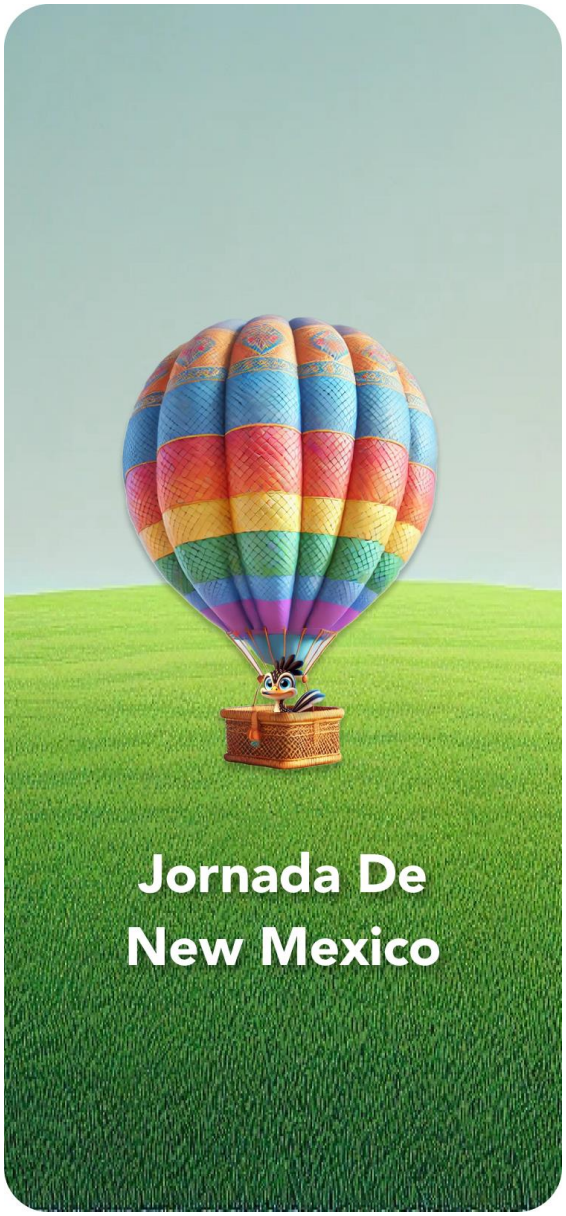
Jornada de New Mexico

Brief description of the app

"Jornada de New Mexico" is an immersive tourism app that lets users explore New Mexico's attractions while capturing characters by answering location-based quizzes. Through this engaging experience, users naturally learn educational information about each site in a fun and enjoyable way.

A splash screenshot



Team members

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Chaeeun Park is a master's student in CE, working as a research assistant on machine learning projects. She won first place in the 2024 NASA Apps Challenge.

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Molly Palko is a senior majoring in Computer Science at the University of New Mexico. She is passionate about computer science education and currently serves as an instructor and section leader for a freshman-level CS course, where she helps guide students through their early experiences in the major. She is always eager to expand my knowledge, collaborate on exciting projects, and explore ways to combine computer science with various other interests.

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Dayeon is a senior majoring in Computer Science at the University of New Mexico. She has experience co-founded the startup, and she is currently leading a photo booth app project. She thrives on learning new technologies and enjoys turning ideas into impactful solutions. She won first place in the 2024 NASA Space Apps Challenge.

Purpose

The purpose of **"Jornada de New Mexico"** is to transform history and tourism into an interacti ve, gamified experience. The app allows users to explore New Mexico's attractions by capturing characters, answering quizzes, and chatting with an AI character. Through this engaging journey, users can naturally learn educational information about each site in a fun and enjoyable way. Ad

ditionally, the app aligns with the New Mexico curriculum to support children's education, featur ing content and activities suitable for all ages.

Audience

1. **Families with Children in New Mexico**
   Parents seeking an enjoyable, interactive way to combine learning and exploration for their children while discovering the state's attractions.
2. **Tourists in New Mexico**
   Visitors looking for an immersive, educational experience that deepens their understanding of New Mexico's unique culture and natural beauty through engaging, on-location activities.

