A PROJECT REPORT

ON

"SKILLED EMPLOYMENT NEGOTIATOR"

Submitted to

UNIVERSITY OF MUMBAI

In Partial Fulfillment of the Requirement for the Award of

BACHELOR'S DEGREE IN
COMPUTER ENGINEERING

BY

Kazi Mohd Owais Wasim Siddika	15CO16
Shaikh Amir Usman Farzana	15CO32
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UNDER THE GUIDANCE OF
Prof. Mukhtar Ansari

DEPARTMENT OF COMPUTER ENGINEERING
Anjuman-I-Islam's Kalsekar Technical Campus
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Plot No. 2 & 3, Sector - 16, Near Thana Naka,
Khandagaon, New Panvel - 410206

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CERTIFICATE

This is certify that the project entitled

"SKILLED EMPLOYMENT NEGOTIATOR"

submitted by

Kazi Mohd Owais Wasim Siddika	**15CO16**
Shaikh Amir Usman Farzana	**15CO32**
Khan Mohammad Ali Minhaj	**15CO20**

is a record of bonafide work carried out by them, in the partial fulfilment of the requirement for the award of Degree of Bachelor of Engineering (Computer Engineering) at ***Anjuman-I-Islam's Kalsekar Technical Campus, Navi Mumbai*** under the University of MUMBAI. This work is done during year 2018-2019, under our guidance.

Date: / /

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Project I Approval for Bachelor of Engineering

This project entitled ***"SKILLED EMPLOYMENT NEGOTIATOR¨*** by ***Kazi Mohd Owais Wasim (15CO16), Shaikh Amir Usman (15CO32), Khan Mohammad Ali (15CO20)*** is approved for the degree of ***Bachelor of Engineering in Department of Computer Engineering.***

Examiners

1. .....

2. .....

Supervisors

1. .....

2. .....

Chairman

.....

Declaration

We declare that this written submission represents our ideas in our own words and where others ideas or words have been included, We have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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ABSTRACT

Worldwide, our country is known as a developing country and nowadays our country is developing very rapidly in infrastructure department. Henceforth there arises a lot of labours and workers. Employment tends to vary from people to people. Getting jobs for a particular profession is really important for any individual. Hence, Our system Will provide the opportunities for any individual to get Job Or work according To his/her skill set.

Providing employment in our country will lead to the development of the masses as well as the lifestyle of the people will certainly get better. Employment is required for each and every person of our country. So our main aim is to do something for the people of our country.

Our system will help labours to get their deserving jobs according to their skills and knowledge. In our system there will be two parties: One who will provide the job and other who will accept or do the job.Our system will help the worker to get the wages on daily basis.

Keywords: Android Studio, Firebase, Json, meaven.

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Chapter 1

Introduction

In the modern world,Employment plays a major role in the development of an individual as well as the country. The rate of employment of a country indicates the current status of the country in terms of GDP as well as the standard of living of its citizens. If the Citizens of a country are employed at the most,the country would be considered as a super power. So, employment becomes a major need for the citizens.The responsibility of providing the employment to the citizens totally depends on the government for smooth governance of the country. Skilled employment plays a major role is getting employed. Unskilled citizens too can get employed but skilled citizens are given more priority than the unskilled ones. So to conclude, Employment is the backbone of a country and for its economy.

1.1 Purpose

The main purpose of our product is to provide employment to individuals or groups according to their skill sets and knowledge of a particular work. Our product will serve the employer which will act as the admin as well as to the employee which will be provided jobs through our system. So,our product will Be helpful For both Of the participants.

1.2 Project Scope

The scope of our project is to provide the employment for various individuals of our society. As getting employment in our country is getting difficult in this modern era,our sincere effort is to provide employment and good life to all the individuals of our society.Another scope of the project is to eradicate child labour from our country as it is really effecting children's growth and development.

1.3 Project Goals and Objectives

1.3.1 Goals

1. To assign perfect job to a labour as per his/her skills and knowledge.
2. To help them to get their wages on time.
3. To remove linguistic barrier among user and our system.

1.3.2 Objectives

1. To decrease The unemployment rate of our country.
2. To eradicate child labour.
3. To work for the betterment of our country.

1.4 Organization of Report

Chapter 1: The first chapter mainly consists of the purpose And the scope of the project. It also consists of the main goals as well as the objectives of the project. The main aim of this chapter is to specify the need of implementing this project.

Chapter 2: The second chapter mainly consists of the literature survey regarding the project. All the papers which helped us to study about our project or helped us in our thinking process are mentioned in deep in this chapter.

Chapter 3: The third chapter mainly consists of the main project planning. Project planning Includes the member's capabilities, Roles and Responsibilities. It also includes assumptions and constraints regarding the project. It also mentions the project budget and timeline as well as the Ground rules for the project

Chapter 4: The fourth chapter mainly consists about the srs of The project. SRS includes user classes,operating environment,design and implementation constraints. It also includes user interfaces,hardware and software interfaces. It also mentions about the non-functional requirements such as performance,safety and security requirements.

Chapter 5: The fifth chapter mentions about the functional and non-functional requirements of the project. It also mentions about the system architecture design and its sub-system. Lastly,it concludes with the system integration diagrams such as class diagram, sequence diagram, component diagram and deployment diagram.

Chapter 6: The sixth chapter mainly consists of the implementation of the different modules specifies in the srs. Implementing these modules will lead to the flow of the project in an easy way.

Chapter 7: The seventh chapter mentions about the system testing of the project. After implementation,test cases are formed and accordingly different test results are generated which defines the test condition and the system behavior on which expected results are countered. It also mentions the software quality attributes that will be provided to the customers or the developers.

Chapter 8: The eighth chapter is mainly about the screenshots of the Live and the working project. Once the project is implemented, screenshots are taken and attached in this chapter.

Chapter 9: The nineth chapter is the final chapter which mentions about the future scope of our product. It also includes the references as well as the achievements of our project in various conferences and competitions.

Chapter 2

Literature Survey

2.1 Dynamic Control Of Skilled And Unskilled Labour Task Assignments

2.1.1 Advantages of Paper

a. It considers that the closest skilled worker on the shop-floor is assigned to the next task.

b. The system allocates the labour based on a predefined optimization objective, subject to constraints such as skill match or load level limits.

2.1.2 Disadvantages of Paper

a. Training cost of unskilled workers and labours can add much expense to a company.

2.1.3 How to overcome the problems mentioned in Paper

a. We will provide educational videos in our app so that they can get knowledge of work

2.2 A Web Application For Geographically Distributed Clients

2.2.1 Advantages of Paper

a. The review has achieved the main targets of the project.

b. The review has provided standard content, services and display.

2.2.2 Disadvantages of Paper

a. The system was not full fledged as it Requires more enhancement into three areas of improvement

b. graphic, content and technical improvement.

2.2.3 How to overcome the problems mentioned in Paper

a. We will provide user friendly graphical user interface.

b. Technically our project will be more strong than the proposed system.

2.3 Employee Management Application Within A Organization Using Android Smart Phone's

2.3.1 Advantages of Paper

a. The data which is gathered by the software is stored in the database for the further usage.

2.3.2 Disadvantages of Paper

a. This paper focused only about the monitoring of employees.

b. It is used to handle low to medium traffic HTTP requests.

c. Database size is restricted to 2GB in most cases.

2.3.3 How to overcome the problems mentioned in Paper

a. The tracking System of the employee would be much accurate and efficient.

b. The system Would be more flexible as compared to the older systems.

2.4 Self-Generating A Labor Force For Crowd- sourcing Is Worker Confidence A Predictor Of Quality?

2.4.1 Advantages of Paper

a. Quality labors will get recommend for most of the jobs.

b. Labors will get proper job according to there self skills.

c. Work profile will help them getting jobs throughout the life.

2.4.2 Disadvantages of Paper

a. Low quality labors will never get opportunity to improve their performance.

b. The fresher will face some problems to get their jobs.

2.5 Technical Review

2.5.1 Advantages of Technology

a. Android studio is very efficient in building of an application.

b. Firebase is also an important database which will store the data.

2.5.2 Reasons to use this Technology

a. Android studio will help us in the implementation of the application.

b. Firebase will help us in storing the information as well as the data Of the employer and the employee.

Chapter 3

Project Planning

3.1 Members and Capabilities

Table 3.1: Table of Capabilities

SR. No	Name of Member	Capabilities
1	Kazi Owais Wasim Siddika	Database
2	Shaikh Amir usman Farzana	Programming
3	Khan Mohammad Ali	validation,testing

3.2 Roles and Responsibilities

Table 3.2: Table of Responsibilities

SR. No	Name of Member	Role	Responsibilities
1	Kazi Owais Wasim Siddika	Team Leader	Leading the team
2	Shaikh Amir Usman Farzana	group member2	Database,programming
3	Khan Mohammad Ali Minhaj	group member 3	UI Design,Testing

3.3 Assumptions Constraints

3.3.1 Assumptions

1. Assumptions in our project is that the employer must be a reliable person and the information entered by the employer is correct.
2. Another assumption is that the the employee must enter their correct information.

3.3.2 Constraints

1. Major constraint is that of a internet connection as it is required for working of an application.
2. All the repositories of android studio should be available.

3.4 Project Management Approach

We have used spiral methodology for the development of our project.The Spiral Project Management Process is a value centered method that allows projects to get processed in small phases or cycles.This methodology is very flexible that will help the project manager to achieve the desired goals and adapt to the changes.

3.5 Ground Rules for the Project

1. All the user of system will be somehow connected to each other.
2. No other user will be able to view or access other user's private credentials .
3. Once the user is registered as contractor or labor,then the user will not be able to change his/her user characteristics.

3.6 Project Budget

The budget of this project is quiet low as most of the tools we have used are open source.Following are the budget of the project.

1. **Operating System:** Linux(open source).
2. **IDE:** Android Studio(open source).
3. **Server:** Firebase (open source).

