



Guido- Your Trek Mate

¹Sejal Shitole, ²Nishant Sawant, ³Rubal Gajbhiye, ⁴Anurag Jarande,

⁵Prof. Mrs. Ashwini Bhamre,

¹Student, ²Student, ³Student, ⁴Student, ⁵Assistant Professor

¹Information Technology Department,

^{1,2,3,4,5}PROGRESSIVE EDUCATION SOCIETY'S MODERN COLLEGE OF ENGINEERING, PUNE, INDIA

Abstract: The increasing appeal of trekking and trekking applications can be linked to the rising enthusiasm for outdoor activities, the convenience provided by technology, a heightened focus on health and well-being, and the craving for distinctive and shareable experiences. With more individuals yearning to escape the mundane and embrace adventure, trekking is steadily establishing itself as a preferred recreational activity. This calls for a reliable trekking app, that is indispensable and seamlessly integrates navigation, safety, and community. Users enjoy real-time maps, GPS tracking, and trail details for a secure trekking experience. Routes and location sharing provide peace of mind, while weather updates and gear recommendations enhance preparedness. The app cultivates community through shared experiences, peer reviews, and educational content. Offline features, event planning, and fitness tracking enrich the user experience, making it an essential companion for all trekkers.

Keywords – Android application, Firebase database, External APIs, GPS Tracking.

I. INTRODUCTION

"Guido- Your Trek Mate" is an Android application designed to elevate the trekking experience for enthusiasts exploring historical forts. With a focus on user-centric design, Guido seamlessly integrates features like fort details, real-time weather updates, news articles, blogs, and visitor count estimations. Guido redefines the trekking experience through its advanced Android application designed to cater to the needs of passionate trekking enthusiasts. This robust app operates in real-time, offering users instant access to critical information such as weather updates, breaking news related to trekking destinations, and a multimedia-rich platform for sharing and exploring user-generated blogs.

What sets Guido apart is its forward-thinking approach, incorporating features like visitor count estimation, ensuring trekkers can plan their journeys with precision. The app places a strong emphasis on user security and adopts a user-centred design philosophy, guaranteeing a seamless and secure trekking experience. Developed with the latest technologies, including Android Studio, Kotlin, XML, and Java programming, Guido leverages the power of a Firebase database for efficient data management.

The integration with external APIs further enhances the app's responsiveness and functionality. Guido emerges not just as a navigation tool but as a comprehensive companion, utilizing the latest advancements to provide a secure, informative, and engaging platform for trekking enthusiasts worldwide.

Leveraging insights from existing mobile travel guide systems, Guido stands out for its intuitive interface and a commitment to sourcing accurate data from external APIs. The paper provides an in-depth exploration of the app's purpose, functionalities, target audience, and technical specifications. By prioritizing user security and engagement, Guido aims to inspire trekkers and instil a profound appreciation for historical forts, promising a secure and immersive journey.

II. RELATED WORK

2.1 Existing Work (1):

Mobile Travel Guide with Image Recognition and GPS Tagging.

This existing work integrates image recognition and GPS tagging [1] for a comprehensive travel guide experience. It emphasizes pre-trip and during-trip planning, incorporating augmented reality (AR) to enhance user engagement. The utilization of GPS and image recognition technologies enhances location-based content delivery.

Comparison:

Focus on Historical Forts: Guido specifically caters to trek enthusiasts interested in historical forts, offering specialized content and features tailored to this niche.

Real-Time Weather and News Integration: Guido provides real-time weather updates, news articles, and blogs related to historical forts, offering a more dynamic and informative trekking experience.

2.2 Existing Work (2):

Tourist Guide-USAL - Multi-Agent System for Tourist Routes 2

This work presents a multi-agent system facilitating tourist route planning [2] and modification. It emphasizes flexibility, global anticipatory systems, and mobile access. The system includes guide agents, performer agents, and tracker agents for a comprehensive tourism management solution.

Comparison:

Specialized for Trekkers: Guido is tailored specifically for trekking enthusiasts, offering features like trek difficulty assessment, visitor count estimation, and blog creation, catering to the unique needs of trekkers.