BM (Business Model)

1. **B2G (Business-to-Government)**
   Partner with New Mexico schools to integrate the app into their curriculum, providing educational content that aligns with local history, culture, and natural sciences.
2. **B2B (Business-to-Business)**
   - **Tourism Site Partnerships**: Partner with cultural sites to offer educational content in exchange for sponsorship fees.
   - **Vendor Collaborations**: Partner with local businesses to place exclusive in-app items at their locations.

Functions

1. **Location-Based Character Detection**
   Upon arriving at a designated tourist spot on the map, users can locate nearby characters to enhance exploration.
2. **AR Character Capture with Quizzes**
   Users can activate the camera to view characters in AR and solve simple quizzes to capture them, blending interactive learning with gameplay.
3. **Character Collection and Information**
   Users can access detailed information about each character they've captured, adding an educational layer to their collection.
4. **Chat with the AI Character for In-Depth Learning**
   Through interactive conversations with AI characters, users can explore the educational

significance of each location in depth.

5. **Social Play with Friends**
   Users can enjoy the experience with friends, adding a social dimension to their exploration and learning journey.

Pathway to satisfaction

1. **Seamless Onboarding**
   Offer a user-friendly onboarding experience that guides users on how to navigate the app, explore the map, capture AR characters, and access educational content with ease.
2. **Engaging Quizzes and AI Character Interaction**
   Design fun and achievable quizzes paired with interactive chats with AI characters, creating a sense of accomplishment and making learning both enjoyable and immersive.
3. **Gamification Elements**
   Integrate gamified features such as points, badges, or achievements to motivate users and keep them engaged as they explore and learn.
4. **Collaborations with Schools and Government Agencies**
   Partner with schools and educational institutions to create meaningful content aligned with curriculum standards, enhancing the app's role as an educational tool.
5. **Rewarding Partnerships with Local Businesses**
   Collaborate with local businesses to offer exclusive in-app rewards or items at partner locations, creating a treasure hunt experience that supports local commerce and enhances user exploration.
6. **Responsive Multilingual Support**
   Provide multilingual support to ensure accessibility for international visitors, making the experience enjoyable and inclusive for a diverse audience.

Technical components (APIs, feeds, libraries, models, third party services to be incorporated)

- **Speech Recognition (ASR - Automatic Speech Recognition)**

  Using Google Speech-to-Text, enable users to have voice-based conversations with the ch aracter.

- **Natural Language Processing (NLP) and Chatbot Frameworks**

  Using frameworks like Dialogflow, the AI character can understand and respond to user i nquiries about the location, enhancing the educational experience.

- **Augmented Reality (AR)**

  Take photos with the AI character at tourist sites, using the real-world location as a back ground, using Unity's AR Foundation (with ARCore (Android) and ARKit (iOS)).