3.7 Project Timeline

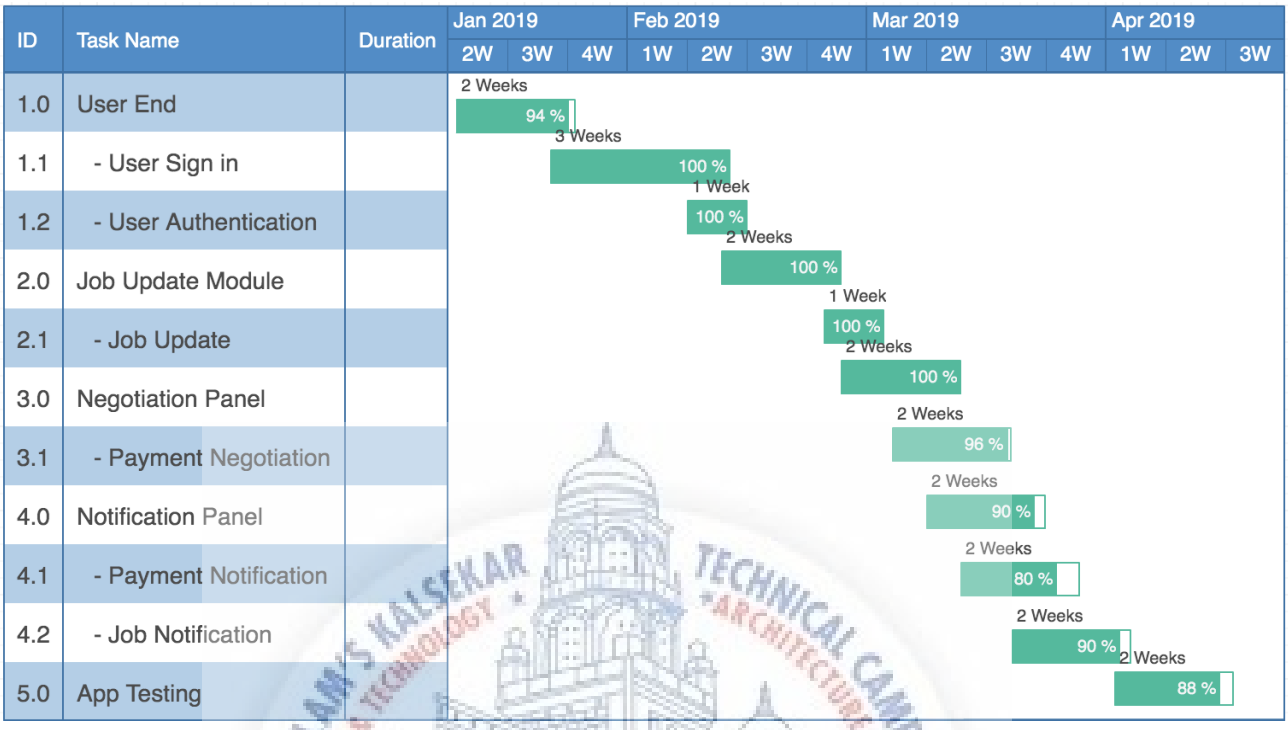

Figure 3.1: Gantt Chart Of SEN

Chapter 4

Software Requirements Specification

4.1 Overall Description

4.1.1 Product Perspective

The main aim of our application is to provide employment to certain individuals or groups according to their skill sets.The jobs would be provided as per the requirement of certain stream at a particular time.

4.1.2 Product Features

The major feature of our product is the provision of jobs to the skilled as well as to the unskilled labours.There is two way communication between the employer and the employee in our product.

4.1.3 User Classes and Characteristics

There are various users that can use our system such as normal user .i.e any day to day working person or work provider person.The work will be uploaded on work provider who will be considered as a contractor and the working person will view the job and apply for it.

4.1.4 Operating Environment

The environment in which the software will operate is Android and the hardware platform on which the software will run will be any android based smart phone.The Android version should be greater that 4.0 that is Android Jellybean and higher.In Terms of platform requirement, our product is only mobile based app and it requires a mobile handset with good android version

4.1.5 Design and Implementation Constraints

The main constraint considered while implementing our product is the internet connection/connectivity as it hampers the process of registering of the employee in

our app as well as to initiate the process of job finding.If the internet is down,employees cannot access the app and cannot find the job.

4.2 System Features

The main feature of our system is the registration and authentication of the user in our system.Secondly,Our system provides two way communication between both contractor and the labour regarding the working hours,payment and the job location.

4.2.1 System Feature

1. User authentication.
2. Negotiation and payment.

Description and Priority

1. User authentication:

The main feature is the user authentication which will be done using a OTP sent to the user's mobile number.

2. Negotiation and payment:

This feature provides a two way communication between the contractor and the labour regarding the working hours and the payment.Both the contractor and the labour can negotiate regarding the working hours and payment for a particular job.

Stimulus/Response Sequences

1. Employee will first register himself/herself as an individual or head along with their credentials,skill sets and preferred job location.
2. Employer will then update the job location and will view the job profile of the employee.Employer will then update the job With no of skilled people required and no. of hours of working along with the payment.
3. Employee can negotiate with the employer about the payment and working hours.

Functional Requirements

1. The user of the application must be able to enter the correct information/data about themselves.
2. The user must use our developed app for finding the required job as per their need.
3. Employee can negotiate with the employer/contractor about the working hours and payment.

4.3 External Interface Requirements

4.3.1 User Interfaces

1. User must register itself on our system.
2. After registration user must provide his/her credentials to our system.
3. If the user is contractor then he/she will be able to upload or view jobs.
4. The contractor will be able to make payment to the labor.
5. If the user is labor then he/she will be able to view job and apply for job.
6. The user will also be able view the payment done to him/her.

4.3.2 Hardware Interfaces

Android Enabled Device: The android enabled device should have android Version above 4.0.In order for the smooth functioning of the application,the android device must have at least 512MB of Ram and at least 200MB of free storage on the device.The android device can also function on a tablet device.

4.3.3 Software Interfaces

1. **Operating System:** Android OS above 4.0.
2. **Browser:** Google chrome,Firefox,safari.
3. **Tools:** Android Studio IDE.

4.3.4 Communications Interfaces

The major communication will be done with the server and the client.Client/Employee is the one which will access the application for finding a job.Also,server will communicate with the employee through the notification panel for the job update and location as well as the payment.

4.4 Nonfunctional Requirements

4.4.1 Performance Requirements

1. **Job Finding:** Job finding would be easy in our system as it provides one-to-one communication between the employer and the employee.
2. **Wage Transaction:** Wage transaction will be secure in our system and the employee would be paid on time without any delay.

4.4.2 Safety Requirements

In case if there is any problem in the server or the server is damaged/hampered,then the whole system will go down. The data which is updated by the employer must be committed in the database.

4.4.3 Security Requirements

The main security is all the users who are using our system are authenticated user.No fraudulent user can access our system.Payments which is being made is done with secured connections.

Chapter 5

System Design

5.1 System Requirements Definition

The system is an Android application for skilled employment.Our system will function overall on job finding and proving the job to the to the employee by the employer.We had various surveys regarding the applications related to our project.We had decided the system specification for our project.considering all these requirements, we have decided the functional and non-functional requirements.

5.1.1 Functional requirements

They define the basic functions that the system must provide and focus on the needs and goals of the end users.

Use-case Diagram

The use case diagram of our proposed system describes the representation of the interaction between the employee and employer. In which Log-in and Apply for desired job,etc are the function of employee is given.

And to accept or reject the application, to manage attendance of employee's, calculation of employee's salary are the functions which are handled by the employer are there in use case diagram.

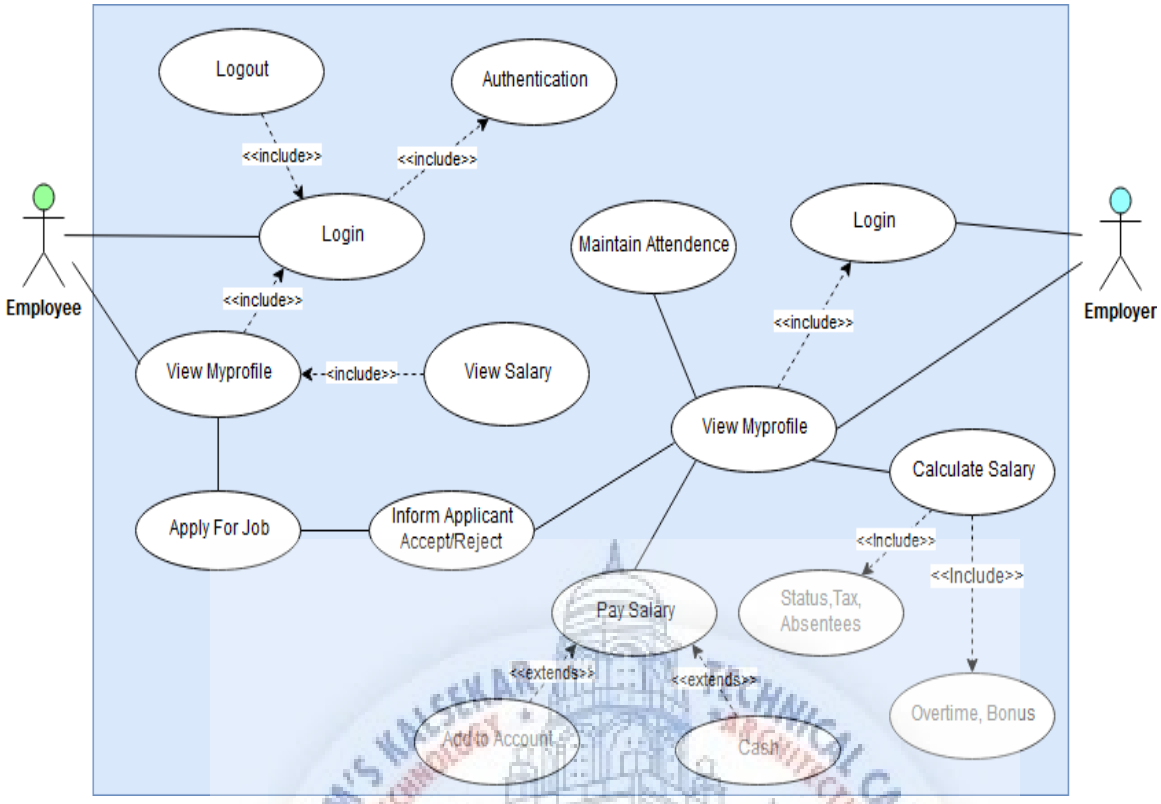

Figure 5.1: UseCase Diagram

Data-flow Diagram

The graphical representation of the flow of data in our system is shown in the below data flow diagram.

Level 0 Data Flow Diagram : In this level, there are two major entities i.e. contractor and labor. Where the contractor can upload jobs and according to the skills particular labor can apply for the job. Then the labor will get the job if contractor accepts the application.

