initial study phase includes:

a) Analysis of user needs attention -related products;

b) Review the literature, that is to describe the theory and relevant research results;

c) Preliminary survey of the research site to know the profile and the possibility if the development model is applied.

2. Planning, that is to formulate a research design, includes the care needed to be implemented investigate, formulate a goal to be achieved, create a design or research steps, and planned testing possibilities within a limited scope. Research planning stage includes: a) Formulation of research objectives; b) Estimation of costs, manpower and time; c) Formulate researcher qualifications and forms of participation.
3. Develop the Initial Form of the Product. Product draft development is conducted to determine the research facilities and infrastructure needed during research and development process and determine the employment description of the parties involved in research.
4. Initial field test. Initial field tests or limited tests. In the early period Observations of field tests, interviews and questionnaires were conducted. The purpose This initial experiment was to obtain a qualitative evaluation of the developed product.
5. Major product revisions. Major product revisions were conducted based on the results of initial field tests.
6. Main field tests. Quantitative data on children's understanding before and after work media provided.
7. Repair of operating products (revision of operating products). increase operational products based on the results of major field tests.
8. Operational field tests. Tests were conducted through questionnaires, observations in-

terviews, etc.
9. Final product review. Completion of the final product is carried out on a regular basis findings in operational field testing.
10. Dissemination and implementation. Create product reports in professional meetings and publish in magazines, work with publishers, monitor distribution for quality control.

1.5 Project Outcome

First of all the stakeholders will be able to learn how to use the app very easily. Users do not have to run to any authority or complaint box to complain, they can easily complain through our app hassle-free which will take advantage of the time. Users will get quick feedback from responsible person through notifications.

1.6 Organization of the Report

In this section, we will discuss things that will not remain unreported. Ou o chapter 2 contém Project research literature, review of similar applications. We also analyze loopholes that we can work on No chapter 3, we discuss our project methodology in details, Project conception, project plan and assignment of tasks. O Chapter 4 contains a set of environments. implementation, evaluation, results and discussion of our project. O Chapter 5 contains many topics, such as hardware and specifications of software, restrictions and analysis of costs of our project, etc. This chapter It also demonstrates how our project meets the criteria for complex engineering problems. Not chapter 6, we Discuss the magazine where we will publish our articles. O chapter 7 will contain the conclusion. our project

Chapter 2

Background

[*Must be present in FYDP-1 Report and also in Final Report*]

Every chapter should start with 1-2 sentences on the outline of the chapter.

2.1 Preliminaries

In this section, you have to provide the necessary background knowledge to understand the rest of the report [1].

2.2 Literature Review

In this section we discuss about our related paper description.We describe here 4 paper
1.A Smart Environment for Cultural Heritage Applications
2.The implementation of smart trash as smart environment concept
3.Smart Complaint Management System
4.Dynamics of Complaint Management in the Service Organization

2.2.1 Similar Applications

We find 5 application who are the similar with our system.In this part we discuss about them.

Fresh Desk

It is a it solution who provide a application for a specific organization.They are the cloud based customer service provider.

Biddut Sohojugi

Biddut sohojugi is a Bangladeshi electrical foundation software where the customer or user of eclectic they can easily give their feedback and complaint.

RMC

Rajkot Municipal Corporation.It is Bangladeshi online services.It provide the government tax service,water bill etc.If the customer facing any problem then they can complain using

this apps.

Indian oil one It is an Indian integrated oil company .The customer take oil from them then they have any type of problem like false type of oil,duplicate oil,date expired oil then can complaint to this company using this application.

Insta Bug Instabug is a community software that provides bug reporting, monitoring app performance, crash messages, in-app chat and user scans for mobile apps.

After the similar application compare and research we make a Benchmark analysis.Its given bellow:

Benchmark Analysis

Feature	Fresh Desk	Biddut Sohojugi	RMC	Indian Oil One	InstaBug
Complain Box]	YES	YES	YES	YES	YES
Type of Complain	YES	YES	YES	YES	YES
User Profile	YES	YES	NO	NO	YES
Feedback	YES (By Email)	YES	NO	YES (By SMS)	YES
Notification	NO	NO	NO	NO	NO
Find Location	NO	NO	NO	NO	NO
Current Status	YES	YES	YES	NO	YES
Category	NO	NO	NO	YES	NO
Sub Category	NO	NO	NO	YES	NO
Organization	YES	NO	NO	NO	NO

Figure 1.1: Benchmark analysis [5]

2.2.2 Related Research

Smart Complaint Management System:

In 2018 Seventh ICT International Student Project ConferencePattamaporn Kormpho, Panida Liawsomboon, Narut Phongoen, Siripen Pongpaichet Faculty of Information and Communication Technology they published a paper SCMS.In this paper they try to develop a system for customer satisfaction.Their main goal was SCMS would focus on maintenance complaints.They climb 20-40 percentage the customer next time they make a purchase with the particular company and the revenue is grow up by 41 percentage per each individual sales representative.They give a process about their management system.

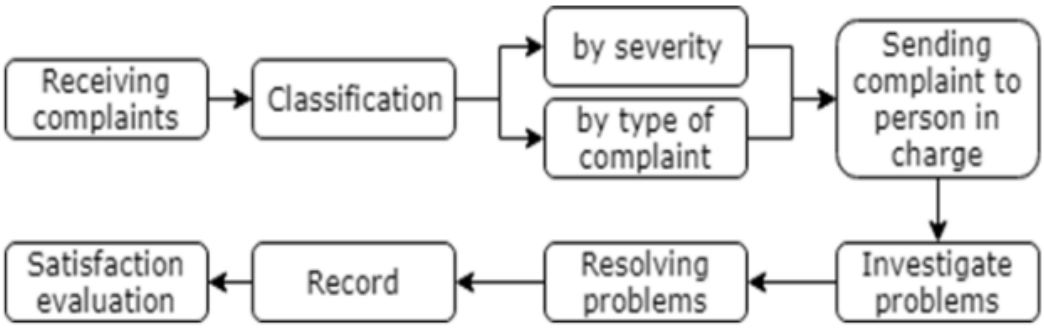

Figure 1.2: [6]

They implement a chatbot option where the customer can communicate with humans using apps ,chat windows or voice chat.They using machine learning for classifying complaint.There are 2 main type of option. 1.Rule-Based chatbot 2.AI chatbot

Smart Environment for Cultural Heritage Applications:

Flora Amato, Angelo Chianese, Vincenzo Moscato, Antonio Picariello, Giancarlo Sperli' Dipartimento di Informatica e Sistemistica,was release a paper a Smart Environment for Cultural Heritage Applications.They want to a way to make the digital ecosystem of a smart city which consider logical,economic,tourism,entertainment. They follow an architecture platform.

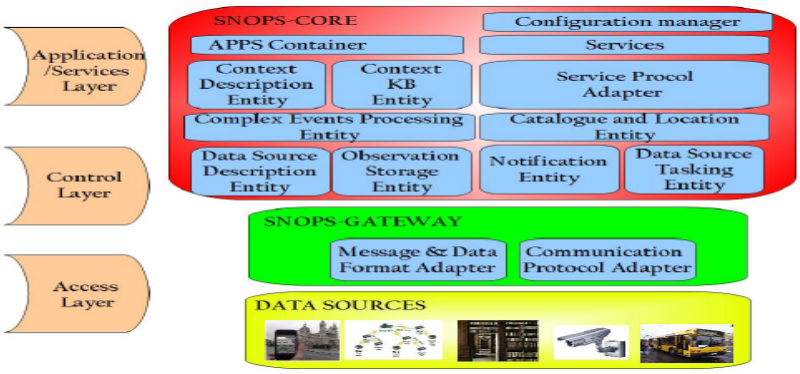

Figure 1.3: [6]

Environment Related to the archeological site to provide a set of features. suggest nationalities on personalized cultural themes on a hiking trip. They must take into account contextual data (observed picture, current location, weather forecast, traffic congestion entrance to other buildings, etc.), user settings (like confirmed and received during the visit), comments and behavior Iors others with similar experiences.

