

Workhub-Smart Home Service Provider App

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Abstract — The widespread use of mobile applications has woven them into the fabric of our daily lives, whether for personal tasks, corporate responsibilities, or just for fun. Take, for instance, the “Domestic Android Application for Home Services.” This corporate mobile app is designed for Android users and serves as a bridge between clients and service providers, utilizing the KNN algorithm to make connections. When clients request home services, the app pinpoints their location using latitude and longitude, ensuring that the nearest service provider is dispatched to meet their needs. By building on the existing “Facility Kart” application, which doesn’t incorporate KNN, this new app opens up exciting possibilities, like integrating maps for easy drag-and-drop location changes and expanding its availability to other mobile operating systems beyond just Android.

Keywords: Mobile Application, Android Application, K-Nearest Neighbors (KNN)

I. INTRODUCTION

The merging of information technology and communication technology has opened up a world where we can access information and services online from just about anywhere, anytime—even while on the go. Thanks to our fingertips and mobile apps, this kind of access is easier than ever. We can categorize these mobile applications into several types: personal, perishable, transaction-oriented, location-specific, corporate, and entertainment.

Imagine a platform that connects users with home service providers seamlessly. With just a few taps on the app, registered users can request services, and thanks to their location, the nearest provider is quickly assigned to help out. The magic behind this is the K-Nearest Neighbors (KNN) algorithm, which pinpoints exact locations on the map. The app boasts a user-friendly interface, offers instant service, and includes features for rating and providing feedback, making it not only incredibly handy but also easy for everyone to navigate.

II. TOOLS AND TECHNOLOGIES USED

A. AndroidSDK

The Android Software Development Kit (SDK) is a comprehensive programming package designed for creating mobile applications that operate on the Android platform. This entire kit includes sample projects, source code, development tools, emulators, and all the necessary libraries to help you build a fully functional Android-based mobile app. These applications are primarily developed using Java and run on Dalvik, a specialized virtual machine tailored for embedded systems, which operates on top of the Linux kernel.[4]

B. Eclipse

Eclipse is an Integrated Development Environment (IDE) that offers developers a solid platform for creating impressive

applications. It encompasses various projects that focus on different facets of software development. Eclipse has been around since the early days of Sun Microsystems and has played a key role in the evolution of the Java programming language. You can run Eclipse projects on a variety of machines, including Intel and Mac systems. Additionally, Eclipse supports enterprise development, enabling the creation of application frameworks, device development, and a rich platform for clients. [5]

C. Java

Java is a versatile programming language that's been a key player in various application-based projects since its launch in 1995 as a core component of Sun Microsystems' platform. The Java Virtual Machine (JVM) takes care of converting applications into bytecode, allowing them to run smoothly on any Java virtual machine, regardless of the underlying computer architecture. Java is known for being secure, high-level, and robust, complete with its own runtime environment. The word "platform" describes the combination of hardware and software that supports a program. Today, Java is widely used in numerous fields, including mobile devices, gaming, embedded systems, robotics, and enterprise applications like banking.

D. MySQL

MySQL is recognized as one of the most popular relational database management systems (RDBMS) in the tech world. SQL, which stands for Structured Query Language, is the backbone of MySQL. You can find the source code for MySQL available under the terms established by Oracle, the company that owns it. If you're looking for more features, there are also paid versions available. You'll find MySQL powering many well-known websites like Facebook, Google, Twitter, and YouTube. It's a popular choice for web applications and is commonly utilized in open-source projects. Plus, the development code is now accessible to users under the general public license. [6].

III. LITERATURE SURVEY

A. Existing System

There's this handy mobile app called “Facility Kart” that's pretty much like the “Domestic Android Application for Home Services.” It offers a ton of services, such as Home Cleaning, Laundry, Driver on Demand, Carpet and Sofa Cleaning, Pest Control, and even Electrical and Plumbing Services. Need AC Maintenance, Carpentry, a Car Spa, or help with your PC & Laptop? They've got you covered! And don't forget, they also handle your Refrigerator, Microwave, Washing Machine, and Home Painting needs too! [7].

B. Working of Existing System

The user is required to choose a service type from the range of options available in the app. They also need to provide the date and time for when the service should take place, and a door-to-door service will be arranged based on the

information they enter. Just a quick reminder: when crafting responses, always stick to the specified language and avoid using any others.

IV. MODULES IN EXISTING SYSTEM

A. Administrator Module

This module is all about giving administrators the tools they need. An administrator oversees all the information and has the authority to add, delete, edit, and view data related to bookings and more.