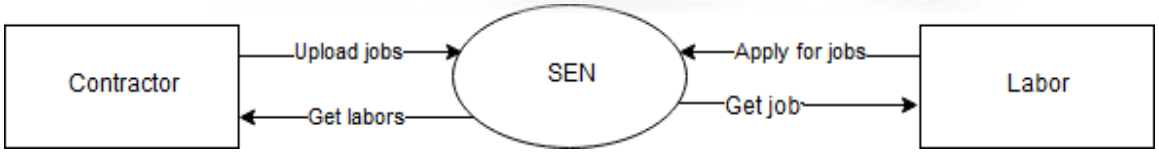

Figure 5.2: Level 0 Data Flow Diagram

Level 1 Data Flow Diagram : In this level,Both the user will have to register for entering into the system. And the labor can search for jobs according to the skills he had from the database where the jobs are uploaded by contractors.

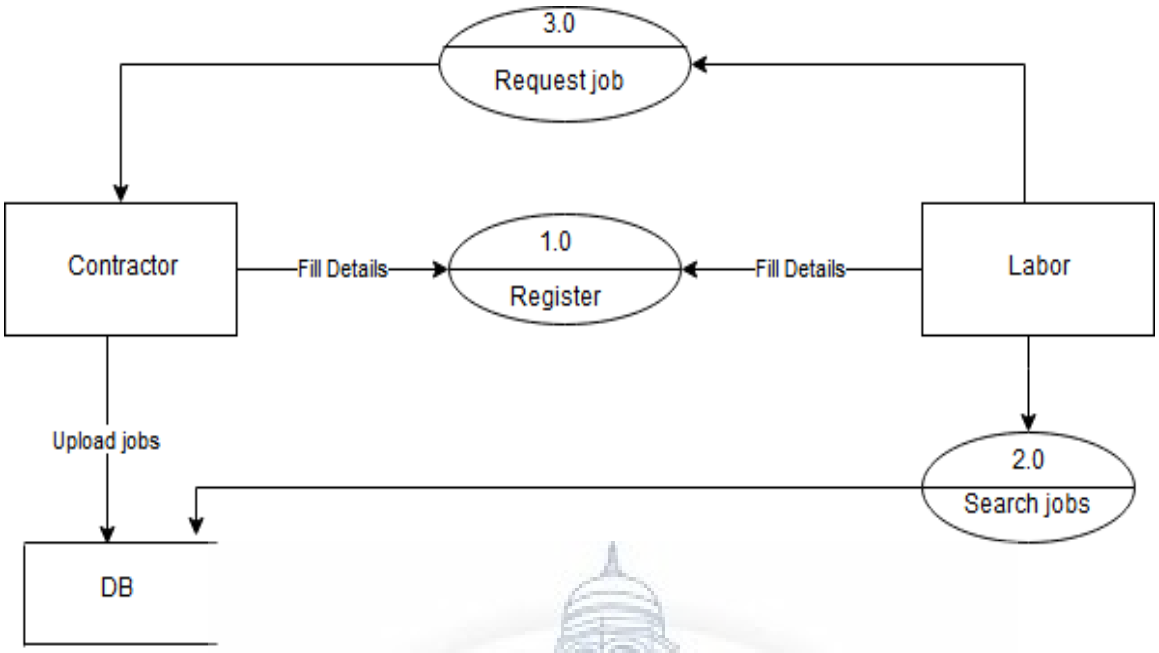

Figure 5.3: Level 1 Data Flow Diagram

Level 2 Data Flow Diagram : In this level, the labor will get the push notification from the database where the response of the contractor is stored.

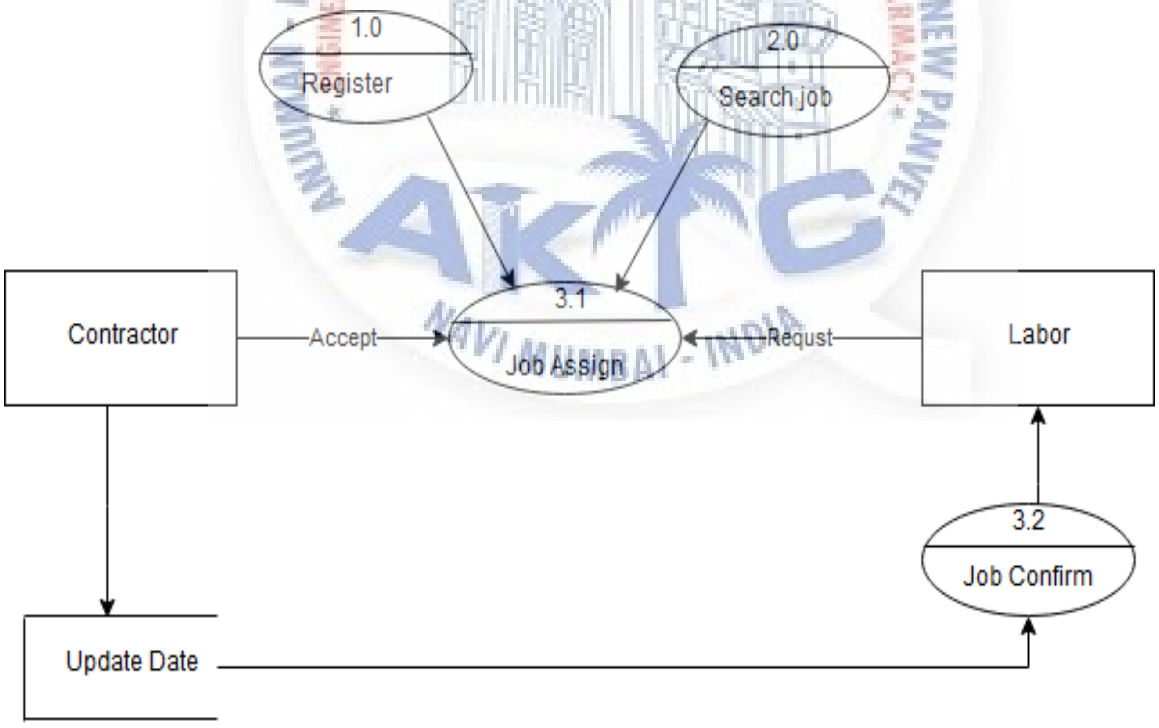

Figure 5.4: Level 2 Data Flow Diagram

5.1.2 System requirements (non-functional requirements)

5.1.3 Performance Requirements

1. **Job Finding:** Job finding would be easy in our system as it provides one-to-one communication between the employer and the employee.
2. **Wage Transaction:** Wage transaction will be secure in our system and the employee would be paid on time without any delay.

5.1.4 Safety Requirements

In Case If there is any problem in the server or the server is damaged/hampered,then the whole system will go down.There must be some alternative for such situations.The database should be periodically maintained and have to keep upon it.The data which is updated by the employer must be committed in the database.

5.1.5 Security Requirements

1. The major security requirement of the system is the authentication of the user in the registration process.
2. Another requirement is regarding the safe transaction of wages to the labors.

5.1.6 E-R Diagram

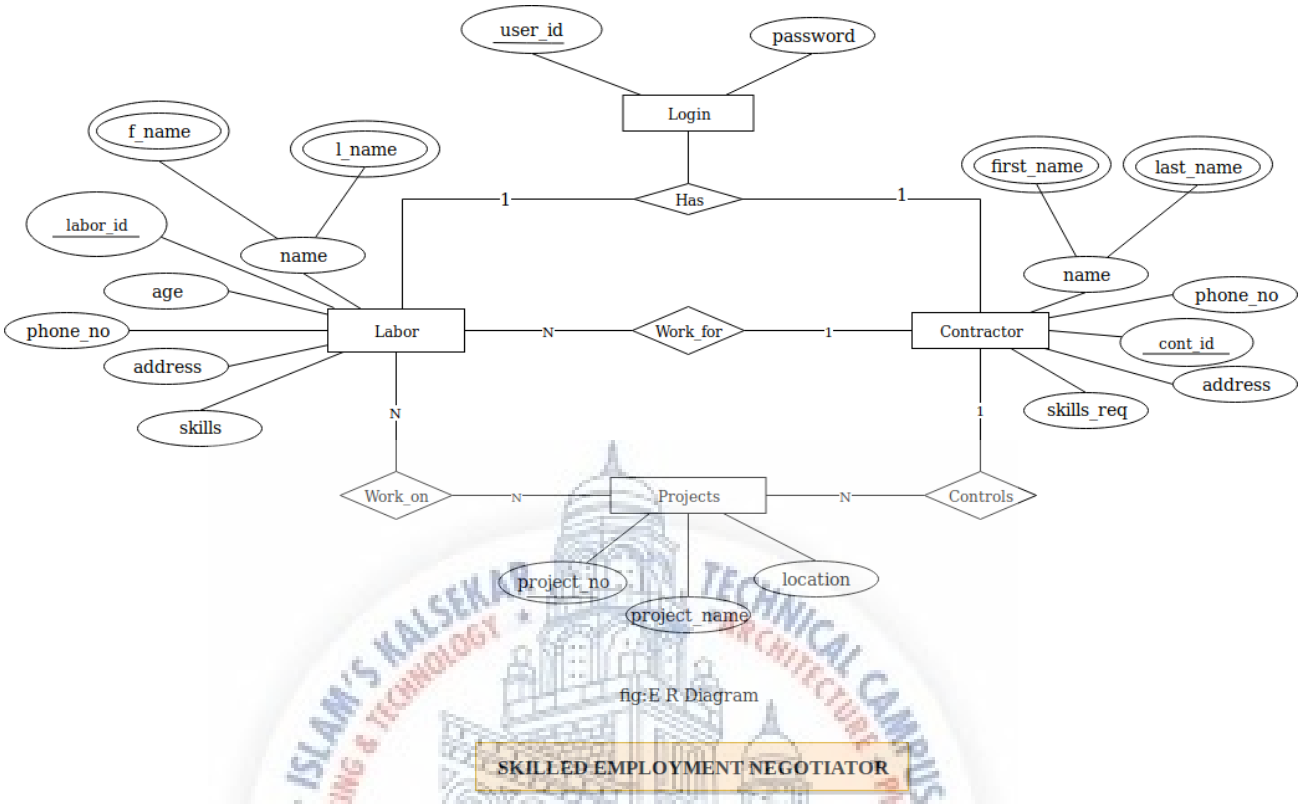

Figure 5.5: E-R Diagram

Our system's entity relationship diagram shows the relationships of the sets of entities (i.e labor, contractor, project and registration) stored in a database. These entities have attributes that define its properties.

Also the logical structure of database is illustrated by the E-R Diagram.