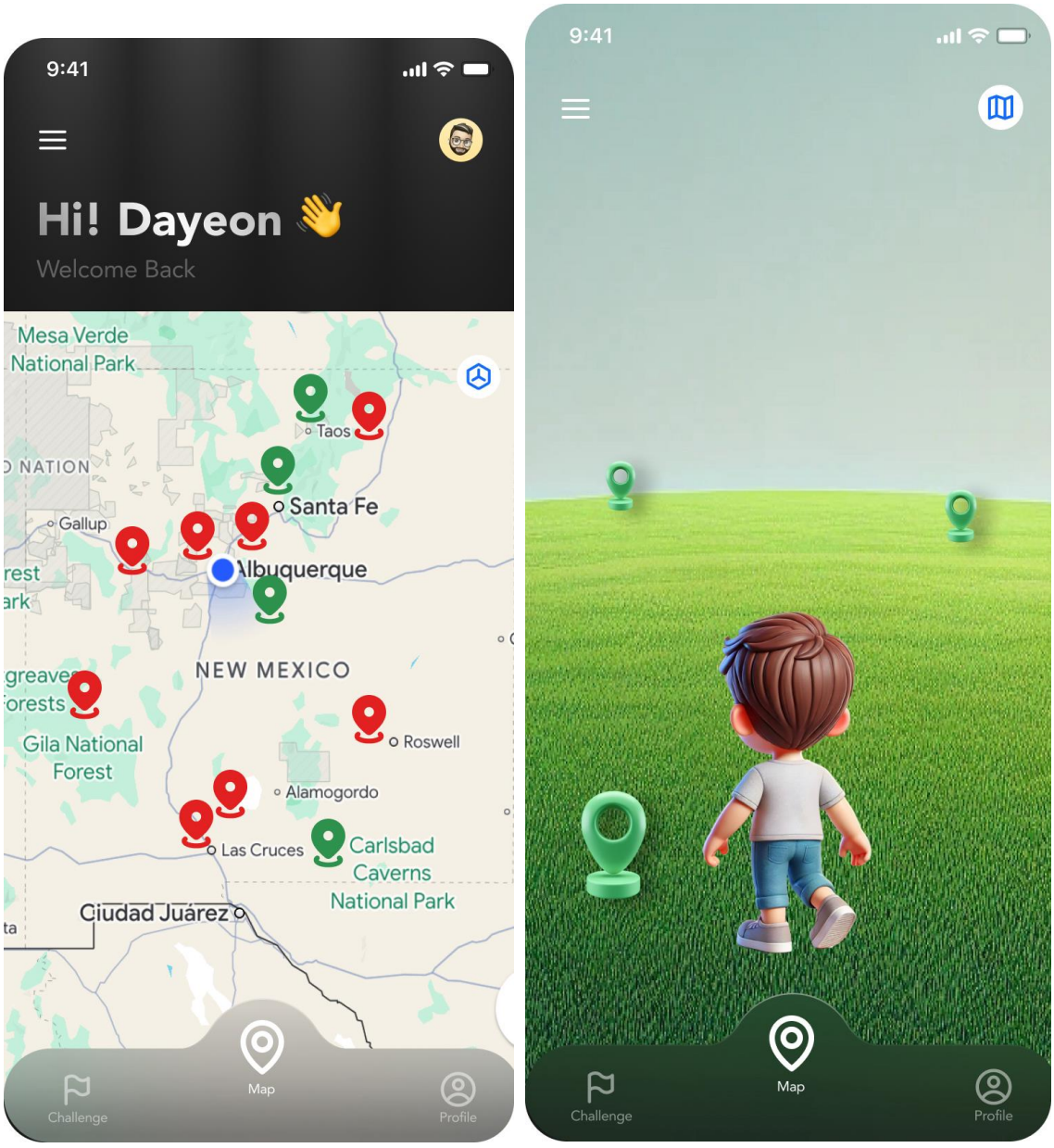
- **Location-Based Triggers**

  Utilize GPS or geofencing to automatically trigger specific content when users arrive at designated locations. The AI character can welcome users to each site and provide releva nt information about their surroundings, adding an immersive layer to the experience.

