Equibank

Overview of the problem

In our modern world, we have a multitude of ways to access certain necessities of disabled people in our life, whether it would be through food delivery, online medical consultations and even at home exercises through apps. However, one part of concern we are trying to address is how they would access their bank and money despite being visually impaired. Our system/interface would implement a voice recognition and text-to-speech interface to aid the blind in accessing their bank account.

Characteristics of the user

- Visually Impaired
- Able to use their voice
- Able to hear the response given by the system

Characteristics of the Tasks Performed by the User

1. **Initiating the system:** Users will use a specific voice command (e.g. “start voice”) to activate the system
2. **Menu Voice Commands:** Possible functions or menu items will be dictated by the system (e.g. “Deposit”, “Send Money”, “Check Balance”, “Pay Bills”).
3. **System Confirmation:** Confirmation message request will be given to the user and the user will confirm if the dictated details are correct and will proceed with the process.

Characteristics of the Task Environment

- User will have to be situated in a quiet and private environment for the system to accurately recognize input, and not to share bank information with nearby people

- The device should be able to recognize audio input and present output based on what the user specifies the system to do
- Internet connection is necessary to communicate effectively between the user and the device's voice recognition and text-to-speech responses.

Task Analysis

1. **Start**
    - Voice recognition activation
    - Then; systems confirm activation
2. **Transaction**
    - User command
    - System processes command
    - System provides auditory feedback
3. **Confirmation**
    - Transaction confirmation by user
    - System confirms completion
    - User is exited from system

Analysis of Existing Systems

Current systems of banking applications are mainly ensured to have

Simplified Interfaces which had:

- User-Friendly Design: Banking apps often feature streamlined interfaces with large buttons and simple navigation structures, which can be easier for blind users to understand and use with screen readers.
- Minimalist Layouts: Minimalist design reduces clutter, making it easier for screen readers to accurately convey information to users.

And Security Features that applies:

- Biometric Authentication: Fingerprint and facial recognition provide secure and convenient methods for blind users to authenticate without needing to enter passwords.
- Two-Factor Authentication (2FA): Many apps offer 2FA, adding an extra layer of security without significantly complicating the user experience for the blind.

However, while banking applications may entail serviceable features that help users in using and distinguishing features, they may also lack in standards and accessbility features

Inconsistent Accessibility Standards:

- Varying Levels of Screen Reader Compatibility: Not all banking apps are equally optimized for screen readers. Some may have unlabeled buttons or elements that screen readers cannot interpret correctly.
- Lack of Standardization: There is often a lack of standardization in accessibility features across different apps, making it challenging for blind users to switch between different banking services.

Inadequate Voice Assistance:

- Limited Voice Command Capabilities: While voice commands are available in some apps, they are often limited in scope, restricting the range of transactions and actions that can be performed through voice alone.

- Lack of Natural Language Processing: Many voice command systems do not understand natural language well, requiring users to use specific phrases or commands, which can be cumbersome.

Social and Technical System Intersection

This project will socially empower visually impaired individuals, helping them gain independence and inclusivity especially in secure systems such as banking. This is done

with the use of secure API's and voice recognition technology to interact and communicate with existing and future banking systems.

Usability Criteria

Accessibility: Functionalities, such as the voice recognition will be accessible through voice commands and reciprocated through auditory feedback.

Reliability: Accuracy and efficiency in recognizing voice commands and transaction processing.

Security: Implementation of robust security measures to ensure protection of user data

User Satisfaction: Feedback and suggestions will be collected to improve the ongoing system

We can measure how successful these 4 criteria are by conducting usability tests on the visually impaired and gathering their feedback. Do performance tests on the system's response time and accuracy of voice recognition.

Implications of Usability Analysis

From what we learned, obtaining accessibility not only for us, but also for disabled people as well. Inclusion of everybody is very important with how world relies on digital ways today. Examples such as banking, teaching, and payment should always have inclusivity with them. On the other hand, it is our job as future developers to keep in mind the people who are not always able to do such tasks in our applications. Innovation such as text-to-speech banking is always a great way to include the visually impaired. Furthermore, we can always do more to create an inclusive, innovative, and empowering system that helps everyone in our lives.