Singular Focus on Forts: Guido concentrates on historical forts, providing in-depth information and features related to trekking in these locations.

2.3 Existing Work (3):

Web and Mobile-based Tourist Travel Guide System for Fiji's Tourism Industry.

This work focuses on the tourism industry, providing a web and mobile-based tourist travel guide system [3]. It emphasizes flexibility, cost-effectiveness, and security. The system includes planner agents assisting tourists in route organization.

Comparison:

Trek-Specific Features: Guido offers features like trek difficulty assessment and blog creation, catering to the specific needs and interests of trekking enthusiasts.

Real-Time Weather Updates: Guido enhances user experience by providing real-time weather updates, helping trekkers plan their trips more effectively.

Guido's Technological Advancements:

Firestore Integration: Guido leverages Firestore for its database needs, enabling real-time data synchronization and seamless user experiences.

Google Maps API: The incorporation of Google Maps API provides users with accurate geolocation services, enhancing trek planning and exploration.

While existing works excel in broader tourism contexts, Guido carves a niche by focusing on historical forts and trekking enthusiasts. Its integration of real-time data, specialized features, and user-centric design, coupled with the latest technologies, positions it as an advanced and specialized trek guiding application in the market.

III. METHODOLOGY**3.1 Tools and Applications used****3.1.1 Android Studio:**

Description: Android Studio is the official integrated development environment (IDE) for Android application development. It provides tools for designing user interfaces, writing code, testing, and debugging.

How it is used in Guido App: Android Studio serves as the primary development environment for creating the Guido trekking app. It facilitates the creation and management of the app's source code, user interface layouts, and other project assets.

3.1.2 XML (Extensible Markup Language):

Description: XML is a markup language that defines rules for encoding documents in a format that is both human-readable and machine-readable. It is commonly used for representing structured data.

How it is used in Guido App: XML is likely utilized in the Guido app for defining layouts of user interface elements. It helps in structuring and organizing the presentation layer of the app, separating it from the business logic.

3.1.3 Java:

Description: Java is a versatile, object-oriented programming language with widespread use. While Kotlin is the preferred language for Android development, Java can still be employed.

How it is used in Guido App: Java may be used in specific components or functionalities within the Guido app. This could include leveraging existing Java libraries or integrating with modules written in Java.

3.1.4 Firebase:

Description: Firebase is a comprehensive mobile and web application development platform provided by Google. It offers various services, including a real-time database, authentication, cloud messaging, and more.

How it is used in Guido App: Firebase is a key technology in the Guido app, serving as the database for storing and retrieving user data, trek records, vlogs, and other relevant information. It enhances the app's functionality by providing real-time data synchronization and user authentication.

3.1.5 API (Application Programming Interface):

Description: An API allows different software applications to communicate and share data with each other. APIs dictate how applications can use to request and exchange information.

How it is used in Guido App: Guido interacts with external data sources and services through APIs. For example, it may use APIs to fetch real-time weather information and news articles related to historical forts, enriching the user experience with dynamic and up-to-date content.

3.1.6 JSON (JavaScript Object Notation):

Description: JSON is a lightweight data interchange format that is easy for humans to read and write and easy for machines to parse and generate. It stores data objects and allows to communicate them.

How it is used in Guido App: JSON is likely utilized in the Guido app for data interchange between the app and external services or APIs. It provides a structured and standardized format for transmitting data, enhancing communication efficiency.

3.1.7 Google Maps API:

Description: Google Maps API provides a set of tools and services for integrating Google Maps functionality into web and mobile applications. It includes features such as map rendering, geocoding, route planning, and location-based services.

How it is used in Guido App: The Google Maps API is integral to the Guido app's functionality, particularly in providing location-based services. It allows users to access maps, view trek routes, explore historical forts geographically, and plan their treks with accurate location information.

