Proposal for Sign Language Recognition Mobile App

Project Overview
App Name: SignTalk

Objective
SignTalk aims to bridge the communication gap between deaf individuals and those who do not know sign language. The app will use advanced AI/ML technologies to recognize sign language through the mobile camera and convert it to text and audio in real-time. Additionally, it will serve as an educational tool for learning sign language.

Key Features
1. Real-Time Sign Language Recognition
- Camera Integration: Use the mobile camera to capture sign language gestures.
- AI/ML Processing: Utilize AI/ML models to accurately interpret signs.
- Text & Audio Output: Convert recognized signs into english text and audio for immediate communication

2. Sign Language Learning Module??
- Interactive Lessons: Offer lessons for learning american sign languages
- Practice Mode: Users can practice signs and get feedback on their accuracy.
- Progress Tracking: Track learning progress and offer milestones and rewards.

4. User-Friendly Interface
- Intuitive Design: Simple and easy-to-navigate UI/UX.
- Accessibility Features: High contrast modes, customizable text sizes, and voice commands.

5. Community Features
- Forum: Connect with other learners and sign language users.
- Events: Find and join sign language workshops and events.

Technologies
1. AI/ML Algorithms
- TensorFlow/PyTorch: For developing and training sign language recognition models.
- OpenCV: For image processing and feature extraction from camera input.

2. Mobile Development
- Swift: For developing the iOS version of the app.
- CoreML: For integrating ML models on iOS devices.

- TensorFlow Lite: For integrating ML models on Android devices.

Development Plan

Phase 1: Research & Planning

- Conduct market research and gather user requirements.
- Define technical specifications and architecture.
- Assemble a development team.

Phase 2: Design & Prototyping

- Design UI/UX mockups.
- Develop wireframes and user journey maps.
- Create an initial prototype for user feedback.

Phase 3: Core Development

- Develop the sign language recognition module.
- Integrate AI/ML models for real-time processing.
- Build text and audio conversion functionalities.
- Develop the learning module with interactive lessons.

Phase 4: Testing & Optimization

- Conduct unit testing and integration testing.
- Optimize AI/ML models for performance and accuracy.
- Perform usability testing with target users.

Phase 5: Launch & Marketing

- Prepare for app store submissions (App Store and Google Play).
- Develop a marketing strategy for launch.
- Launch the app and monitor user feedback for continuous improvement.

Estimated Timeline

(September - October 2024): Finalize project plan, define model architecture, and begin model training with initial datasets.

(November - December 2024): Complete app development for iOS and Android; integrate ML models.

(January - February 2025): Conduct beta testing, gather user feedback, and optimize app performance.

(March 2025): Finalize the app, prepare for presentation, and publish the app to respective app stores.

- Total: 6 months

Conclusion
SignTalk has the potential to revolutionize the way deaf individuals communicate with the world and how others learn sign language. By leveraging advanced AI/ML technologies and providing a user-friendly mobile interface, SignTalk will make communication more inclusive and accessible. We seek your support to bring this innovative solution to life and foster a more connected and understanding community.

We look forward to your positive response and the opportunity to make a significant impact on the lives of many. Thank you.