5.2 System Architecture Design

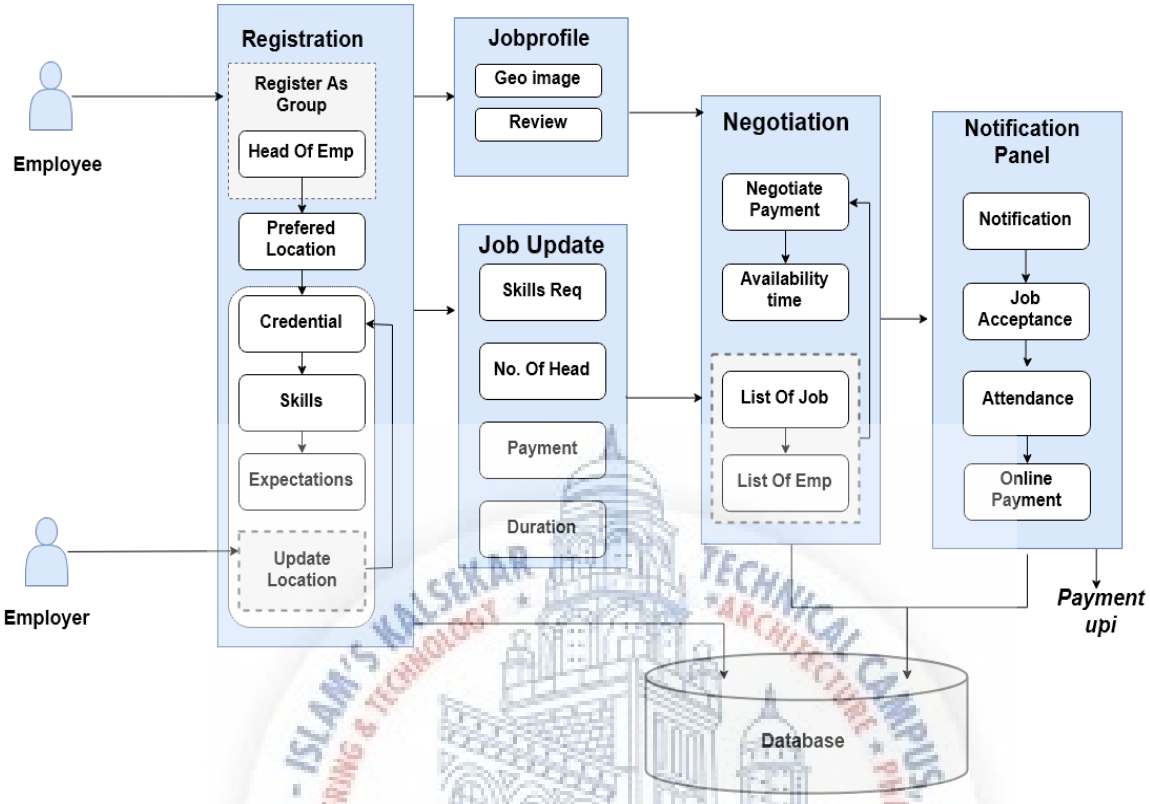

Figure 5.6: System Architecture of SEN

The user will register as an employee or an employer. The employee can update his job profile and can get reviews from Employer And Employer will update his job requirement as per his needs. Both Employee and Employer can negotiate for payment and working days. The worker will get the payment through online UPI.

5.3 Sub-system Development

5.3.1 User Registration

In this module, the registration process of our proposed system for employee and employer is described. If the user wants to register for the job purpose then he will registered as employee. Then the employee will have to enter his credentials, skills, salary expectations and his preferred location for job. And the contractor will have to register as employer. Now, contractor will also add their credential details, skills he required from labor for the particular job, update his location and the salary he wants to pay for particular job.

5.3.2 Negotiation Through Chat

In this module, the both user labor and contractor can communicate or negotiate regarding their payment and working days.

5.3.3 User Payment

In this module, the contractor will be able to pay to the worker on daily wage basis through BHIM UPI app.

5.3.4 Job Update Module of Contractor

In this module, the job updation process done by employer is described. The employer will update the number of labor he required and the skills he required from the labor for the particular job. And he will update the stipend he wants to give to the labor for required job.

5.4 Systems Integration

There are mainly 5 modules in our system, in order to integrate complete system certain operation are needed to be performed.Theses operation are done in 5 phases. The lists of operations are as follows: Mobile number verification through OTP using Firebase. Display job to labors using Recyclerview. Show Notification to both the user characteristics using Push notification. Negotiate for money and working via Chat module. Making payment to the worker via BHIM upi app.

5.4.1 Class Diagram

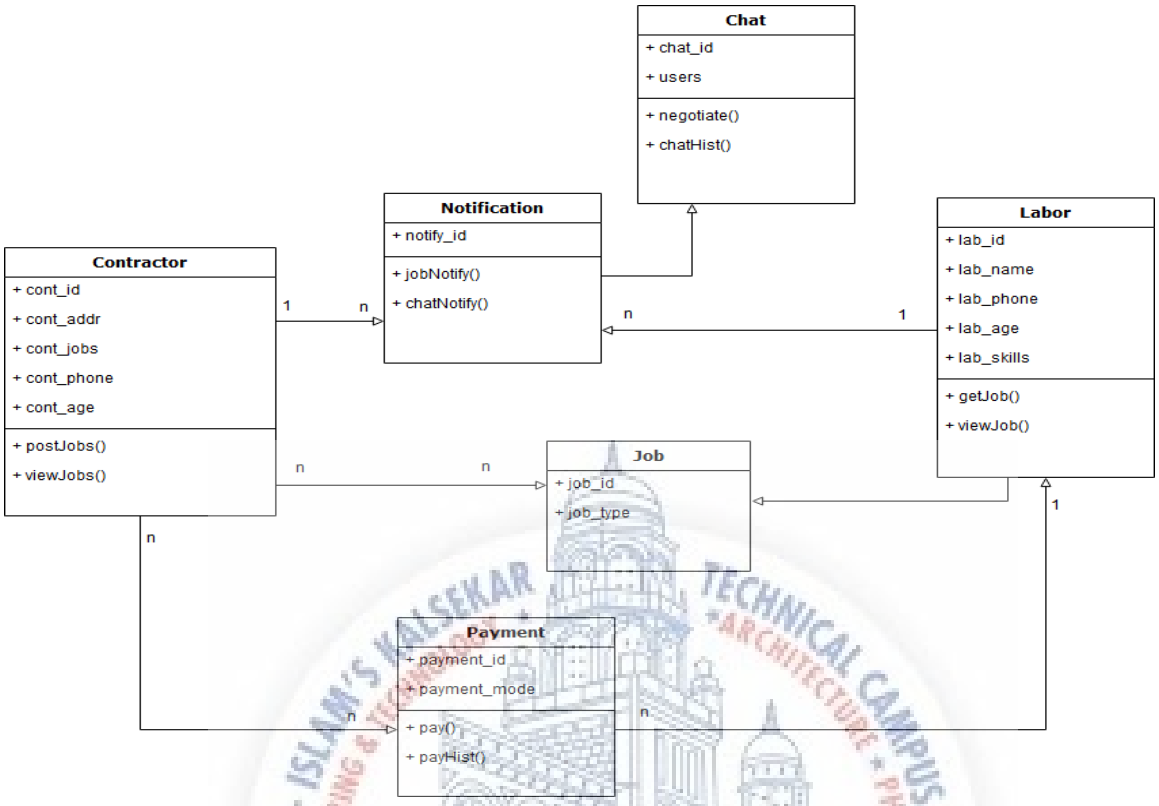

Figure 5.7: Class Diagram

Our system's class diagram describes the structure of our system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

We have used it for general conceptual modeling of the structure of the android application, and for detailed modeling translating the models into java programming code. The classes such as Contractor, Labor, Job, etc in the class diagram represent both the main elements, interactions in the application, and the classes to be programmed.

5.4.2 Activity Diagram

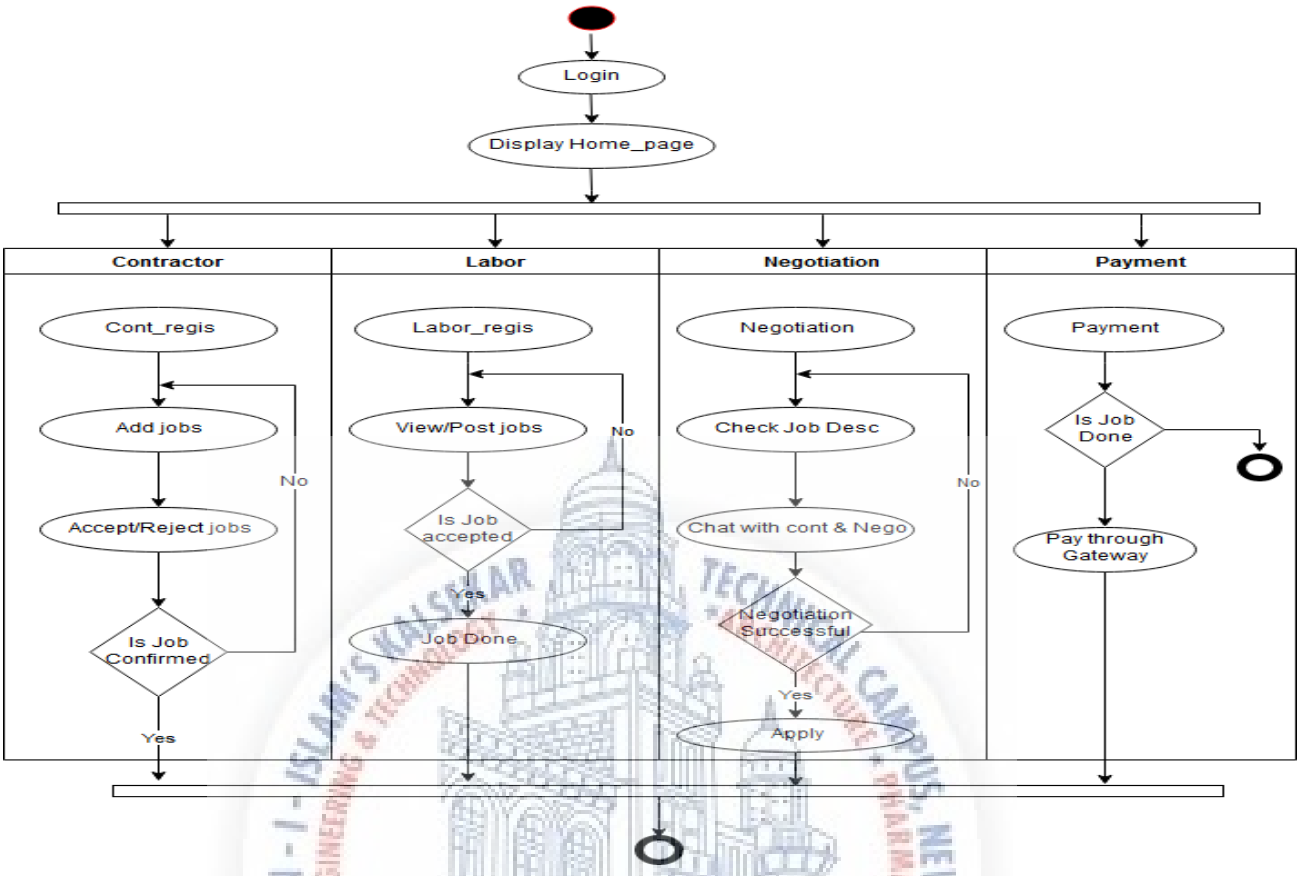

Figure 5.8: Activity Diagram

The above activity diagram shows the dynamic behaviour of our system. It show the message flow from one activity to another.