The implementation of smart trash as smart environment concept:

This paper discusses about the application of smart environment where Research and

Development method has been used for research from Borg and Gall model. First of all research needs Research and data collection and preparing a research plan. Field trials were observed by conducting interviews and questionnaires to evaluate the quality of the product. The main product has been modified based on the results of the initial field trial. Main field Testing, Improvement of operational products, Operational field testing is the part of this research. The results of operation field trial are completed when the final product is completed.
Some techniques have been used for data collection in the study. They are:
• Observation Method.
• Interview Method.
• Questionnaire method.
• Documentation Method.
Data collection instrument in research:
• Interview Guidelines: analyzes the requirements where the teacher is the respondent.
• Observation Guidelines: the research subject is observed by observing the knowledge of the children in the kindergarten.
• Questionnaire: questionnaires are used to see the impact of the media.
The formula has been applied using the Guttman Scale to calculate the respondent's test which will be used as a result of the media.

Dynamics of Complaint Management
In 1991 MARY C. GILLY, WILLIAM B. STEVENSON, AND LAURA J. YALE reasearch a paper which name Dynamics of Complaint Management.For our system we read this and review this paper .
in the Service Organization While the customer endeavors and organizations advancing composed works see the meaning of commitment from clients, little is known about how client input structures could function, particularly in making due with client complaints. This paper offers an information taking care of model of the complaint information stream inside the affiliation what's more positions hypotheses considering the proposed model. Another field study technique using a sort of association examination is used to precisely test hypotheses and track down limits and facilitators to the movement of correspondences. The audit gives understanding concerning how fight information flows through the relationship after it has been gotten by a client contact specialist. The results offer assistance for the hypothesis that the occupation of complaint regulator and boss in giving the organization is essentially basically as critical as the gig of the client contact delegate

2.2.3 Survey

This is the most frequently asked question of random peoples. At first we ask, "Have you ever used any kind of online complaint app?" 27.8 percentage people answered yes and 72.2percentage answered no. Second question is, "Have you ever face any problem to

contact the authority directly?" 27.8percentage people answered yes and 72.2percentage answered no. Third and fourth question is, "How would you like to notify your organization about a complaint?" and "Do you want to anonymous or hide user information?" 27.8percentage people answered yes and 72.2percentage people answered no for both question. Fifthly we ask, "Do you want to upload pictures for the complaint?" 27.8percentage people answered yes and 72.2percentage answered no for this question. Sixth question is, "Do you want to feedback system?" surprisingly 100percentage of people answered yes for feedback system. Seventh question is, "Do you want a notification system?" 94.4percentage people answered yes and 5.6percentage answered no. The eight question is , "If you want a notification, what do you want to get it through?" 33.3percentage people answered email and 66.7percentage people answered SMS. Ninth question is, "Do you think the online complaint system app is useful?" 94.4percentage people answered yes and 5.6percentage answered no. Last question is, "Do you want any feature that should be in an online complaint system?" people have responded and we collected the answers seriously.

2.3 Gap Analysis

1.Some of application provide chat boat option (Online chat,voice chat)
2.Unnayan Apps provide the Auto find location system others dis not give this.
3.Some of application provide offline sms system but we provide a online feedback system.
4.We provide a notification system the user easily get a feed back and the authority get complain easily
5.Most of the application work for specific organization but Unnayan apps provide a lot of organization combined.
6.Some of Application did not provide the complaint status. But Unnayan apps provide the current status of the complaint.

2.4 Summary

In this chapter, we have try to analyzed some similar web applications and prepared a benchmark analysis based on their features. We have studied some research papers also which helped us to find attributes for our project and give us sufficient knowledge for further work. Finally, we have made a gap analysis from where we have found out some gaps in which we can work on it.

Chapter 3

Project Design

In this chapter, we will discuss about our requirement analysis (Section 3.1), detailed methodology and design (Section 3.2), project plan (Section 3.3), task allocation (Section 3.4), and summary (Section 3.5).

3.1 Requirement Analysis

In Section 3.1, we will discuss about the functional and non-functional requirements, Context diagram,Block Diagram,Use case Design,Data Flow Diagram Level 1, UI design.

3.1.1 Functional and Nonfunctional Requirements

There we discuss about some functional and non functional requirements.

Functional requirements:
1. User can manage the whole complaint system
2. User can input them complain through writing text and uploading image
3. User can also share the location and organization name.
4. Notification system is available.
5. Stake holder also can get the complaint via notification and can give the feedback also.
6. User-friendly searching option.

Non-functional requirements:
1.Ensuring privacy of users.
2.Ensuring good response time.
3.For submitting text or images we've to use good Machine learning model.
4.Accessible for everyone, easy to use and user can manage the complaint in online and offline mode but the data will be updated after connecting to the internet.

3.1.2 Context Diagram

Our Unnayan apps is a complaint management system.Here, we have four types of users. Admin is the internal user who can control the whole system. Here, the other three users are external users.User use this system and find the organization then put their complaint.Authority received a complaint for the specific organization.Then the authority solve the problem and give to user feedback.The context diagram of Unnayan apps bellow.

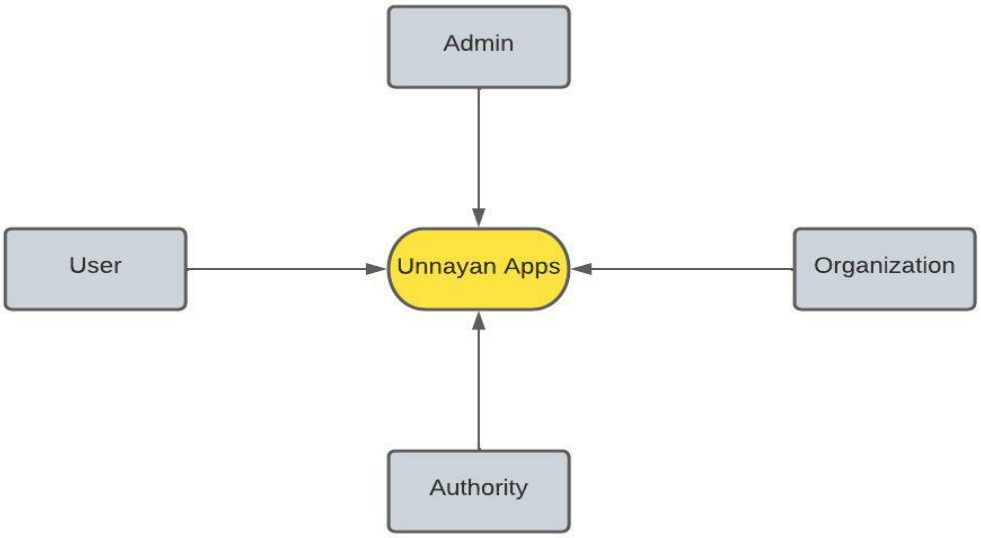

Figure 3.1: Context Diagram [10]

3.1.3 Data Flow Diagram Level 1

In our system admin access to the system and authority and user login the system.Authority will get the authentication access and user get the option for complaint.In the bellow give a data flow diagram.

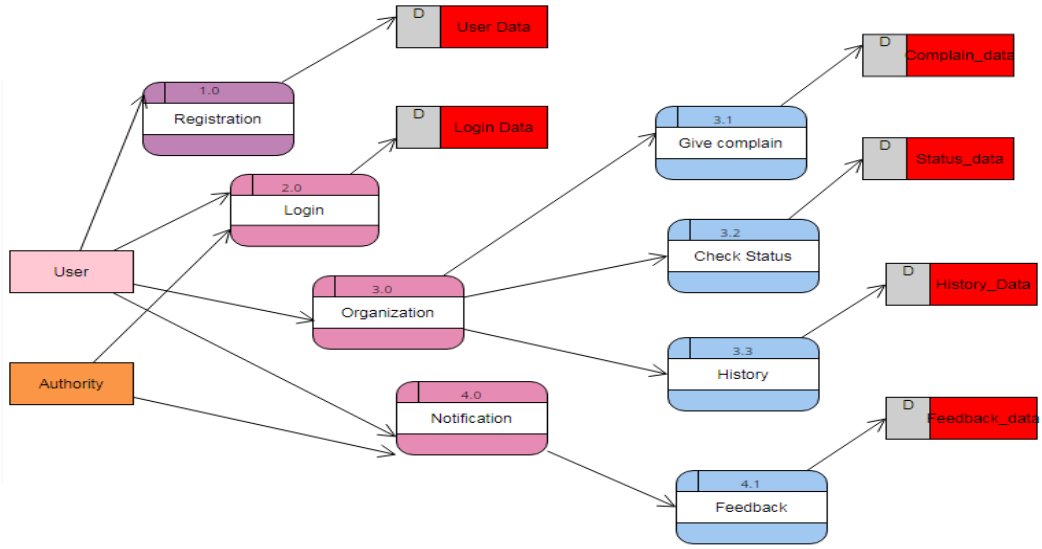

Figure 3.2: Data Flow Diagram [11]

3.1.4 Use case

In this section we discuss about the use case diagram.Here some functional and non functional features given and there connection with the user and database shows.