3.2 Methodology of the project

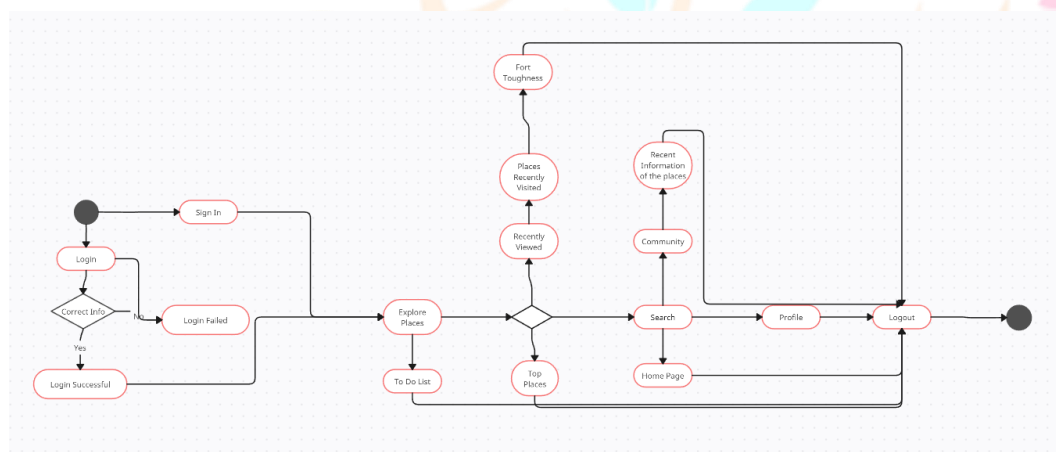


Figure 1: The State Chart Diagram represents the different states and transitions within the application.