Following are the main activities of our system.

1. Upload the jobs.
2. Apply for the job.
3. Accept/Reject the application for job.
4. Negotiate for payment through chat.
5. Pay according to the work.

5.4.3 Component Diagram

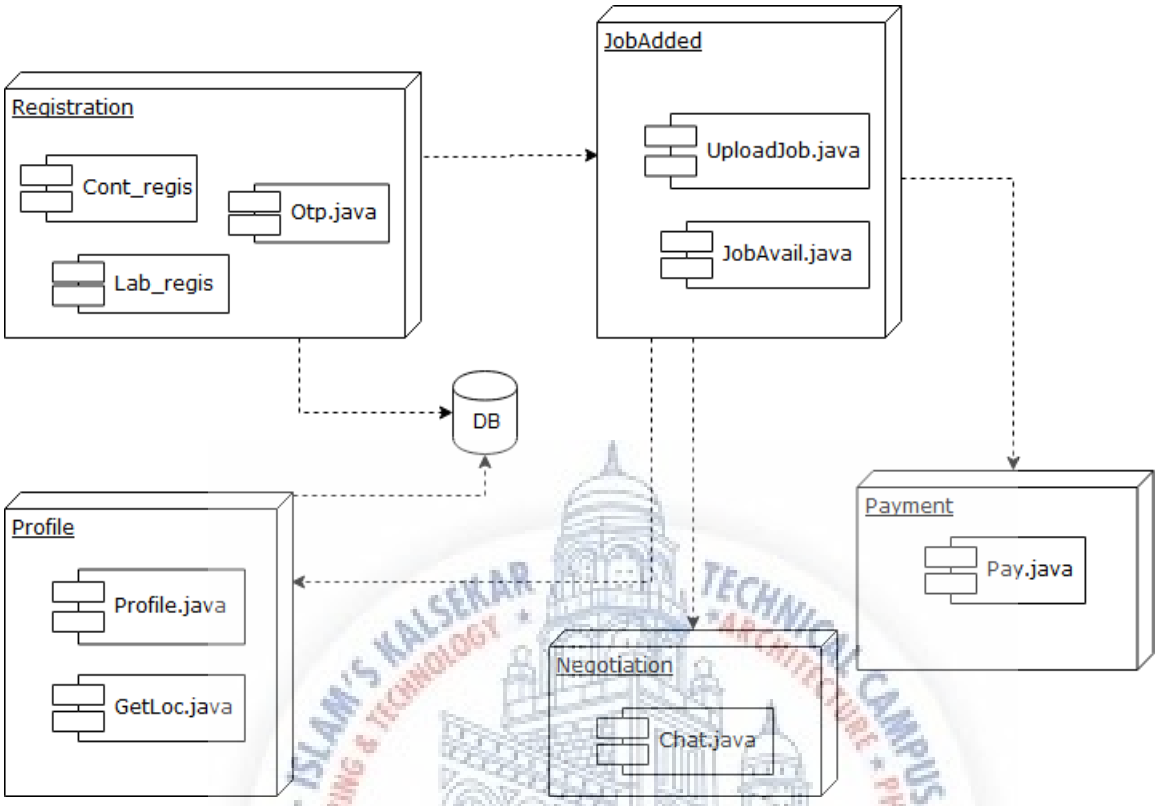

Figure 5.9: Component Diagram

Component diagram describes the component used to make functionalities. Component diagrams are used to visualize the physical components in a system.

The components we have used for our system are : Libraries of firebase, package name like com.bhimupi, files such as Otp.java, chat.java, Profile.java, etc.

5.4.4 Deployment Diagram

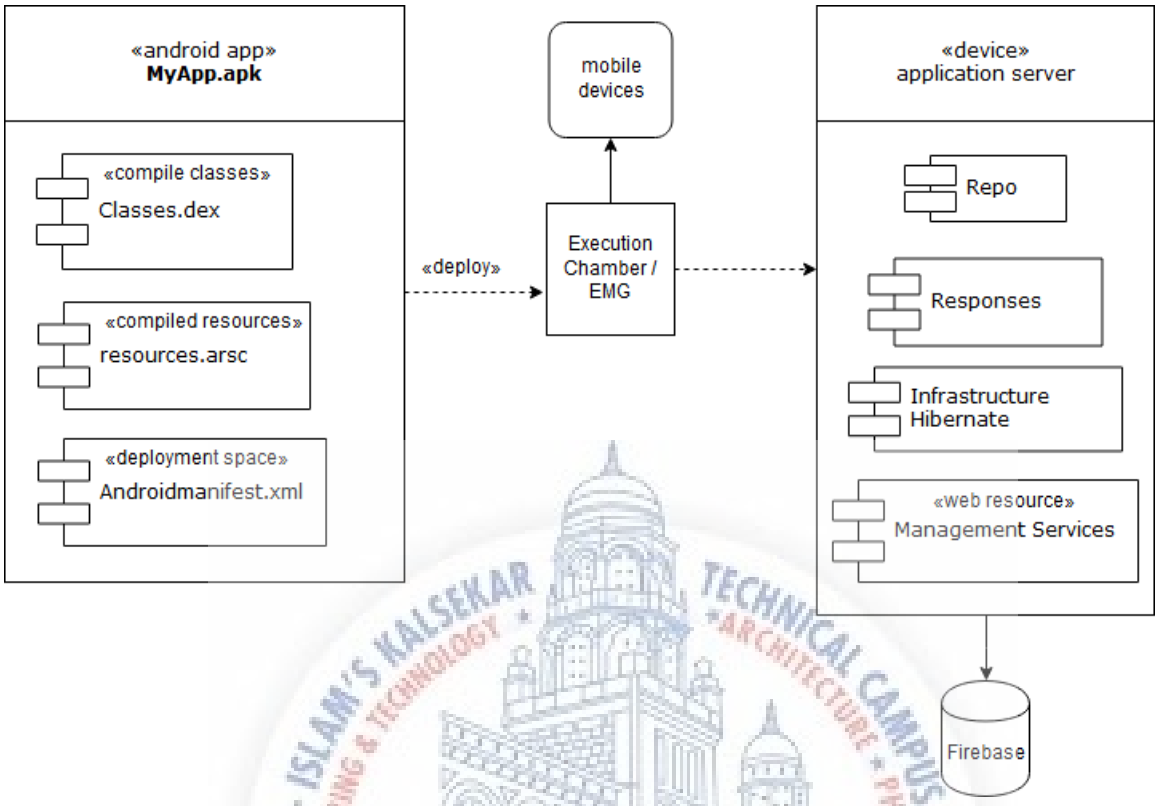

Figure 5.10: Deployment Diagram

Our system's deployment diagram shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them.

Typically we have used deployment diagram to visualize the physical hardware (i.e. RAM, etc) and software such as Android studio, etc of a system. Using it we have understood how our system will be physically deployed on the hardware.

Chapter 6

Implementation

6.1 User Registration

In this module the both characteristics .i.e. labor and contractor will get registered using their phone number.

As the user enters his/her phone number they will get an OTP from our database and then that OTP will be Authenticated using our database.

```
public class OtpAuth extends AppCompatActivity {
    PhoneAuthProvider.OnVerificationStateChangedCallbacks mCallback ;
    FirebaseAuth auth;
    String e3="+91";
    EditText e1,e2;
    String verification_code;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_otp_auth);
        e1= findViewById(R.id.editText);
        e2= findViewById(R.id.editText2);
        auth= FirebaseAuth.getInstance();
        mCallback = new PhoneAuthProvider.OnVerificationStateChangedCallbacks()
            {
             @Override
             public void onVerificationCompleted(PhoneAuthCredential
                 phoneAuthCredential) {
                  String otp = phoneAuthCredential.getSmsCode();
                  e2.setText(otp);
             }
             @Override
             public void onVerificationFailed(FirebaseException e) {
             }
             @Override
             public void onCodeSent(String s, PhoneAuthProvider.
                 ForceResendingToken forceResendingToken){
                  super.onCodeSent(s, forceResendingToken);
                  verification_code=s;
                  Toast.makeText(getApplicationContext(),"Code Sent",Toast.
                      LENGTH_SHORT).show();
             }
```

```
        };
    }
    @Override
    protected void onStart() {
        super.onStart();
        if(FirebaseAuth.getInstance().getCurrentUser()!=null) {
            startActivity( new Intent( OtpAuth.this,Empty.class ) );
            finish();
        }
        }
    public void send_sms(View v)
    {
        String number=e3+e1.getText().toString();
        PhoneAuthProvider.getInstance().verifyPhoneNumber(
                number, 60, TimeUnit.SECONDS,this,mCallback
        );
    }
    public void signInWithPhone(PhoneAuthCredential credential )
    {
        auth.signInWithCredential(credential)
                .addOnCompleteListener(new OnCompleteListener<AuthResult>() {
                    @Override
                    public void onComplete(@NonNull Task<AuthResult> task) {
                        if(task.isSuccessful()) {

                            Intent i = new Intent(OtpAuth.this, HomeActivity.
                                class);
                            startActivity(i);
                            finish();

                            // Toast.makeText(getApplicationContext(), "User
                                signed in Successfully", Toast.LENGTH_SHORT).show
                                ();
                        }
                    }
                });
    }
    public void verify(View v)
    {
        String input_code=e2.getText().toString();
        verifyPhoneNumber(verification_code, input_code);
    }
    public void verifyPhoneNumber(String verifyCode,String input_code)
    {
        PhoneAuthCredential credential= PhoneAuthProvider.getCredential(
            verifyCode,input_code);
        signInWithPhone(credential);
    }
}
```