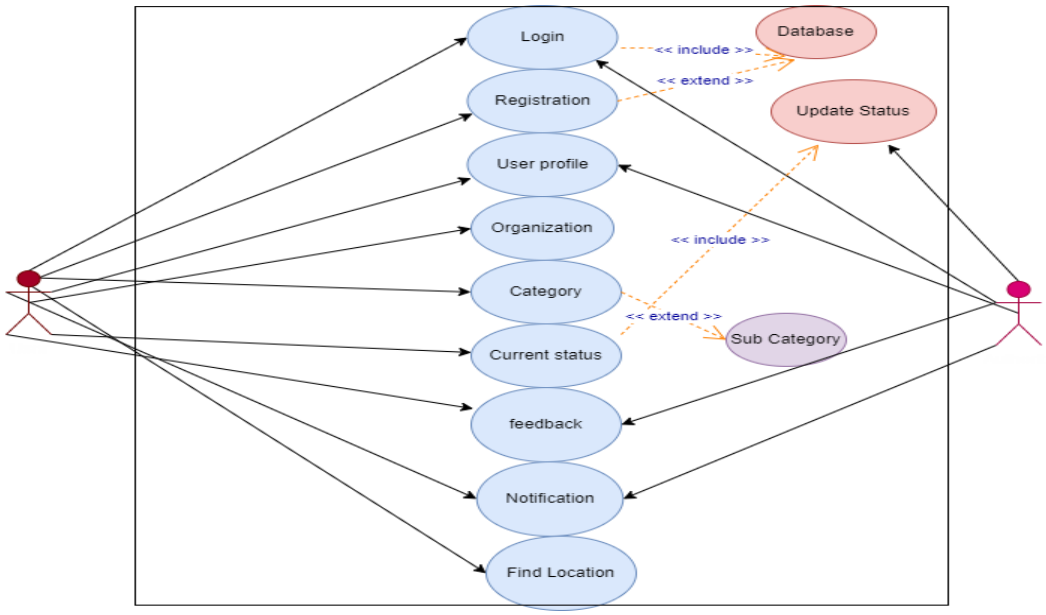

Figure 3.3: Use case Diagram [11]

Name	Login
Summary	This use case describes how a user logs into the Registration System. The actors starting this use case are user, Authority, and Admin.
Rationale	
Users	
Preconditions	There are no preconditions associated with this use case.
Basic course of events	The use case begins when the actor types his/her name and password on the login form.
Alternative paths	• The system validates the actor's password and logs him/her into the system. • The system displays the Main Form and the use case ends.
Postconditions	1. *Invalid Name / Password* • If in the basic flow the system cannot find the name or the password is invalid, an error message is displayed. The actor can type in a new name or password or choose to cancel the operation, at which point the use case ends.

Name	Organization
Summary	A complain box system apps use the user and send their complain. In this system provide a lot of organization combined complain system. There has a list of organization. User find out their organization select this organization and submit their complaint.
Rationale	Our system work for a lot of organization. A user uses this apps then they can easily provide them complain by unnayan apps. So, this apps have needed a list of organization.
Users	All user and authority
Preconditions	• The user should be an authorized user of Unnayan Apps. • User should know the username and password for login in.
Basic course of events	1. User login apps 2. User select the organization which they want to complain 3. User after selection the organization then put then complain in complain box. 4. Then submit their complain
Alternative paths	• The system may not respond. Solution: Wait for the system to respond. • User may not find the posting option in the place. Solution: User needs to contact the admin.
Postconditions	• The uploaded status remains even when the user logout. • The changes are not made in the database if did not click submit button • The user can see the uploaded status his/her in his profile.

Name	Upload Status
Summary	Update user's status in the website and employee log in an enter the status id
Rationale	Update Status is necessary step because if there is no update status option then CUSTOMER cannot SHARE them complain/problem/requirement and also, we do not know the user's requirement cannot give the solution. If customers problem solved or pending that is not shown. there will be nothing to update.
Users	All of user
Preconditions	Customers should register in website then they can share them complain. Authority will check and approve them complain. Then customer will see them complain pending or approved.
Basic course of events	Customer share their Complain to Authority. Then Authority will check the complaint.
Alternative paths	
Postconditions	If customers complain approved by Authority and solved the problem then customer share their opinion. That will keep recorded in this apps. when Customer will sign out from the apps.

Name	Notification System
Summary	Notifications are a way to let us know that something new has happened so we don't miss anything that might be worth our attention and appears through message, email, icon, or another symbol.
Rationale	Our project is a complaint and problem solve management system. Notification is a shortcut system so that we get the news of the complaint from the user very quickly and the user gets the news of resolving their problem.
Users	• users o Authority
Preconditions	First of all, the user has to know the rules for posting any problem on our website. They must post their problems step-by-step. Otherwise they will not get notification and authority also will not get the notification
Basic course of events	1. Firstly, a user's perfectly post their problem they will get a notification. 2. At the same time authority also get notification that any user has shared his problem with us. 3. when their problem is solved then a notification will be sent to the users through our authority. 4. Then the user will come and see and give their feedback.
Alternative paths	At this stage if any user has not received the notification on their website then they can get it via email or auto message of the phone. They will be able to know their update by contacting our admin.
Postconditions	After completing all the steps, user's will see our work feedback and give their own feedback. When they log out of their account, their feedback will remain on our website.

Name	Type of Complain
Summary	When a user goes to the complaint share option then there the user can see a type of complain. It means the user identify the problem and its which type. For example, a user wants to a complain about cleaning then the user selects facilities issues type.
Rationale	Our system is a complain management system. So there have a lot of organization a lot of complain. If the user cannot identify which type complain the want to share the cant find easily that's why we give a type select option. Its user friendly and easy way that's way.
Users	• All register user who want to give complain
Preconditions	• User should know the username and password for login in • User must give a valid complain.
Basic course of events	1. User search the organization 2. User select a complain 3. User share their problem in complain box 4. User select the type of problem
Alternative paths	1. If user miss select type of complain a message show first select type of complain. 2. If any user can't find their type then select others.
Postconditions	

3.1.5 UI Design

In our system we create a UI design preliminary.Some of our system ui given bellow:

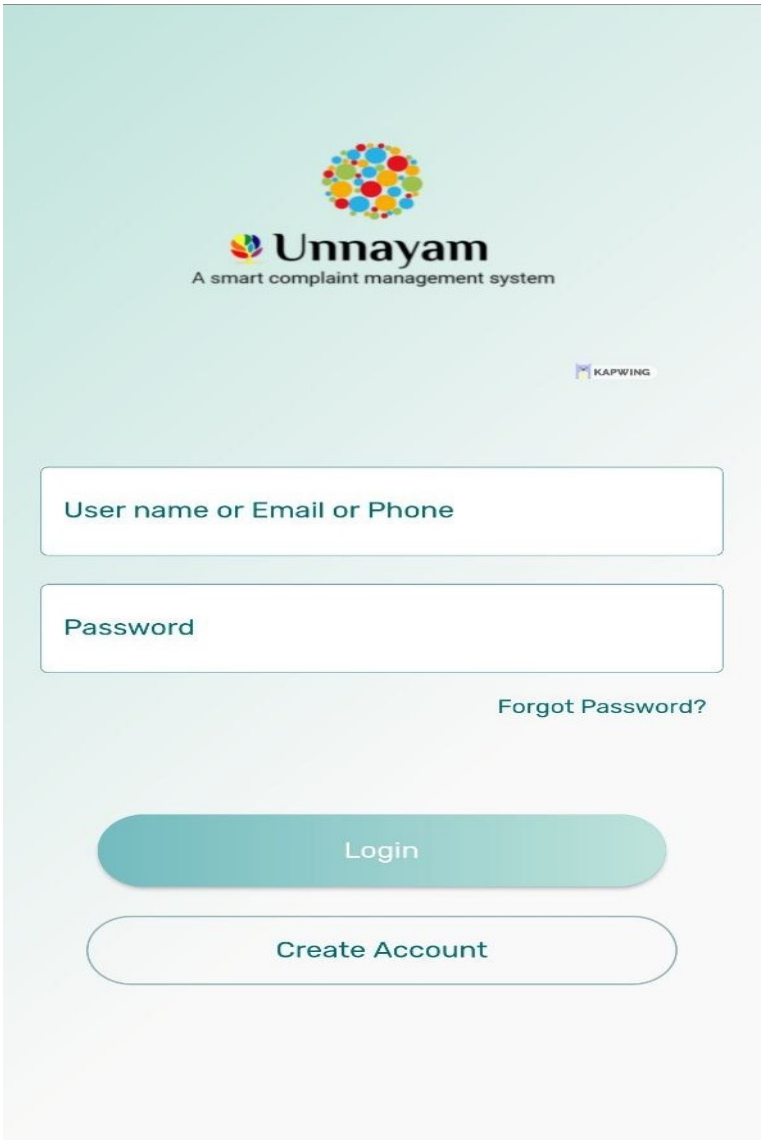

Figure 3.4: Login page

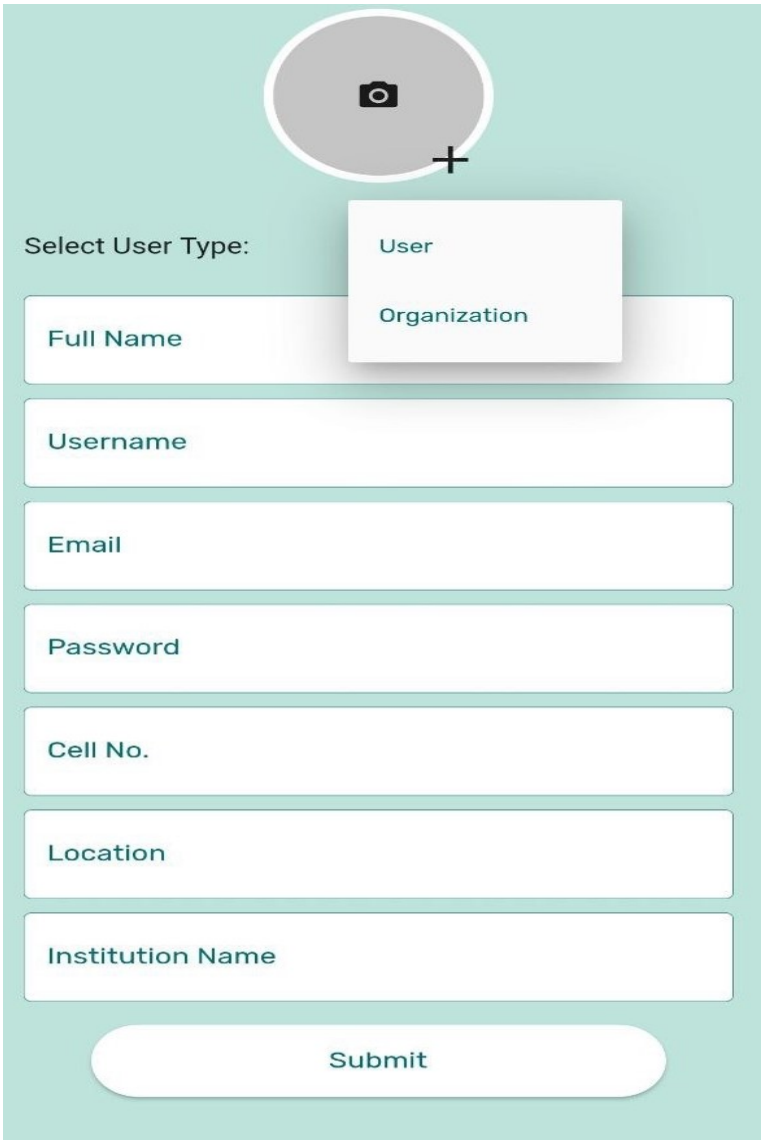

Figure 3.5: Create profile

Figure 3.5: Home Page

Figure 3.5: select organization

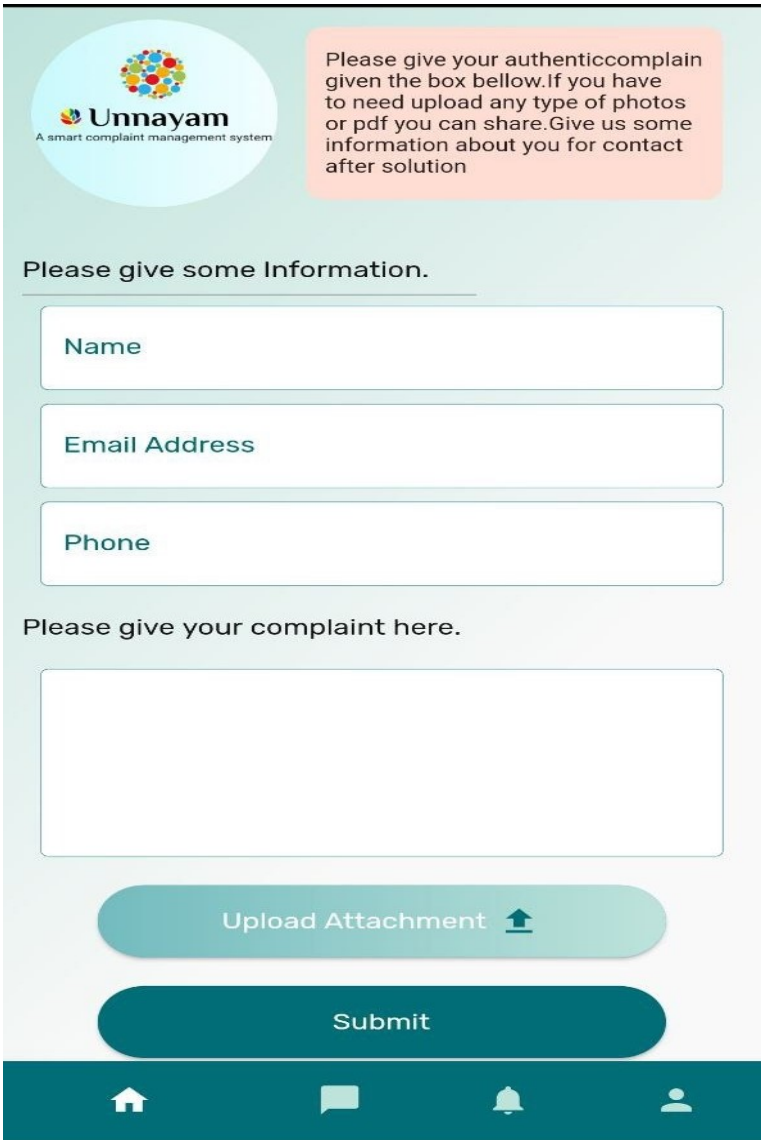

Figure 3.5: Complaint box

Figure 3.5: Solved problem with feedback

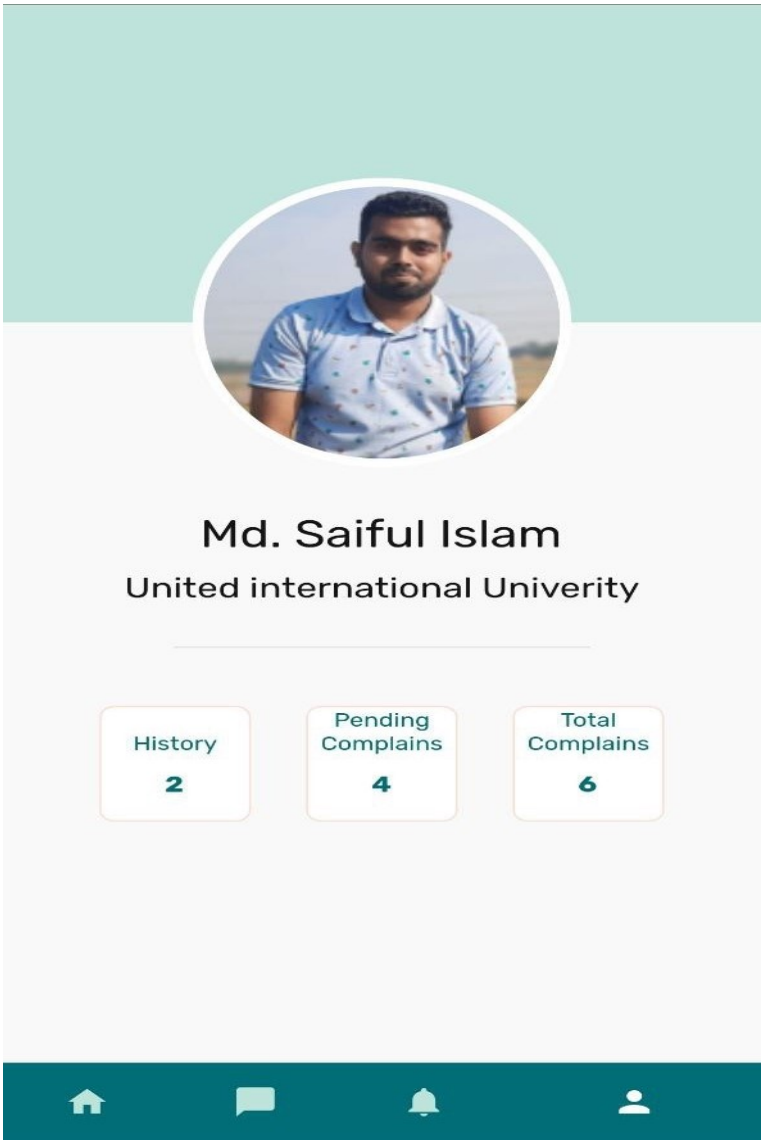

Figure 3.5: Check complaint status