Prototype

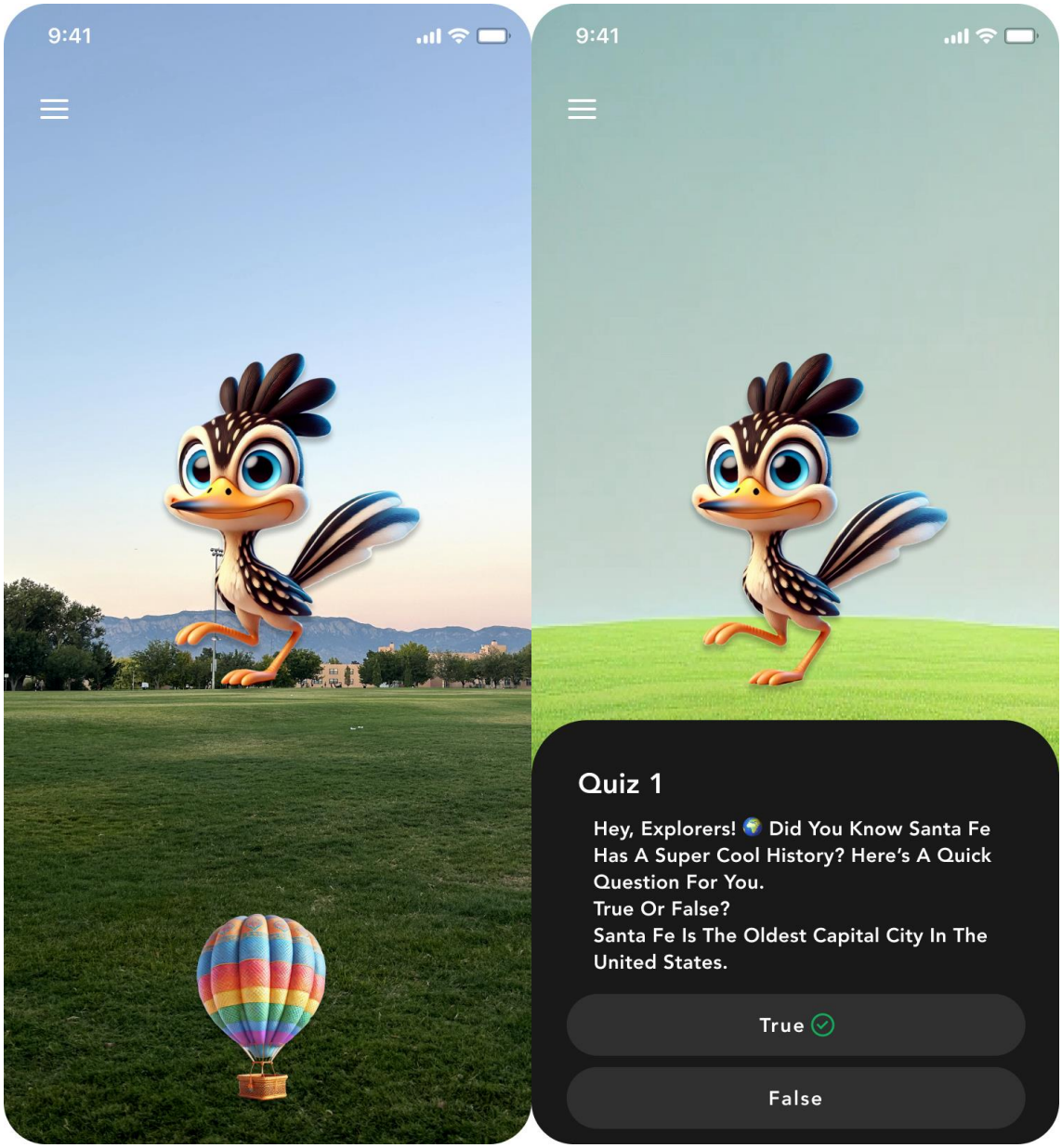
Home Screen

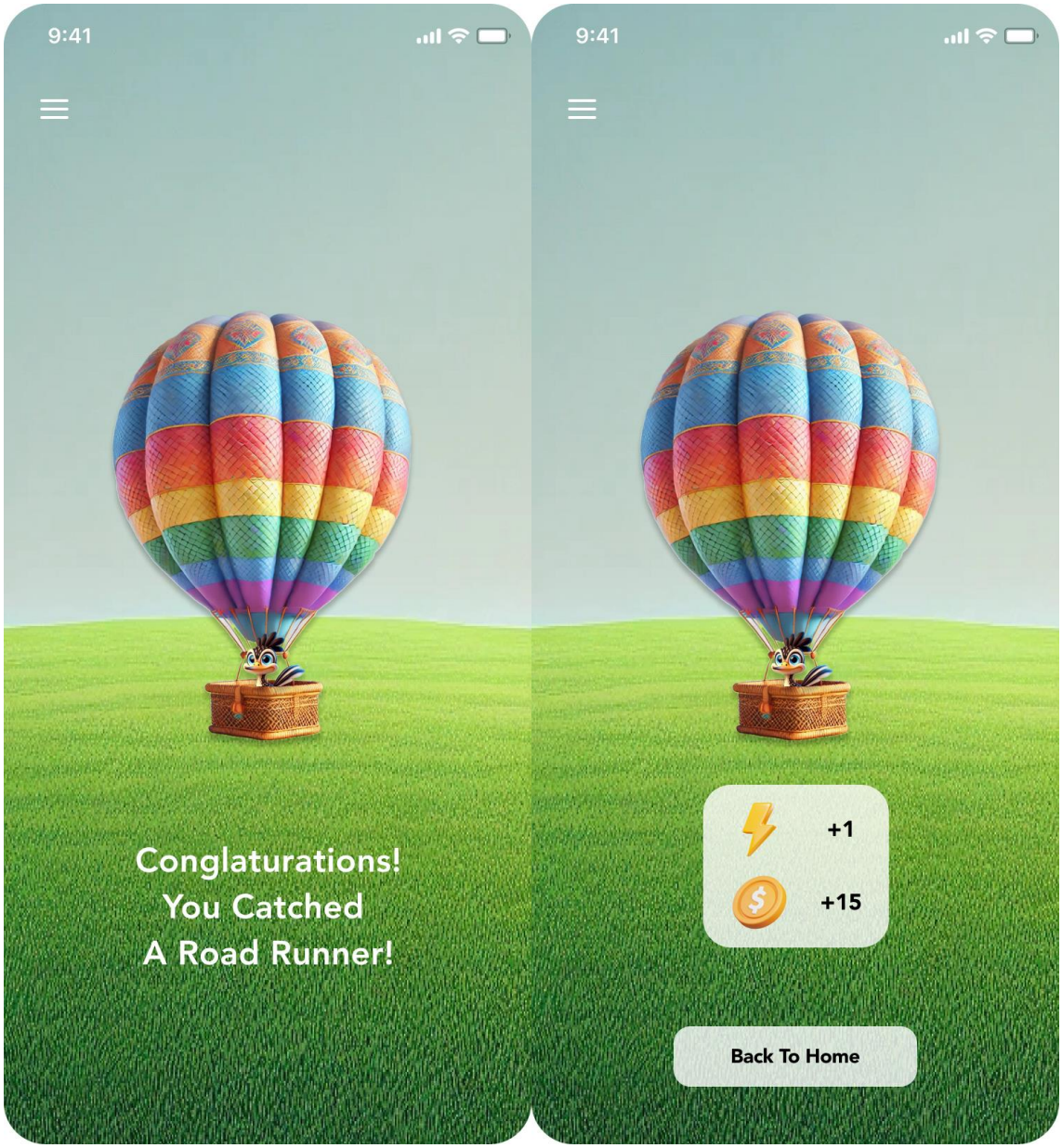
- User-friendly map showing available tourist sites and AR character locations.