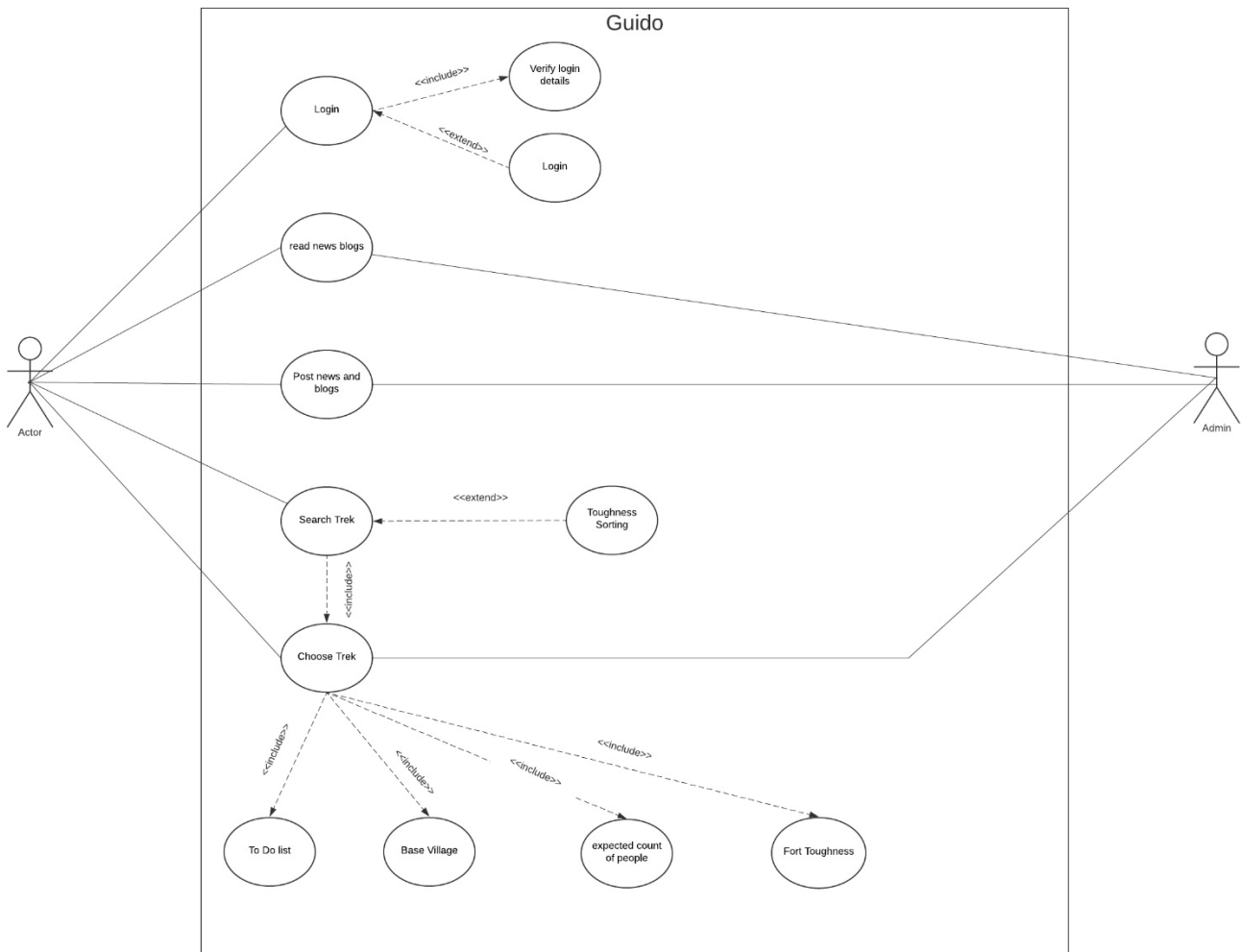


Figure 2: The Use Case Diagram represents the essential interactions and functionalities of the Guido app.

IV. IMPLEMENTATION

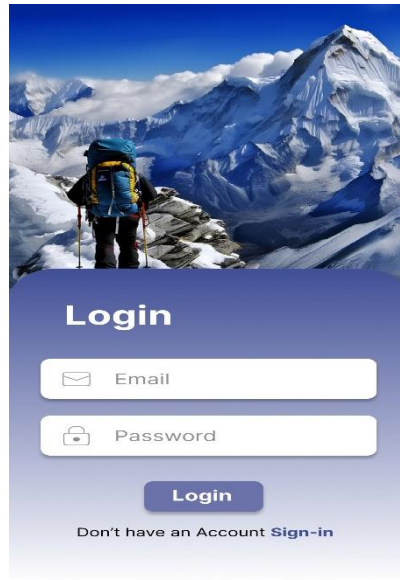
This section describes the working of the Guido app and includes all the functionalities provided by the app.

4.1. The Splash Screen

Splash Screen is the first screen displayed when the user opens an application. It is a graphical window containing an image, a logo or the current version of the software. It is used to notify the user that the program is in the process of loading. It disappears when the application's main window appears. The splash screen of our application contains a logo, name of the application. It will be displayed for just 2 seconds before the application's main page is opened.

4.2 Login Page

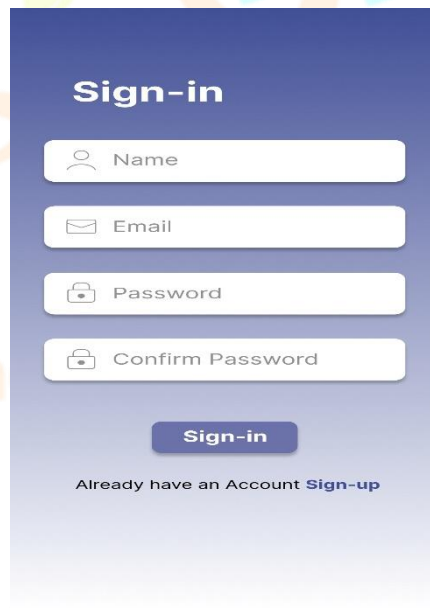
A login page is a web or app interface where users enter their credentials, like username and password, to access a secure account or system. It serves as a gateway to authenticate and verify user identity before granting access to specific resources or features. Our login page contains two text boxes for email and password where user enters their credentials. One button which redirects user to home after authentication



4.2 Login Page

4.3 Sign In Page

A signup page is a web or app interface where users provide necessary information, such as username, email, and password, to create a new account. It's the initial step for users to register and gain access to the platform's services or features. Our sign up page contains 4 text boxes where user fills the details of their full name, email, password and confirm password. A sign up button which registers the user so they can access the platform