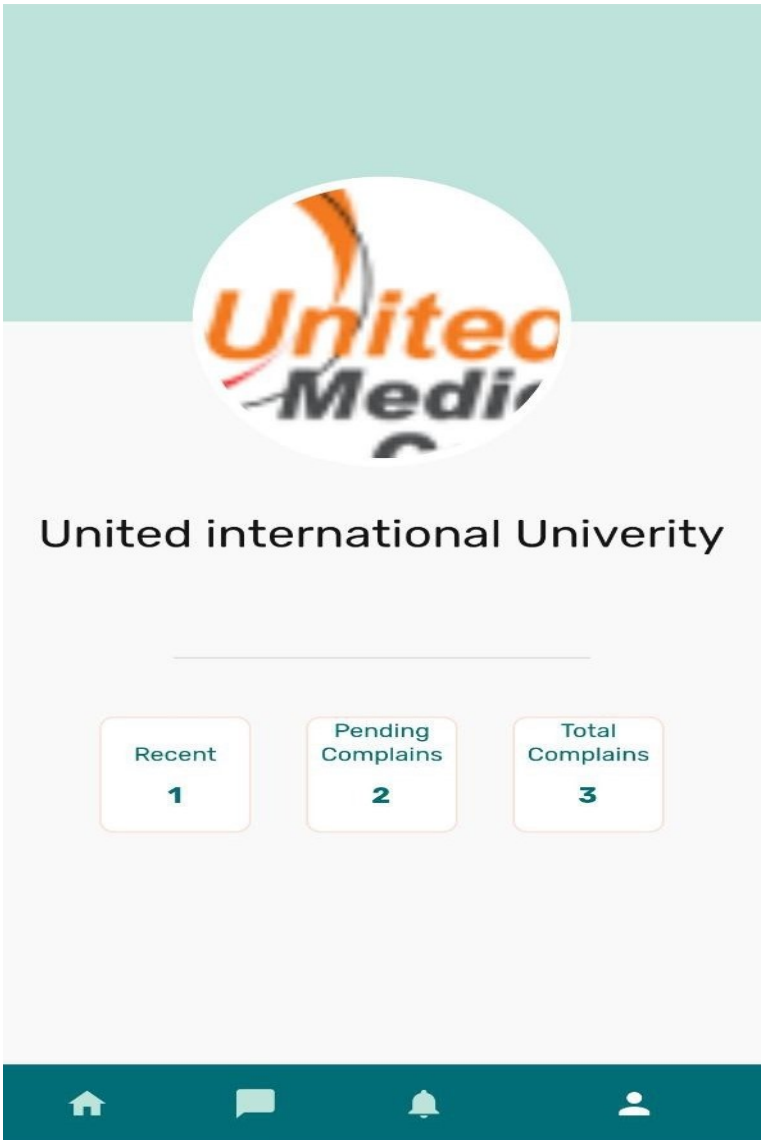

Figure 3.5: Organization complaint status

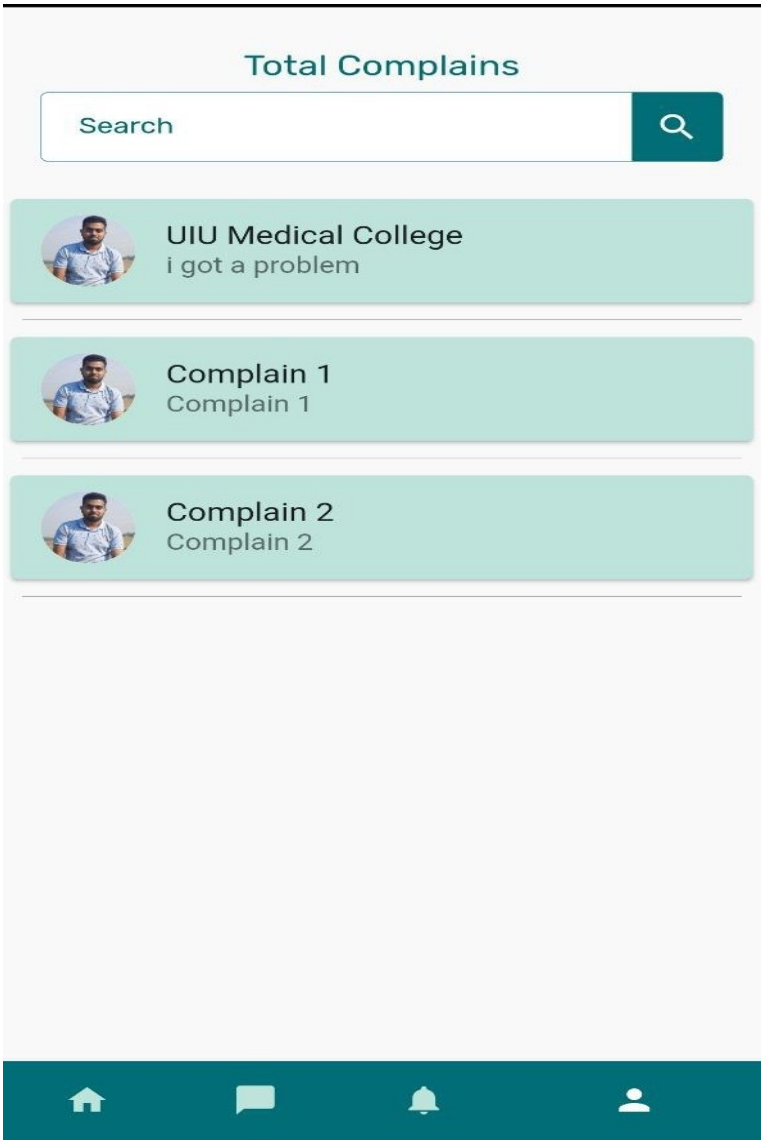

Figure 3.5: Pending problem

Figure 3.5: Total problem

3.2 Detailed Methodology and Design

Here see the architecture diagram (Section 3.2.1), Detailed methodology (section 3.2.2) also the hardware and software specification (Section 3.2.3) of the project.