6.2 Job Upload Module of Contractor

Here the contractor will be able to upload job and can also view it. The jobs are uploaded using Adapter and viewed using Recyclerview.

```
public class Job_added extends AppCompatActivity {

    DatabaseReference reference;
    RecyclerView recyclerView;
    ArrayList<Job_upload> list;
    MyAdapter adapter;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_job_added);
        LinearLayoutManager linearLayoutManager = new LinearLayoutManager(
            Job_added.this );
        linearLayoutManager.setOrientation(LinearLayoutManager.VERTICAL);

        recyclerView = (RecyclerView) findViewById(R.id.myRecycler);


        recyclerView.setLayoutManager( linearLayoutManager);
        recyclerView.setHasFixedSize( true );

        FirebaseUser currentUser = FirebaseAuth.getInstance().getCurrentUser();
        assert currentUser != null;
        String userid = currentUser.getUid();
        Log.d( "dddd",userid );

        reference = FirebaseDatabase.getInstance().getReference().child("
            contractors").child( userid ).child( "jobs" );
        reference.addValueEventListener(new ValueEventListener() {
            @Override
            public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
                list = new ArrayList<Job_upload>();
                for(DataSnapshot dataSnapshot1: dataSnapshot.getChildren())
                {

                        Job_upload map=  dataSnapshot1.getValue(Job_upload.class
                            );
                        Log.d("pppp",dataSnapshot1.toString());
                        list.add(map);

                }
                adapter = new MyAdapter(Job_added.this,list);
                recyclerView.setAdapter(adapter);
            }

            @Override
            public void onCancelled(@NonNull DatabaseError databaseError) {
                Toast.makeText(Job_added.this, "Opsss.... Something is wrong",
                    Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

6.3 User Profile

In this module, both the user can update his/her profile. For example Contractor can update his name, age, image, etc. And the labor can update his name, age, image, skills, expected salary, etc.

```
1
2  public class MainActivity extends AppCompatActivity {
3
4      EditText editText;
5      Button buttonSave;
6      ProgressBar progressBar;
7      String profileimageurl;
8      FirebaseAuth mAuth;
9
10     @Override
11     protected void onCreate(Bundle savedInstanceState)  {
12         super.onCreate(savedInstanceState);
13         setContentView(R.layout.activity_main);
14
15         mAuth = FirebaseAuth.getInstance();
16
17         editText = findViewById(R.id.editTextDisplayName);
18         progressBar = findViewById(R.id.progressbar);
19         buttonSave = findViewById(R.id.buttonSave);
20
21         loadUserInformation();
22
23         buttonSave.setOnClickListener(new View.OnClickListener() {
24             public void onClick(View v) {
25                 saveUserInformation();
26             }
27         });
28     }
29
30     @Override
31     protected void onStart(){
32         super.onStart();
33
34         if(mAuth.getCurrentUser() == null){
35
36             finish();
37             startActivity(new Intent(this,MainActivity.class));
38         }
39     }
40
41     private void loadUserInformation()
42
43     {
44
45         FirebaseUser user = mAuth.getCurrentUser();
46         if(user!=null){
47             if (user.getDisplayName()!=null) {
48
49                 editText.setText(user.getDisplayName());
50             }
51
52         }
53
54     }
```

```
55
56      private void saveUserInformation() {
57          String displayName = editText.getText().toString();
58          if (displayName.isEmpty()) {
59              editText.setError("Name Required");
60              editText.requestFocus();
61              return;
62          }
63          FirebaseUser user = mAuth.getCurrentUser();
64          if (user != null) {
65              UserProfileChangeRequest profile = new UserProfileChangeRequest.
                    Builder()
66                      .setDisplayName(displayName)
67                      .build();
68              user.updateProfile(profile)
69                      .addOnCompleteListener(new OnCompleteListener<Void>() {
70                          @Override
71                          public void onComplete(@NonNull Task<Void> task) {
72                              if (task.isSuccessful()) {
73                                  Toast.makeText(MainActivity.this, "profile
                                        updated", Toast.LENGTH_LONG).show();
74                              }
75
76                          }
77                      });
78          }
79
80      }
81
82  }
```

6.4 Negotiation Through Chat

This the most usable module in our system, which help all the users of our system to stay in contact with each other. Using this module labor can negotiate their daily wage or working days with their contractor.

```
public class Chat extends AppCompatActivity {
    LinearLayout layout;
    RelativeLayout layout_2;
    ImageView sendButton;
    EditText messageArea;
    ScrollView scrollView;
    Firebase reference1, reference2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_chat);

        layout = (LinearLayout) findViewById(R.id.layout1);
        layout_2 = (RelativeLayout)findViewById(R.id.layout2);
        sendButton = (ImageView)findViewById(R.id.sendButton);
        messageArea = (EditText)findViewById(R.id.messageArea);
        scrollView = (ScrollView)findViewById(R.id.scrollView);

        Firebase.setAndroidContext(this);
        reference1 = new Firebase("https://androidchatapp-76776.firebaseio.com/
            messages/" + UserDetails.username + "_" + UserDetails.chatWith);
        reference2 = new Firebase("https://androidchatapp-76776.firebaseio.com/
            messages/" + UserDetails.chatWith + "_" + UserDetails.username);

        sendButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String messageText = messageArea.getText().toString();

                if(!messageText.equals("")){
                    Map<String, String> map = new HashMap<String, String>();
                    map.put("message", messageText);
                    map.put("user", UserDetails.username);
                    reference1.push().setValue(map);
                    reference2.push().setValue(map);
                    messageArea.setText("");
                }
            }
        });

        reference1.addChildEventListener(new ChildEventListener() {
            @Override
            public void onChildAdded(DataSnapshot dataSnapshot, String s) {
                Map map = dataSnapshot.getValue(Map.class);
                String message = map.get("message").toString();
                String userName = map.get("user").toString();

                if(userName.equals(UserDetails.username)){
                    addMessageBox("You:-\n" + message, 1);
                }
                else{
                    addMessageBox(UserDetails.chatWith + ":-\n" + message, 2);
                }
```