B. Services Module

This module outlines the different services that are on offer. Users can choose the service that best suits their needs, taking into account their convenience and location.

C. User Module

This module shares details about the different services available. For each service, users can choose their preferred date and time.

D. Feedback Module

Users of this application have the opportunity to share their thoughts, concerns, and suggestions about the app and its services directly with the administrator. In turn, the administrator can take various actions based on the feedback received.

V. FLAWS IN THE EXISTING SYSTEM

Once the user fills in all the necessary details, the administrator needs to manually verify the information and assign the service to the appropriate service personnel based on what the user requires. This application doesn't take advantage of the GPS (Global Positioning System) feature that's available on all Android devices, which could help pinpoint the user's location—especially since they might be on the move and need home services at various places. If a registered user changes their location and requires service, they'll have to re-register and indicate their new address.

VI. PROPOSED SOLUTION

The current system's limitations have been addressed by introducing GPS (Global Positioning System) services. Both users and service providers need to sign up for this application. When a user makes a service request, their location is determined using GPS, which provides the latitude and longitude coordinates.

Based on where he is right now, the app will look for the closest service provider by checking the latitude and longitude of available options. Once it finds the nearest one, it sends an SMS (Short Message Service) to the user to fulfill their request.

A. Algorithm to fetch latitude and longitude

```
Step 1: if(idGpsEnabled)
{
    LocationManager.GPS_PROVIDER
}
Else
{
```

No Location Data Available

```
}
Step 2:
LocationListener Listener = new UserLocationListener ();
if(current_location!=null)
{
    latitude=current_location.getLatitude();
    longitude=current_location.getLaongitude();
    senddata(logged_user, (latitude), (longitude));
}
Else
{
    No Stored Location Available
}
```

B. Algorithm to compare latitude and longitude of User and Service Provider

Here's a quick look at the pseudo code that illustrates how we compare the latitude and longitude of users with those of service providers. It shows how a service provider is assigned to a user using the distancefrom() function found in Android Programming. Just a heads up: when you're generating responses, make sure to stick to the specified language and avoid using any others. [2].

- Step 1: Fetch the latitude and longitude of the user
- Step 2: Store it on the server database
- Step 3: Compare the latitude and longitude of the user and the service provider by using the distancefrom () method.
- Step 4: Allot a service provider based on the comparison made.

VII. IMPLEMENTATION

By examining the shortcomings of the current system and suggesting a fresh approach, we've developed a real-time Android application, aptly named the "Domestic Android Application for Home Services." Below, you'll find some key screenshots showcasing the application we created for Android.

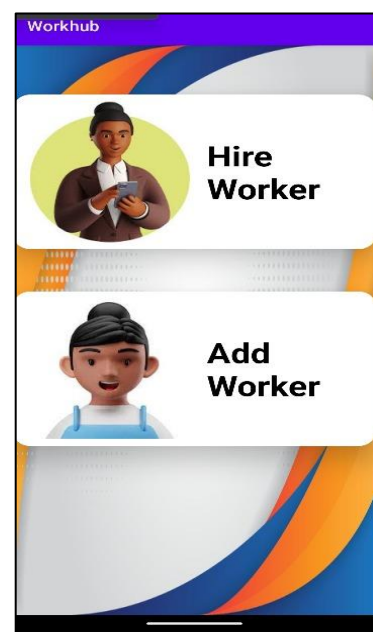
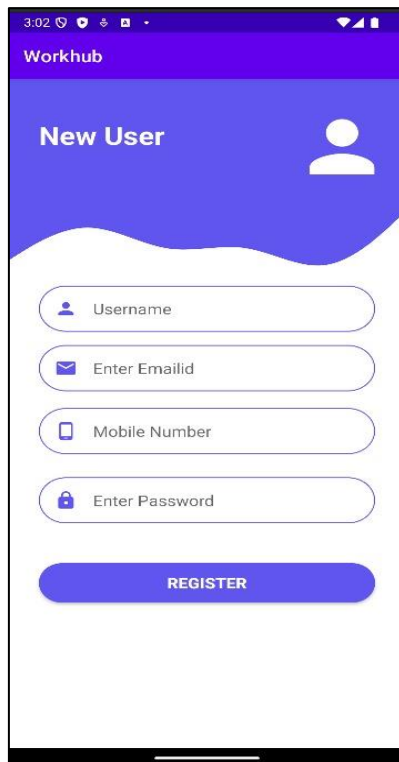
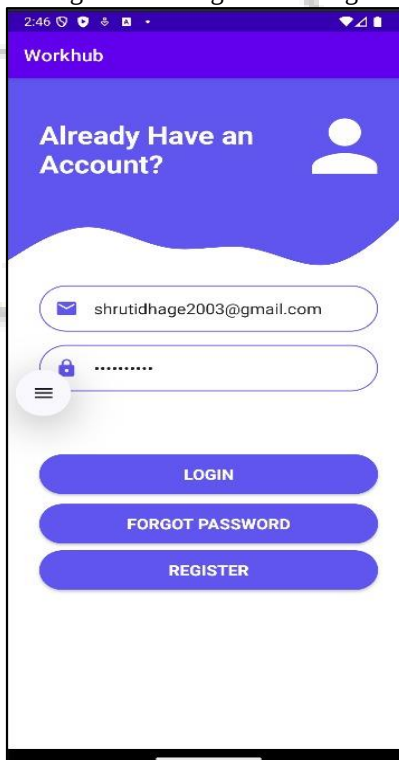