3.2.1 Architecture Diagram

The architecture diagram of our project. Our project will follow 3-tier architectural design.

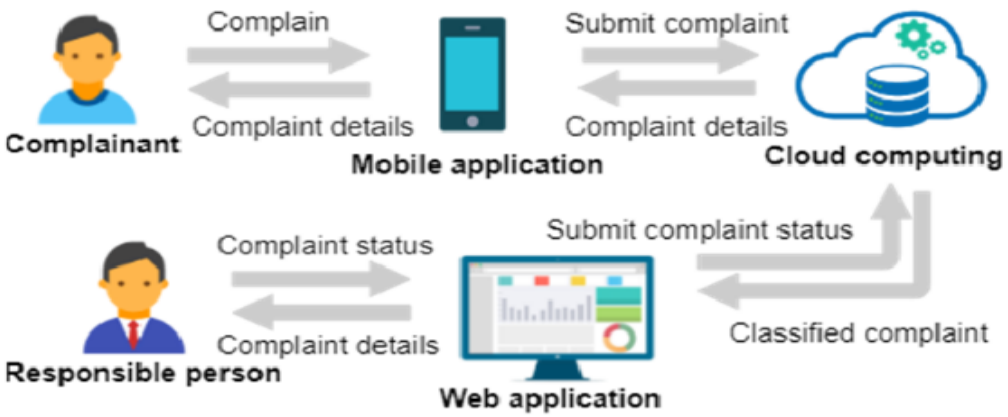

Figure 3.6: Architecture Diagram [18]

3.2.2 Methodology Diagram details

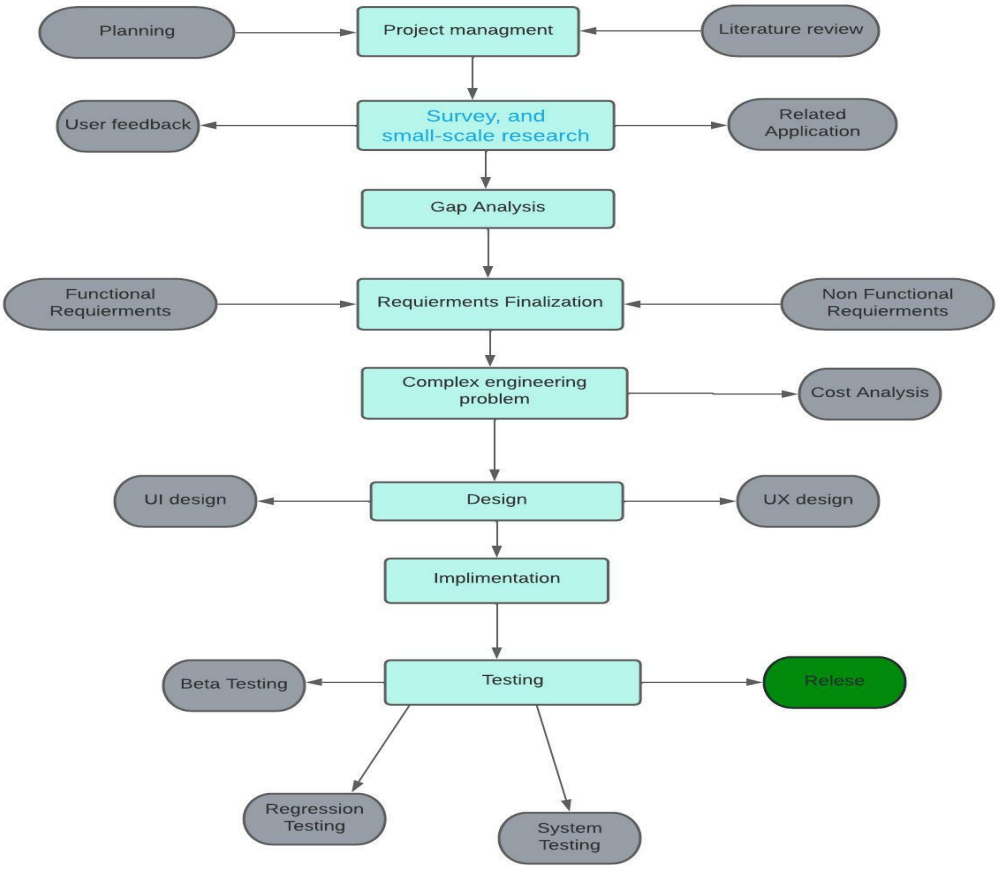

Figure 3.7: Detailed methodology [19]

3.2.3 Hardware and Software Specification

As hardware the user will require a "Android Smartphone" to run the application. For the back-end server we will use Firebase and development will be done using Flutter IDE, Dart language, Kotlin etc. Our Models will be hosted on Firebase.

3.3 Project Plan

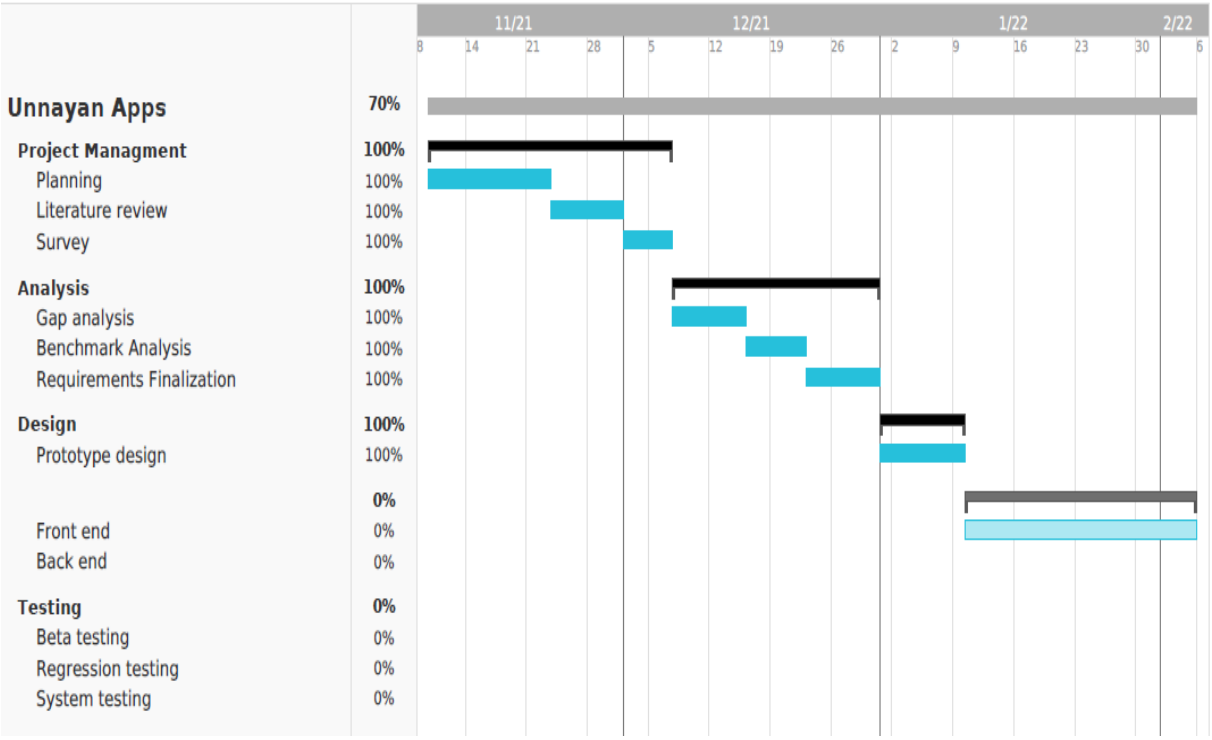

Figure 3.7: Project Plan [20]