AR Capture Screen

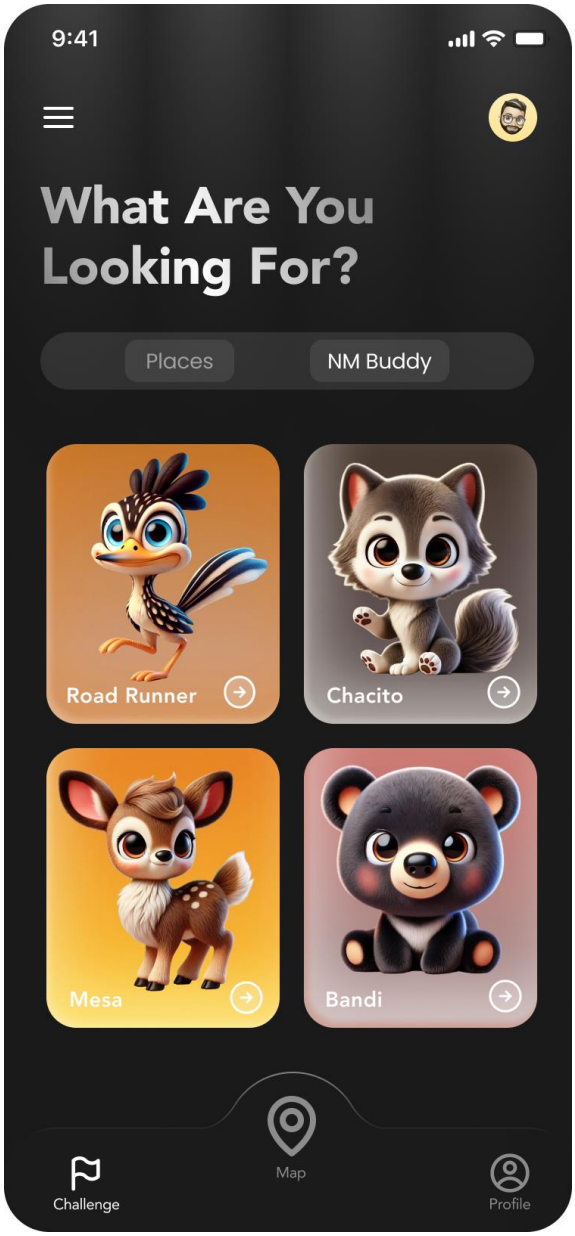
- AR camera interface to capture characters, with quiz overlay.

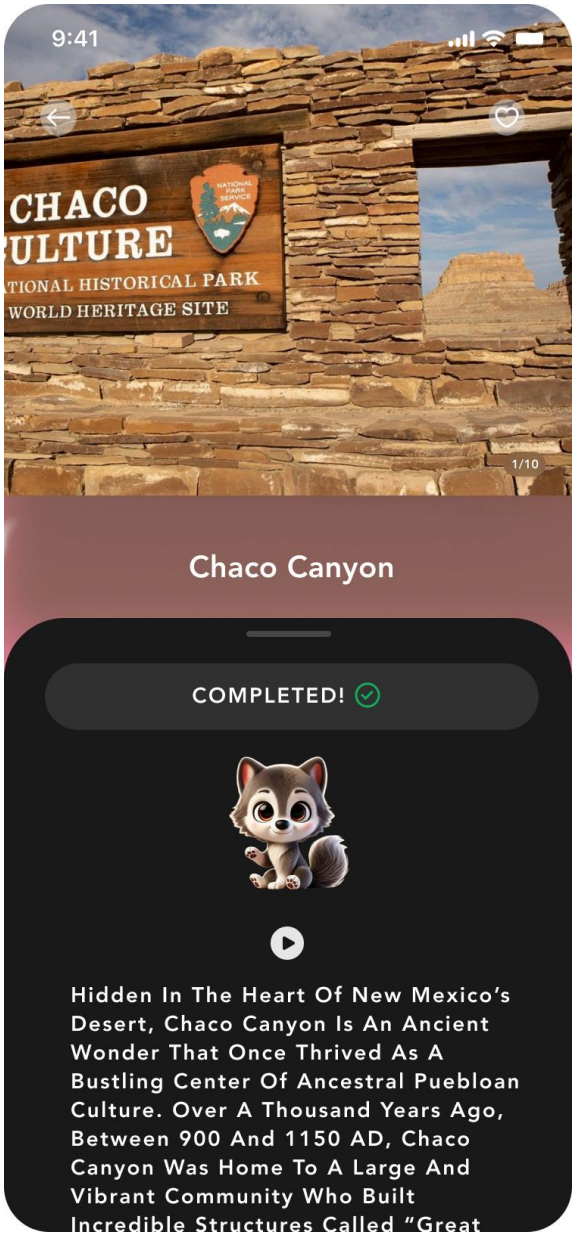

9:41
9:41
Quiz 1
Hey, Explorers! 🌍 Did You Know Santa Fe Has A Super Cool History? Here's A Quick Question For You.
True Or False?
Santa Fe Is The Oldest Capital City In The United States.
True
False