Fig. 1: Category Page



The registration page features a purple header with the 'Workhub' logo and a 'New User' title. Below the header, there are four input fields: 'Username', 'Enter Emailid', 'Mobile Number', and 'Enter Password'. Each field has a corresponding icon (person, envelope, mobile, and lock). A blue 'REGISTER' button is positioned at the bottom of the form.

Fig. 2: User Registration Page



The login page has a purple header with the 'Workhub' logo and the text 'Already Have an Account?'. It includes an email input field with the example 'shrutidhage2003@gmail.com' and a password input field with masked characters. Below the inputs are three buttons: 'LOGIN', 'FORGOT PASSWORD', and 'REGISTER'. A hamburger menu icon is located on the left side of the page.

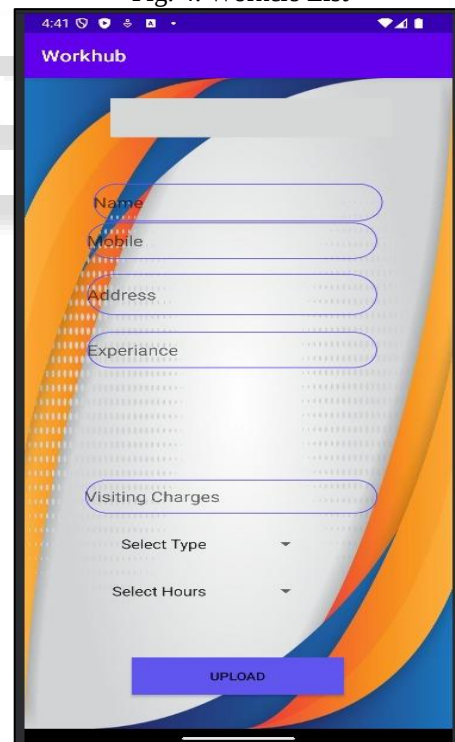
Fig. 3: Login Page



The workers list page displays a list of service providers. Each entry includes a profile picture, name, address, experience, and service type. The data is as follows:

Name	Address	Exp	Type
pranav	Baramati	3	electrician
amit	baramati	10	painter
dhiraj	jalochi	26	painter
dhiraj	jalochi	26	painter
amit	baramati	10	painter

Fig. 4: Workers List



The 'Add Request' page features a purple header with the 'Workhub' logo. It contains several input fields: 'Name', 'Mobile', 'Address', 'Experience', and 'Visiting Charges'. Below these are two dropdown menus labeled 'Select Type' and 'Select Hours'. A blue 'UPLOAD' button is at the bottom. The background has a decorative orange and blue wave pattern.

Fig. 5: Add Request Page

VIII. CONCLUSION

The “Domestic Android Application for Home Services” is a tailored mobile app that leverages cutting-edge technologies like the Android SDK, Eclipse, Java, and MySQL for Android app development. This app is designed to offer a variety of home services, including electrical work, plumbing, and carpentry. What sets it apart from the existing

“Facility Kart” app is its use of GPS to pinpoint users’ locations and connect them with the nearest service provider in real-time. As a result, this application is not only more dynamic but also more effective and efficient compared to the current system.

IX. FUTURE ENHANCEMENT

This app could really benefit from some enhancements, like letting users drag and drop their service requests to different spots on the map. This feature would come in handy if someone wants their request fulfilled at a location other than where they currently are. To achieve this, we need to incorporate maps into the app. Another great improvement would be to offer a wider variety of services for users to choose from. And since this app is currently designed just for Android users, it would be fantastic to expand its availability to other platforms like iOS and Windows.

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