3.4 Task Allocation

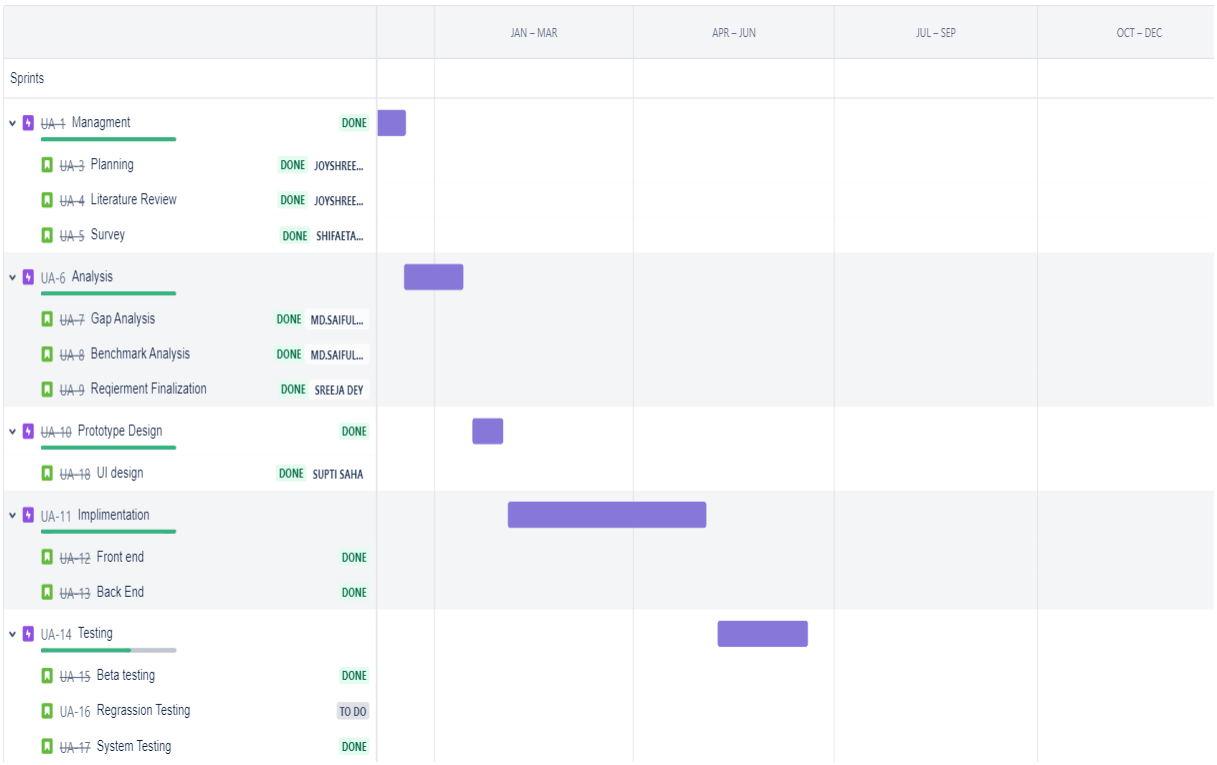

Figure 3.8: Task allocation [21]

3.5 Summary

In this chapter, we discuss the functional and non-functional requirements of our projects. Us We add a context diagram as an overview of our project. Here we also show us Level 1 DFD diagram. A simple user interface design is also added in this section. we mention us detailed methodology in this part and discuss our project plan and assignment of tasks.

Chapter 4

Implementation and Results

In this chapter, we will discuss about our environment setup (Section 4.1), testing and evaluation (Section 4.2), result and discussion (Section 4.3), summary (Section 4.4).

4.1 Environment Setup

For our system's environment setup we have chosen some tools that helps us to be more efficient. We have used figma for our UI/UX design related tasks. We have chosen Flutter,Dart language and Kotlin for our front-end development part, Firebase for authentication ,storage and fire store API for our back-end part.We have used some tools Android studio,Flutter IDE and Virtual Android Mobile. We have used Trello as our project management tool. We have also used GitHub as our version control software.

4.2 Testing and Evaluation

We are following the agile methodology.So in this methodology we need some different task.For every task we need a release and test it.In this project we divide it total 6 section and 6 times we release the Unnayan apps and every section we test it.Mainly we try to cover UI test,Unit testing,System testing and Beta testing.

This project Unnayan apps 1st version is 1.0.0.For update or after bug fixing the version will be changed.

4.3 Results and Discussion

However, we have devoted a significant amount of time to investigating features that are relevant to the Bangladesh situation. We have also completed a project review paper. As a result, we've switched to Dart language and Kotlin for front-end development and Firebase Authentication,storage and Fire store for the database and the back-end API development.In the first edition of our project's Android application,We have shown a complaint box where user can submit there complain against a organization and the

organization authority give the complain and the throw there feedback and solved the problem.We have used the questionnaire as a source of information from the user and organization. When user sent a complain then it is given by the organization authority as a notification.Then the authority check the notification realise the problem and then sent a feedback for the user.

4.4 Summary

In this chapter, we have discussed how we set up our environment for the project's implementation. Then, we discussed how we test our web application and the calculation part of our web application. Finally, we gave a small summary of our project's result and discussion.

Chapter 5

Standards and Design Constraints

In this chapter, we will discuss about our compliance with the standards (Section 5.1), design constrains (Section 5.2), cost analysis (Section 5.3), complex engineering problem (Section 5.4), and summary (Section 5.5).

5.1 Compliance with the Standards

In our project, we have followed 4 standards while implementation. Those are
• Coding Standards
• UI Standards
• Version Controlling
• Project Management Too
Coding Standards : We have followed Android IDE and Flatter for the front-end Dart language and kotlin for back-end Api developing.
Version Controlling : We have useed Git as version control tool and Github for code sharing in our project.
Project Management Tool : We have used Trello - Project Management Tool [64] for managing our project in and organized way and more effectively.

5.1.1 Software Standards

We have used Dart language and Kotlin for implementing the front-end using Firebase for implementing back end of our project and using Api is Authentication,storage and Firestore.Our using tools is Android studio,Flatter IDE,Git and Visual Android mobile

5.1.2 Hardware Standards

We use a database and our data will save on the database.Other we have no hardware implement.

5.1.3 Communication Standards

community standard can be precise or imprecise notions that govern people's idea about what is acceptable behaviour within a specific community.community, itself Could refer to a small-town,a State, University Campus, a group of internet users that join a specific website or other different collections of people.

5.2 Design Constraints

We have six impacts in our design constraints of our project. These are given below with some descriptions.

5.2.1 Economic Constraint

Our project has a good return of investment. Because there is no available system like our project. Another thing is our project will help to make our social system more suitable and excellent. So it will be easier to get funds from the Government Institution and any other Institution.

5.2.2 Environmental Constraint

First of all through our system environmental pollution will be protected. During this day carbon-monoxide has been gradually increasing in our air. our system will be able to reduce carbon monoxide by disposing garbage. The filthy environment causes a lot of human diseases. Diff sector such as hospitals, organization, factory, industry etc produce huge garbage per day. As a result air pollution also increasing day by day. if we fail to control this situation, we will fail to re established Equilibrium of biodiversity . If we all work through this system, it will be able to come down a bit and protect the environment of our society.

5.2.3 Ethical Constraint

our website is totally saved for our user. All the information of the registered member will be protected from others. It is Only admin who has the authority to access and check the information provided by the registered member. Our website efficiently and securely handle all the personal information like data collection, cost, management etc . So that in future there is no possibility to disclose any of that information.

5.2.4 Health and Safety Constraint

we all know that The filthy environment causes a lot of human diseases. Human health effects of dust relate mainly to the size of dust particles.. Through our project, the garbage of organization, foundation, school, collage, roadside etc. is cleaned. So through our job we are trying to save our human health and also our environment.