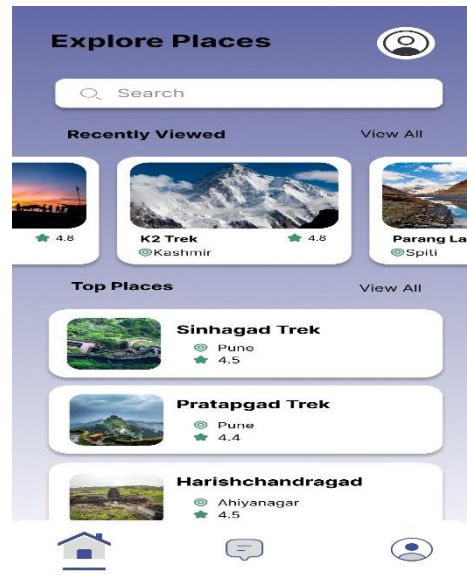


4.3 Sign In Page

4.4 Home Page

These buttons are:

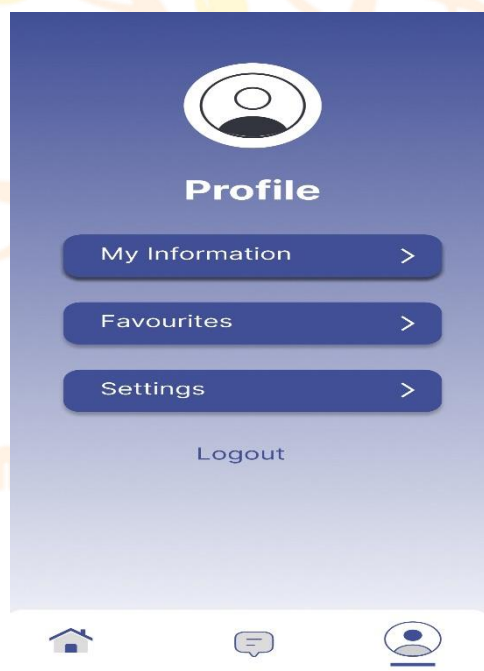
- Search a trek button: This button is used for searching for any trek in the database.
- List of treks is displayed.
- Three more buttons for home page, community page and profile page.



4.4 Home Page

4.5 Profile Page

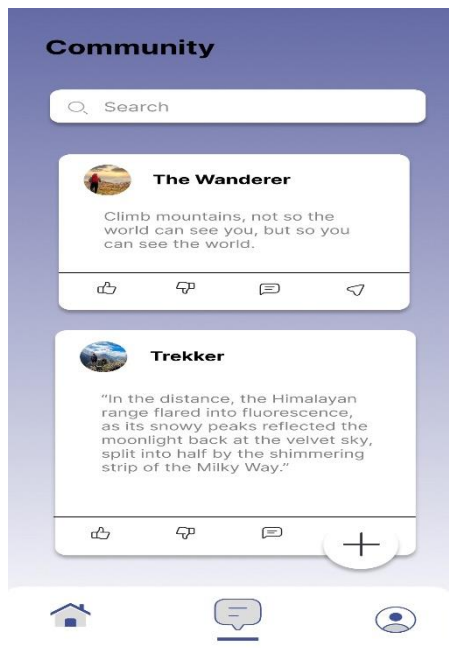
With the help of profile page we can change the information of our profile according to our requirements. Also we can see our saved favourites and go to the settings.



4.5 Profile

4.6 Community Page

In community page we can add our latest views on the forts and treks that they have went on recently this can help the overall community also by clicking on the plus icon we can add our views.



4.6 Community Page

4.7 Detailed Information Page

In this page you can get the detailed information about the treks. Also the weather, review , overview distance and Time. A main screen or home screen is the first screen of any application. This is a window which is opened after successful authentication. This screen gives the main feature and functionalities of the application. The main screen of our application contains buttons for each of the functionalities provided by the application.



