Team Details

Team Name: Cyber Crew
Team Leader Name: Parag Sharma
Problem Statement: Enhancing mobile app accessibility to empower visually and auditorily impaired individuals in their daily digital interactions.

Brief about the Idea - Orbcura

- Orbcura is a mobile app for visually and auditorily impaired people to help them conduct their day to day tasks effectively. Often mobile apps have poor accessibility options. While people who are not impaired easily enjoy the luxuries, impaired people often struggle to use these apps. In short, we are building an app which extends the functionalities and accessibility options of apps which are used daily like WhatsApp, UPI Payments, Instagram, News, etc. So that, impaired people are able to take the advantage of these functionalities.

Opportunities

How is it different from other solutions?

- TalkBack is an accessibility feature incorporated into Android smartphones that allows visually impaired people to engage with their devices via touch gestures. But, this feature only provides navigation. Our app provides complete integration to most used apps for efficient usage.
- VoiceOver is an accessibility feature on Apple devices that gives audio explanations and spoken feedback. But, this requires the apps to actually implement these accessibility options. Not all the apps implement these. Our app provides integrations to the app which do not even implement these.

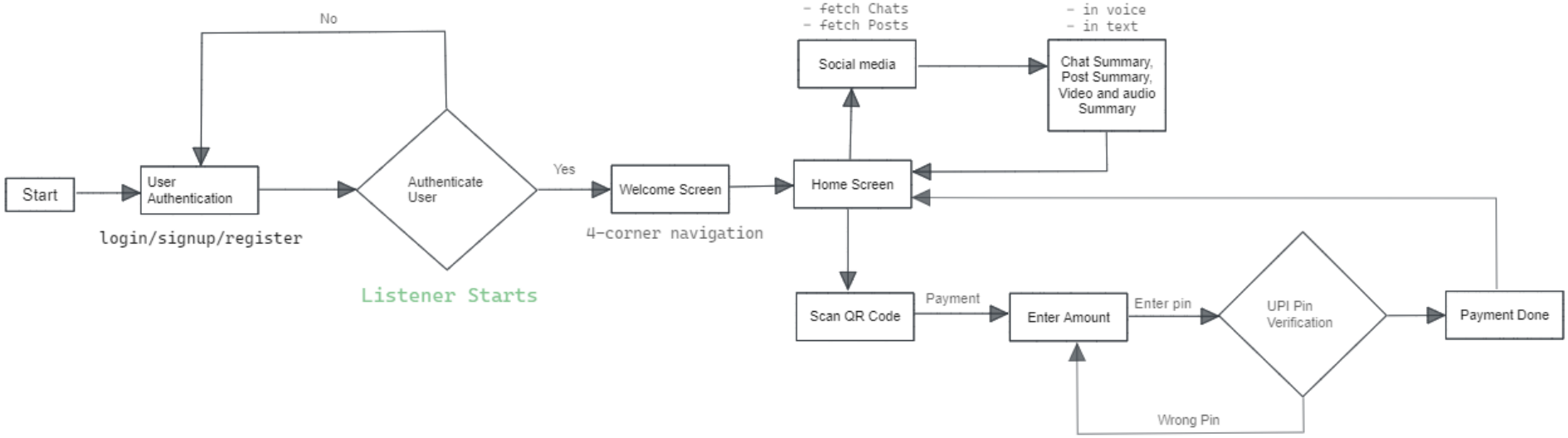
USP of Orbcura

- Thus, the unique selling proposition (USP) of the idea is the extension of accessibility features outside the allowed domains.

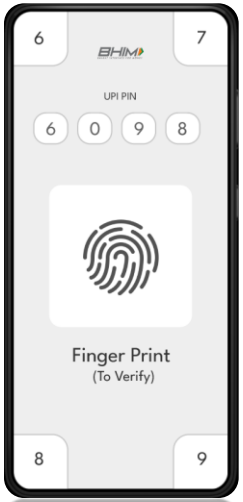
List of features offered by the solution

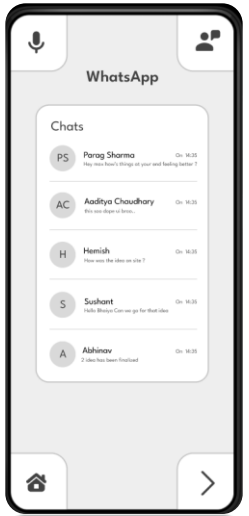
- Navigate screens within apps using voice commands.
- Enhanced **screen reader** capabilities tested for each app.
- A **4-corner touch** and center button **UI** for common tasks.
- Adds accessibility support to apps lacking native features.
- **Summarizes** groups of **messages** on WhatsApp for easier comprehension.
- Provides **text summaries** of photos and videos on Instagram for visually impaired users.
- Converts audio output from any app into text for **auditorily impaired** users.
- Easy UPI payments by **intuitive PIN UI** specially designed **for impaired users**.
- **Inclusive community platform** which allows sharing of ideas.

Process flow diagram / Use-case diagram

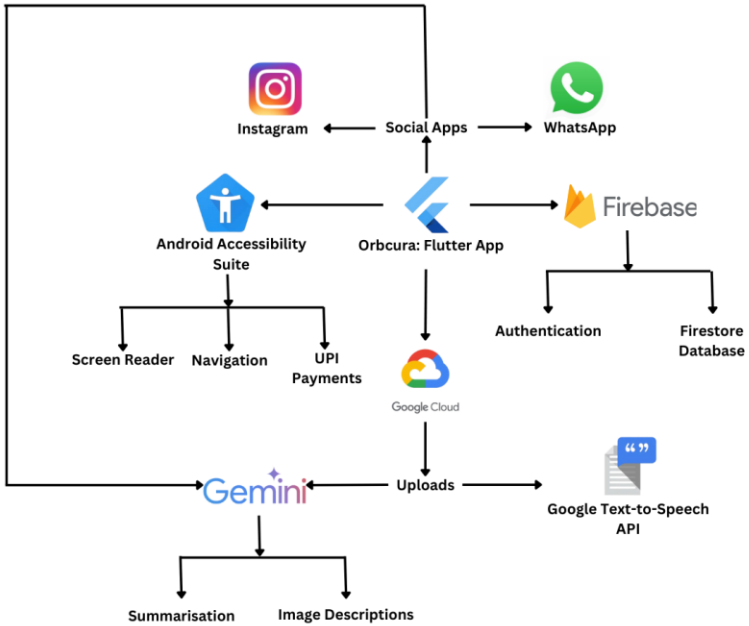


Wireframes/Mock diagrams of the proposed solution





Architecture diagram of the proposed solution



Technologies to be used in the solution

Flutter

System Accessibility

Firebase Firestore

Text to Speech API

Google Gemini API

- Flutter for building mobile app faster but efficiently.
- System accessibility options for reading the screen text and performing automated activities.
- Firebase for storing basic user information and to handle authentication.
- Google Cloud and Google Text to speech API's for voice and text features.
- Gemini API for providing descriptions of images and summarization of messages

Estimated implementation cost

Initially, the implementation cost would be 0 in testing phase, as all API's used have a free tier which would be enough for testing.

- Gemini API provides free 15 requests per minutes.
- Text to Speech API is available as a part of Google Cloud and has limits for the length of audios generated.
- Text to Speech API has 5 minutes of continuous streaming quota for one request which is greater than general length required (about 15-20 seconds).
- Firebase Firestore provides 20K writes/day and 50K reads/day on free plan, which is enough for general testing, and can sustain a thousand users easily.

Meet our team behind **Orbcura**

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THANK YOU