```
53              }
54
55              @Override
56              public void onChildChanged(DataSnapshot dataSnapshot, String s) {
57
58              }
59
60              @Override
61              public void onChildRemoved(DataSnapshot dataSnapshot) {
62
63              }
64
65              @Override
66              public void onChildMoved(DataSnapshot dataSnapshot, String s) {
67
68              }
69
70              @Override
71              public void onCancelled(FirebaseError firebaseError) {
72
73              }
74          });
75      }
76
77      public void addMessageBox(String message, int type){
78          TextView textView = new TextView(Chat.this);
79          textView.setText(message);
80
81          LinearLayout.LayoutParams lp2 = new LinearLayout.LayoutParams(ViewGroup.
                LayoutParams.WRAP_CONTENT, ViewGroup.LayoutParams.WRAP_CONTENT);
82          lp2.weight = 1.0f;
83
84          if(type == 1) {
85              lp2.gravity = Gravity.LEFT;
86              textView.setBackgroundResource(R.drawable.bubble_in);
87          }
88          else{
89              lp2.gravity = Gravity.RIGHT;
90              textView.setBackgroundResource(R.drawable.bubble_out);
91          }
92          textView.setLayoutParams(lp2);
93          layout.addView(textView);
94          scrollView.fullScroll(View.FOCUS_DOWN);
95      }
96  }
```

Chapter 7

System Testing

As our proposed system is ready after implementation we test our application as per different system testing criteria.

7.1 Test Cases and Test Results

Test ID	Test Case Title	Test Condition	System Behavior	Expected Result
T01	Login	Should be Authenticated user	User should login to our system	User presented with fresh Home-Screen
T02	Search Jobs	Jobs must be in correct order	Gather jobs related to search details	Display the job content on the screen
T03	Upload Jobs	Jobs must be valid	Store the job details	Display the uploaded job content on the screen

7.2 Sample of a Test Case

Title: Login Page – Successfully Authenticate user with a phone number.
Description: A registered user should be able to successfully registered on the provided phone number.

Precondition: the user must already be registered with provided phone number. *Assumption:* a supported browser is being used.

Test Steps:

1. User verification by sending OTP.

2. In the 'phone number' field, enter the phone number of the registered user.
3. Click the 'Next' button.
4. Enter the OTP which is sent to your provided number.
5. Click 'Sign In'

Expected Result: User successfully login to our system.