4.7 Detailed Information Page

V. CONCLUSION

In conclusion, the research paper delineates the comprehensive features and aspirations of Guido, the Trekking Guide Android App, aimed at elevating the trekking experience to historical forts. By incorporating cutting-edge technologies such as machine learning, augmented reality, and real-time data access, Guido offers a personalized, immersive, and informed journey for trekking enthusiasts. Its commitment to community engagement, educational value, and global accessibility positions Guido as a transformative force in the trekking app landscape.

REFERENCES

- [1] Ramsha Fatima, Iffat Zarin, Mohammed A. Qadeer, M. Sarosh Umar, "Mobile Travel Guide using Image Recognition and GPS/Geo Tagging," 2016.
- [2] Vineet Singh, Akeshnil Bali, Avinesh Adhikthikar, Rohitash Chandra, "Web and Mobile based Tourist Travel Guide System for Fiji's Tourism Industry," 2015.
- [3] M.S.B.W.T.M.P.S.B Thennakoon, R.D.T.N Rajarathna, S.P.B Jayawickrama, M.P.D.S.M Kumara, A.M. Imbulpitiya, N. Kodagoda, "Tourguru: Tour Mobile Application for Tourists," 2019.
- [4] Sayyad, Akil H., and Santosh A. Shinde. "Android Mobile Based Tour Guide System using Augmented Reality." In Proceedings of [Conference/Journal Name], Volume 5, Issue 7, July 2016.
- [5] Anusha, Poorva Agrawal, Gagandeep Kaur. "Artificial Intelligence-Based Method to Improve Tourism with the Help of Android Studio." International Journal of Innovative Technology and Exploring Engineering (IJITEE), ISSN: 2278-3075 (Online), Volume-10 Issue-6, April 2021.
- [6] Lai, Ivan K. W. "Traveler Acceptance of an App-Based Mobile Tour Guide." Macau University of Science and Technology.
- [7] Maryam, Amrah, Nadia Siddiqui, Mohammed A. Qadeer, and M. Sarosh Umar. "Travel Management System using GPS & Geo Tagging on Android Platform." Department of Computer Engineering, Zakir Hussain College of Engineering and Technology, Aligarh Muslim University, Aligarh – 202002, UP, India.
- [8] Fatima, Ramsha, Iffat Zarrin, Mohammed A. Qadeer, and M. Sarosh Umar. "Mobile Travel Guide using Image Recognition and GPS/Geo Tagging: A Smart Way to Travel." Department of Computer Engineering, Zakir Hussain College of Engineering and Technology, Aligarh Muslim University, Aligarh-202002, India. IEEE, 2016. DOI: 10.1109/[Conference Identifier].
- [9] Zhang, Lixia, and Zhongli Sun. "The Application of Artificial Intelligence Technology in the Tourism Industry of Jinan." Shandong Xiehe University, 250100, Jinan, China, and Shandong Aisino Corporation, 250001, Jinan, China. In IOP Conf. Series: Journal of Physics: Conf. Series, vol. 1302, 2019, p. 032005.
- [10] Dadape, Jinendra R., Jadhav, Bhagyashri R., Gaidhani, Pranav Y., Vyavahare, Seema U., and Achaliya, Parag N. "Smart Travel Guide: Application for Android Mobile." In 1st International Conference on Recent Trends in Engineering & Technology, Mar-2012. Special Issue of International Journal of Electronics, Communication & Soft Computing Science & Engineering, ISSN: 2277-9477, p. 115.
- [11] Leister, Wolfgang. "Strengthening Tourists' Engagement in Guided Hiking and Trekking." ; Published: 21 June 2019. In Adm. Sci. 2019, 9, 45.
- [12] Rathod, Kewal, Govekar, Vinay, Gaikwad, Mayuri, and Jaiswal, Ichhanshu. "AI-Based Tourist Guide Implementation paper of AI-Based Tourist Guide application." In *Journal of Emerging Technologies and Innovative Research (JETIR)*, Volume 8, Issue 5, May 2021, ISSN-2349-5162, pp. d829. Published by Vidyalkar Institute of Technology, Mumbai, India.