5.2.5 Social Constraint

Our project is socially satisfactory and has a long influence. According to city index natural environment of a place determents there life standard of the inhabitants. From that prospective if the nature of a city is sound enough then the life standard of the inhabitants is determined by that ratio of it. Our system helps users to notice foundations, organization where they have problem and to fix them. In this why the environment of our society remains right. Which is an inconceivable step for an overall population's.

5.2.6 Political Constraint

Frist I want to give an example, which is recently published air pollution index show that Dhaka city is the largest air polluted city defeating Mumbai. But in our political scenario any sort of agenda regarding reestablished biodiversity is not focused in that manner. So our project can help them to keep a lot clean.

5.3 Cost Analysis

For our project, Cost and Budget Analysis has been one of the most important parts for implementing. It has been given as an approximate idea of cost and budget on developing the whole project. Our Cost and Budget have been explained below (It may vary on different contracts regarding implementation and time of this project).

Designing:

• If we hire a designer for developing a user-friendly interface for our system that we're going to develop.

• Our initial budget for designing this system is 60,000 TK.

• This budget may vary due to contracts.

Data Collection:

• We have collected both primary and secondary data.

• For primary data collection, we have visited different hospitals, private institution and private farms. We have created a structured survey questionnaire for this primary data Collection. We are going to the patient and general people who are taking the facilities from the hospital and institution. Their demographics, Institution background ,location , people information, people survey result and feedbacks are collected to this survey. As, we have to physically visit the hospitals and farms in different locations of the country, there has been transportation, communication and other associated costs.

• For secondary data collection, we have visited the authorities and the higher management team of that hospital institution who are control the hospitals and institution, trying to getting their feedback about complain.

•We have also tried to collect data from different articles, websites and reports.

• We have estimated the cost of data collection to be 40,000 TK.

Data Analyst:
• From the survey, the data analyst have analyzed the feedback and survey result. He have mark the needed according to their feedback from the survey results.
• The cost of a data analyst is estimated to be 40,000 TK.
• He will update the data from time to time.

Maintenance and Security:launching the web system, the users may need new knowledge about complain system. So, we have to update the website on a regular basis. Moreover, the web system will need a strong security system. For proper maintenance and security, we have allocated the budget to be 1,00,000 TK.

Development:
We will develop the system with the help of an experienced web developer. Our web system will be developed on HTML, CSS, Node.js, JavaScript,, Firebase, MongoDb. We will develop a web based complaint system that will work automatically. Which means the users will give their complain in the system and the system reached it in the destination and getting notification.For this web system development we will pay an amount to the developer which is estimated to be 1,50,000 TK.

Hosting: We have used Namecheap for hosting the web system. The cost is estimated to be 18,000 TK per year.

Domain: We have prchased a domain from namecheap.com which might cost around 1,000 TK per year.

Sectors	Approx. Cost (TK)	Revenue
Designing	60000	As this project has several stakeholders base, we can sell it to the **Hospital, Private farms, Office Management** are also our product can be used in **Public institutions**. Revenue might come from these.
Data Collection	40000	
Data Analyst	40000	
Development	150000	
Hosting (Yearly)	18000	
Domain (Yearly)	1000	
SSL Certification	2300	
Maintenance (Yearly)	100000	
Total	393300	500000

Table 5.1: Cost Analysis

In Table 5.1 we have shown an approximate budget analysis of our project.

5.4 Complex Engineering Problem

In this section, we will discuss why our project falls under complex engineering problem criteria. We will relate our project with the complex engineering problem characteristics, complex engineering activity and the complex engineering knowledge.

5.4.1 Complex Problem Solving

In this section, we will map our project with complex problem solving characteristics.

P1 Dept of knowledge	P2 Range of conflicting Requirements	P3 Depth of Analysis	P4 Familiarity of Issues	P5 Extent of Applicable codes	P6 Extent of stakeholder Involvement	P7 interdependence
√	√	√	√		√	√

Table 5.2: Mapping with complex problem solving.

From **Table 5.2** we can see that our project has all the characteristic from P1 to P7 of a complex engineering problem except P5. For implementing our project, we need in-depth engineering knowledge such as application of algorithms, database design, a systematic problem solving approach etc. We will not be able to implement the project without in-depth engineering knowledge. Our project also has the characteristic of range of conflicting requirements as our proposed system will be covering the whole country. Besides, there is no ready-made solution or package or module like our proposed system.Another characteristic of our project is that we are working with an infrequently encountered issue. There is a diverse group of stakeholders like institutions, hospitals, people, admins who have different interests to the system. The proposed system will not be a single component based system, there will be a lot of sub components which will interact with each other on the proposed system. So, from all these talks we can clearly see that our project or proposed system has the characteristics of P1, P2, P3, P4, P6 and P7.

5.4.2 Knowledge Profile

In this section, provide a mapping with engineering activities. For each mapping add subsections to put rationale

K1 Natural science	K2 Mathematics	K3 Engineering fundamentals	K4 Specialist knowledge	K5 Engineering design	K6 Engineering practise	K7 Comprehension	K8 Research literature
		√	√	√	√		√

Table 5.3 we can see that we need five knowledge profile K3,K4,K5,K6 and K8 to implement this project. As we need in-depth engineering knowledge and our system satisfies the characteristics of P1, we need k3, k4, k5, k6 and k8 knowledge profiles to implement

the system. We need a systematic problem solving approach that we have learned from System Analysis and Design. We also need specialist knowledge like algorithms, database design etc. Besides, we have planned to use vue.js or Nuxt.js, tensorflow, laravel-8 as the forefront of the discipline. We will also use the latest technologies like Trello for project management, Github for code sharing etc. One of the most important task we need to do is to study research papers related to quality measuring attributes of educational institutions and go through some applications or web platforms similar to our topic.

5.4.3 Engineering Activities

In this section, we will provide a mapping with engineering activities of our project. For each mapping we have to write descriptions how to relate A1, A2, A3 with our project.

A1 Range of resources	A2 Level of Interaction	A3 Innovation	A4 Consequences for society and environment	A5 Familiarity
√	√	√		

Table 5.4: Mapping with complex engineering activities.

From **Table 5.4** we can see that our project will have three complex engineering activities such as a range of resources, level of interaction and innovation.

Range of resources : It refers to involving the use of diverse resources like people, information, money, materials, technologies etc. Some of these diverse resources are in our project. We need lots of information about hospitals and institution, attributes as materials, methods as technologies to build our project.

Level of interaction : In our project, there will be significant level of interactions between us and the stakeholders like general people, authorities and institutions to find the conflicting issues and solve them according to their requirement.

Innovation : Innovation means involving creative use of engineering principles and research based knowledge in novel ways. In our project there are many engineering principles involved like testability, engineering design, software development life cycle (SDLC) etc.

From all these rationals we can see that our project justifies A1, A2 and A3 engineering activities.

5.5 Summery:

In this chapter, we have tried to discuss about the similarities between our project and complex engineering problems and have shown why our problem is a complex engineering problem. Finally, created an approximate budget analysis based on our system which is written into the cost analysis section.

Chapter 6

Conclusion

In this project first part we describe about research .We research some paper some similar application and survey.In part two we are going to implementation based on our research and requirements.

6.1 Summary

In FYDP-I, we have mapped our problem with complex engineering problem. For understanding the gaps and scope of works, we have researched some papers from different countries. After understanding the gaps, we will focus on finding the proper quality measuring attributes for complaint about the institution, at FYDP-II . We have read more papers to find out the proper quality measuring attributes and threshold of those attributes. Finally we have selected the attributes and sub attributes for implementing the web system that we have developed. In addition to all these, we have found the functional and nonfunctional requirements for our project and made an approximate budget for our project, with the help of context diagram and DFD level one diagram. We have also shown the visual representation of our project. All the client-side users can throw their complain or interlocution and getting the feedback based on different criteria of our web-application and get necessary information from it.

6.2 Limitation

Limitation We have had few limitations on setting the quality attributes for the system we have built as some of the attributes can only be accessed through physical visit and inspection. However, we have not included those attributes in the first version of the system.

6.3 Future Work

We have prepared the first version of the web application with dummy institutions' data. In the future, we will try to research in a broader scale of attributes and include different types of data collection method in our system. We also will try to include chatbot system and emergency online call system.

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