Actual Result: After successful login, User presented with home screen where he/she will select the type(Labor/Contractor) of the user.

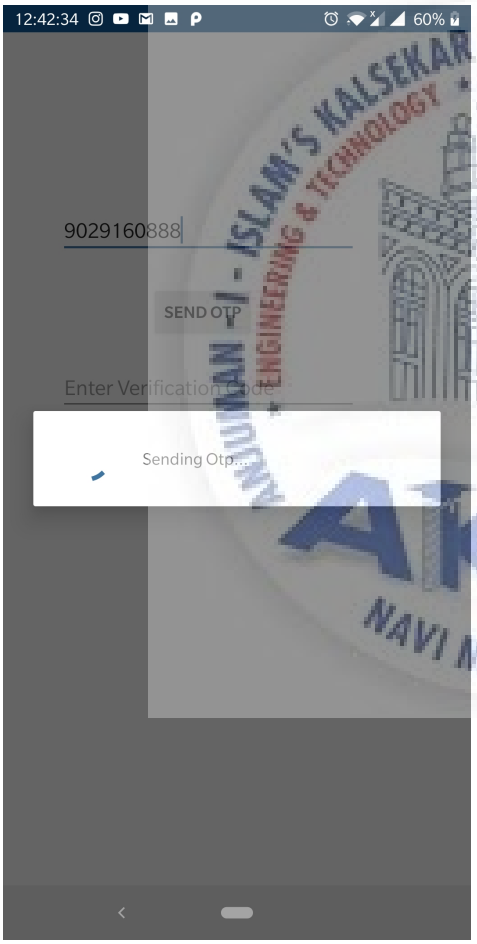

Figure 7.1: Splash Screen

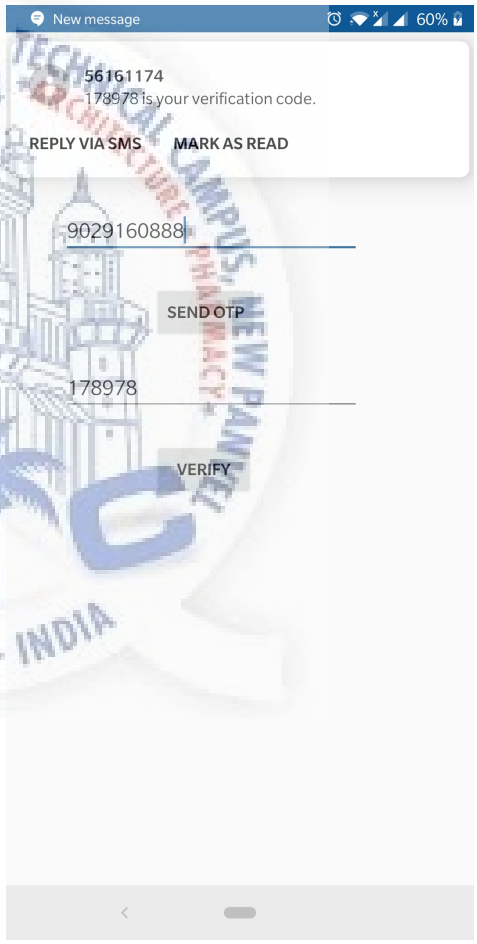

Figure 7.2: Sending Otp to User

7.2.1 Software Quality Attributes

1. **Availability :** The system should not be down, whenever the user use the system with c data should be available.
2. **Correctness :** As per the user search correct data should be display from our system.
3. **Reliability :** The system should be reliable for producing correct output so that user can reliable on system.
4. **Extensible :** The system is capable to be modified by changing some modules or by adding some features to the existing system.

Chapter 8

Screenshots of Project

8.1 OTP Authentication of users

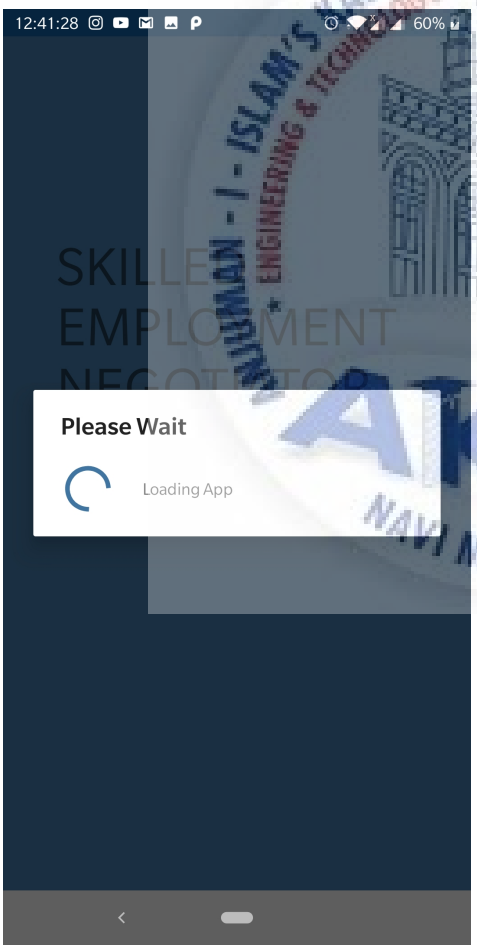

Figure 8.1: Splash Screen

Figure 8.2: Sending Otp to User

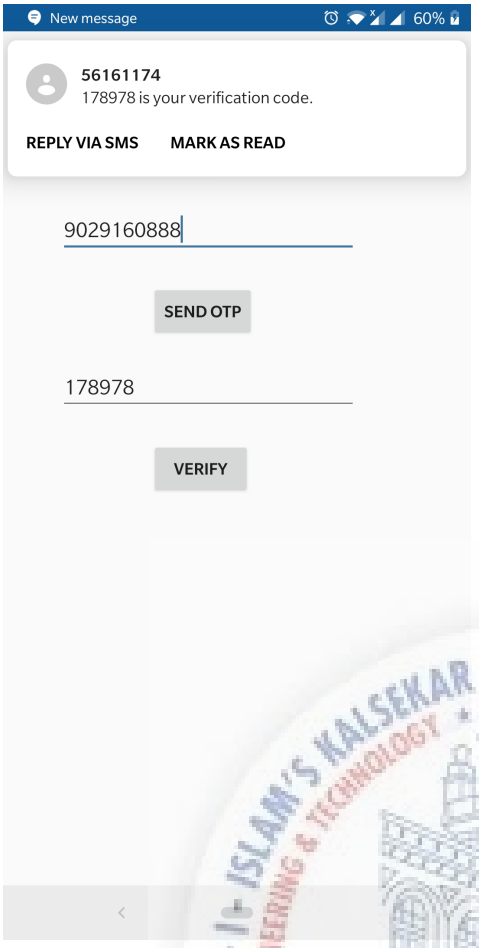

Figure 8.3: Code Sent and User Authenticated

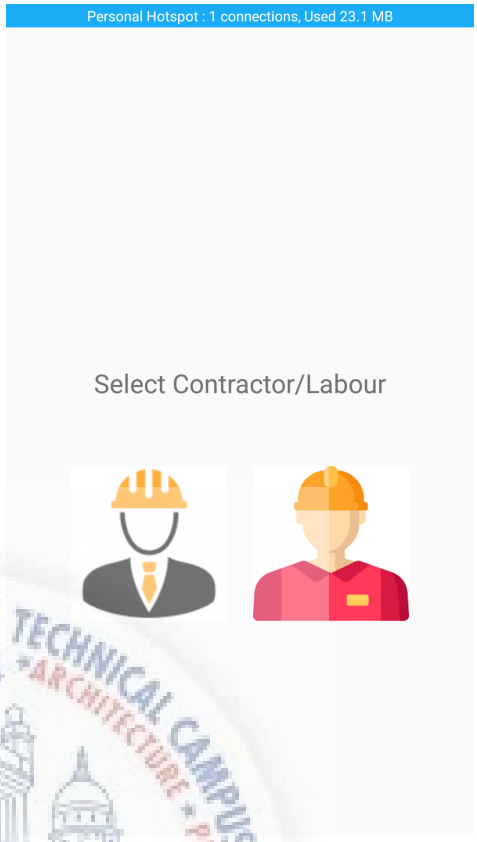

Figure 8.4: Home Page

8.2 User Registration

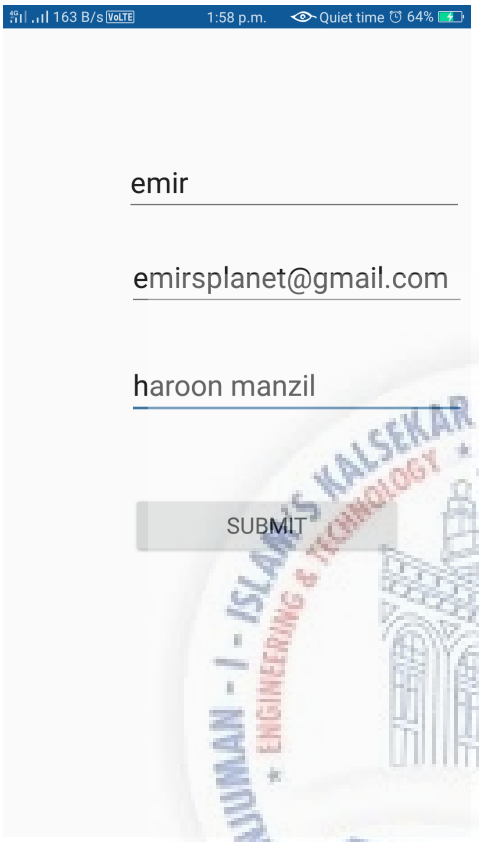

Figure 8.5: Registration of User: Contractor

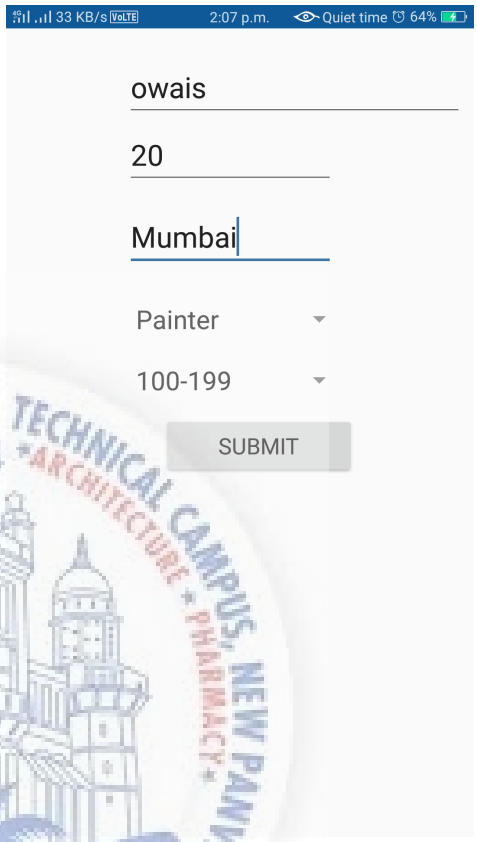

Figure 8.6: Registration of User: Labor

8.3 Contractor Panel

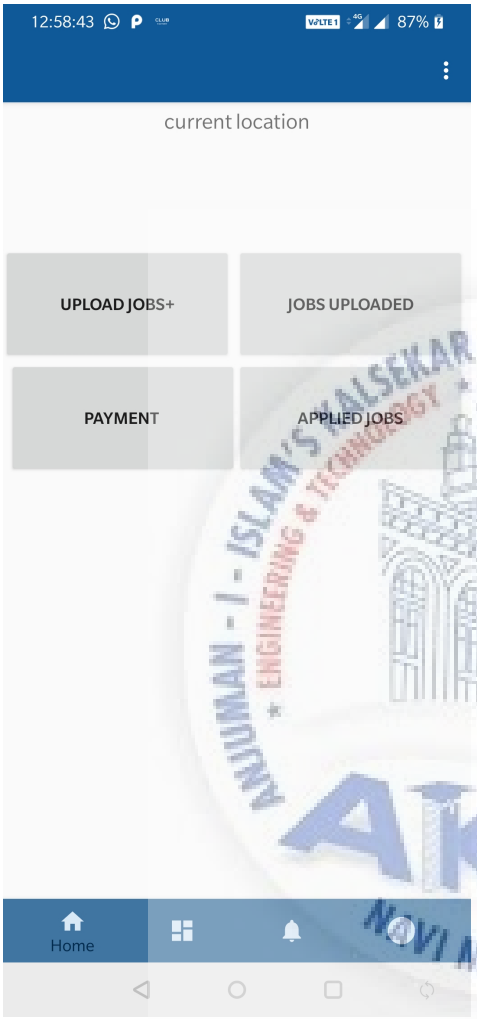

Figure 8.7: Contractor Activity

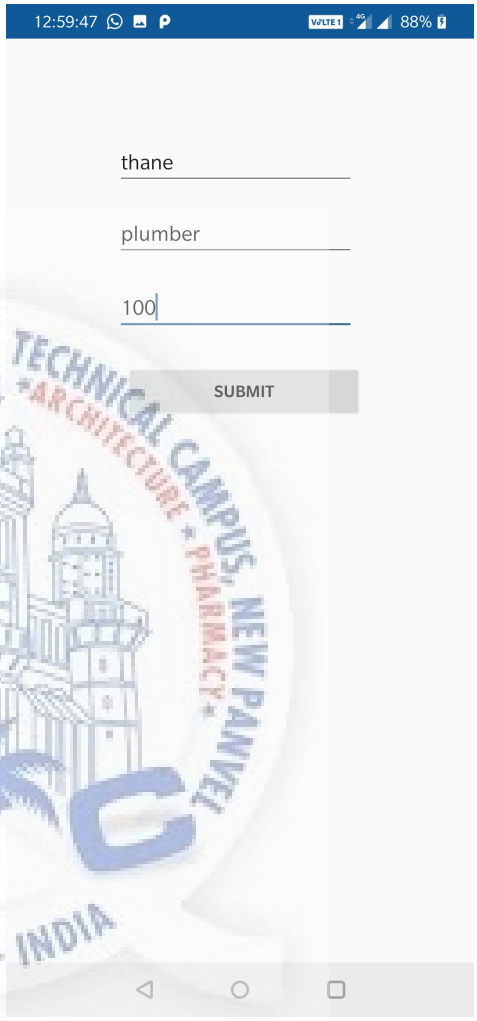

Figure 8.8: Upload Jobs

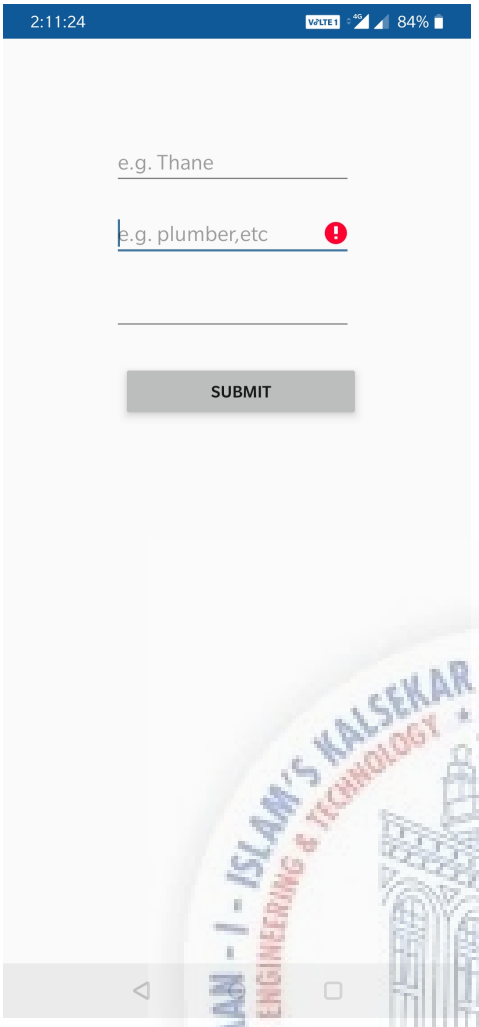

Figure 8.9: Validation

Figure 8.10: Jobs Applied by Labors

8.4 Labor Panel

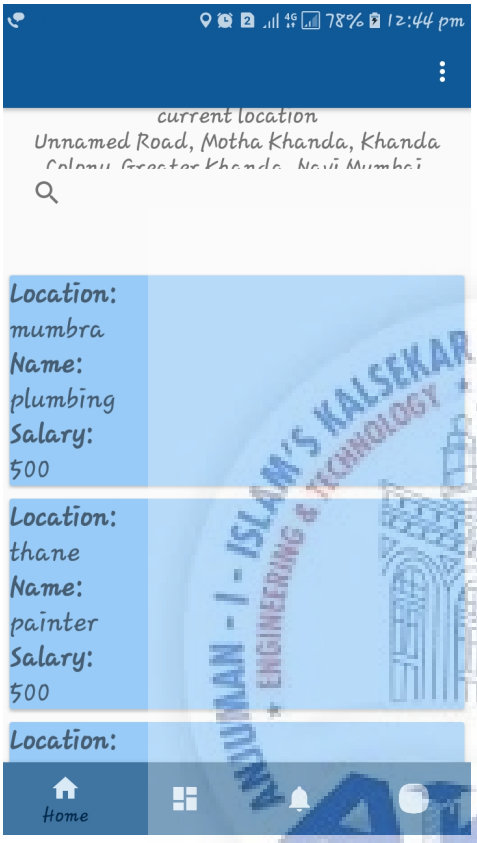

Figure 8.11: Labor Activity

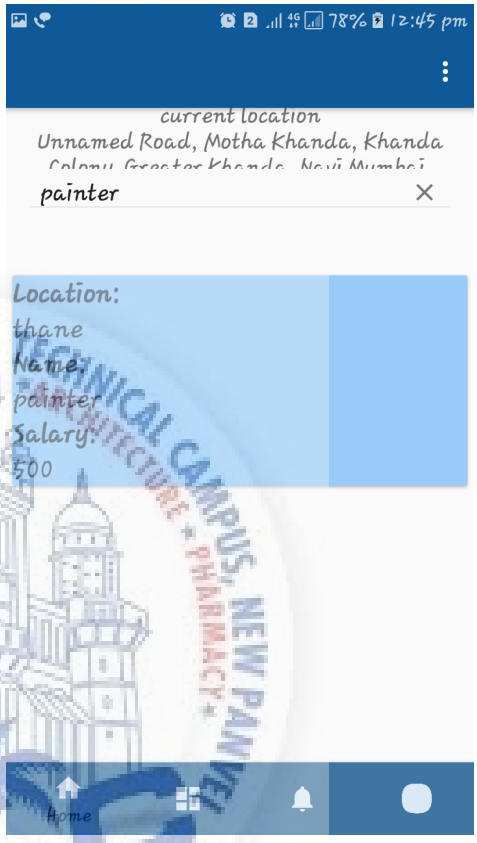

Figure 8.12: Search for Jobs

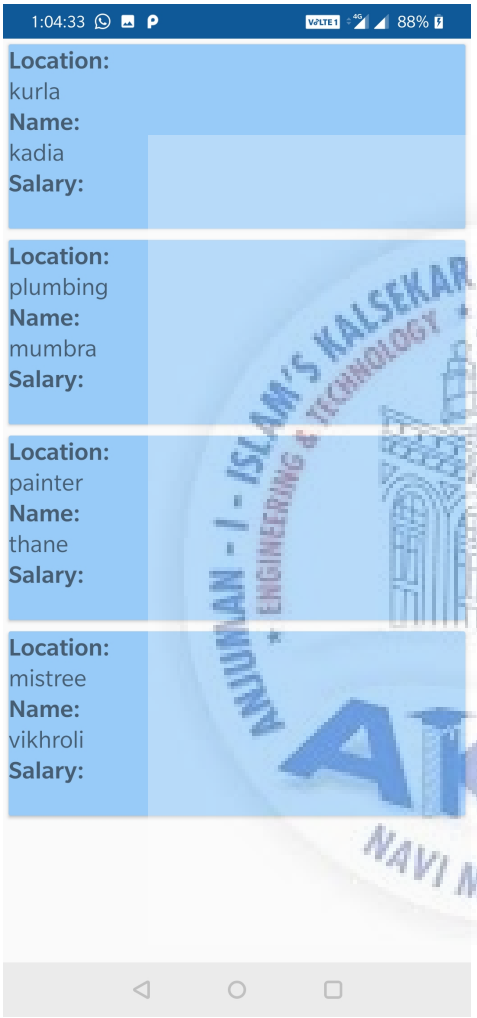

Figure 8.13: Jobs Applied By Labor

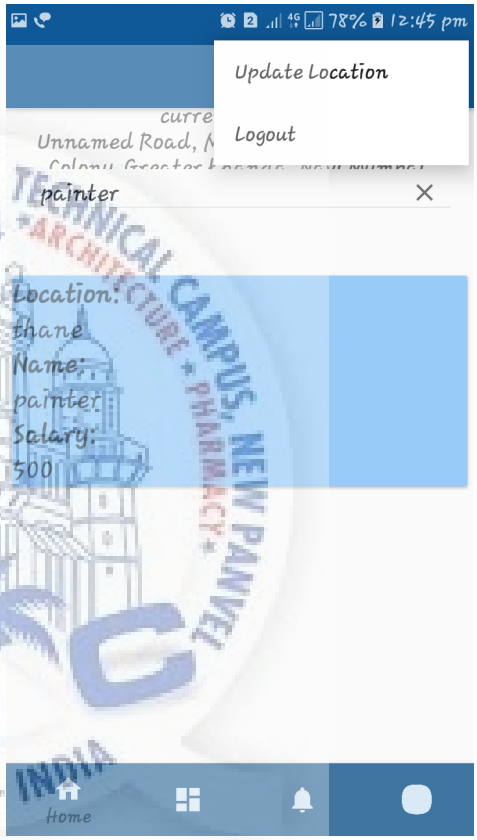

Figure 8.14: Logout

Chapter 9

Conclusion and Future Scope

9.1 Conclusion

The idea is to make a basic Android App which will help Labours to get a job from a proper verified Contractor. There is no existing system like our application. Implementation would be done for the benefits of labours.

9.2 Future Scope

- To use voice recognition for illiterate workers
- To make it more efficient in use.
- Making our own UPI for payment instead of buying and implementing it our project
- Advance payment option for labours (if needed).

References

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Achievements

1. Paper Presentation

   (a) *SKILLED EMPLOYMENT NEGOTIATOR*; Kazi Mohd. Owais Wasim, Shaikh Amir Usman, Khan Mohd. Ali Minhaj, Avalon ,5 March 2019(Venue : TERNA ENGINEERING COLLEGE)

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