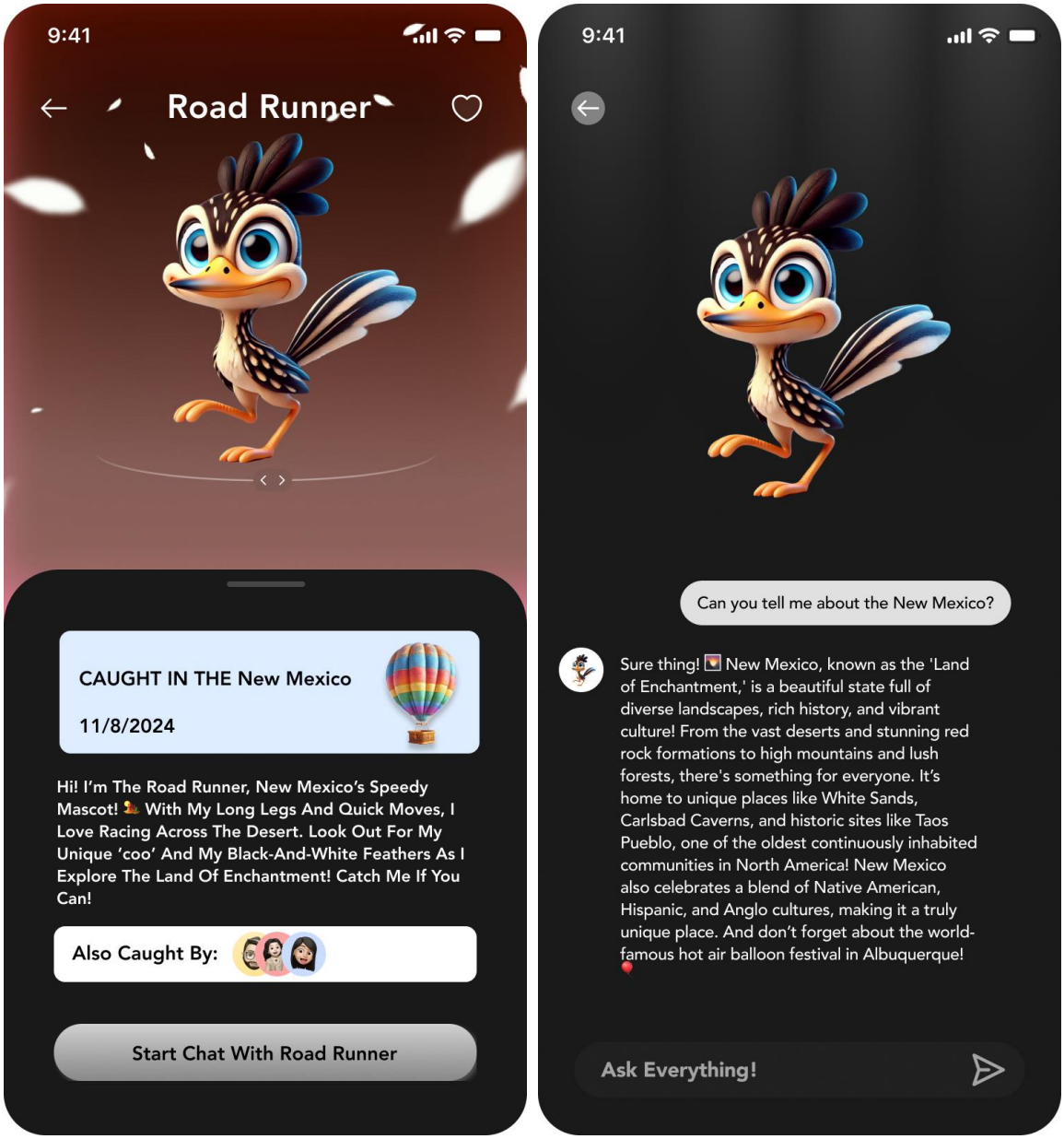


Character Profile Screen

- Detailed view of captured characters, with educational insights. Through interactive AI with characters, users can delve deeper into the educational significance of each location.

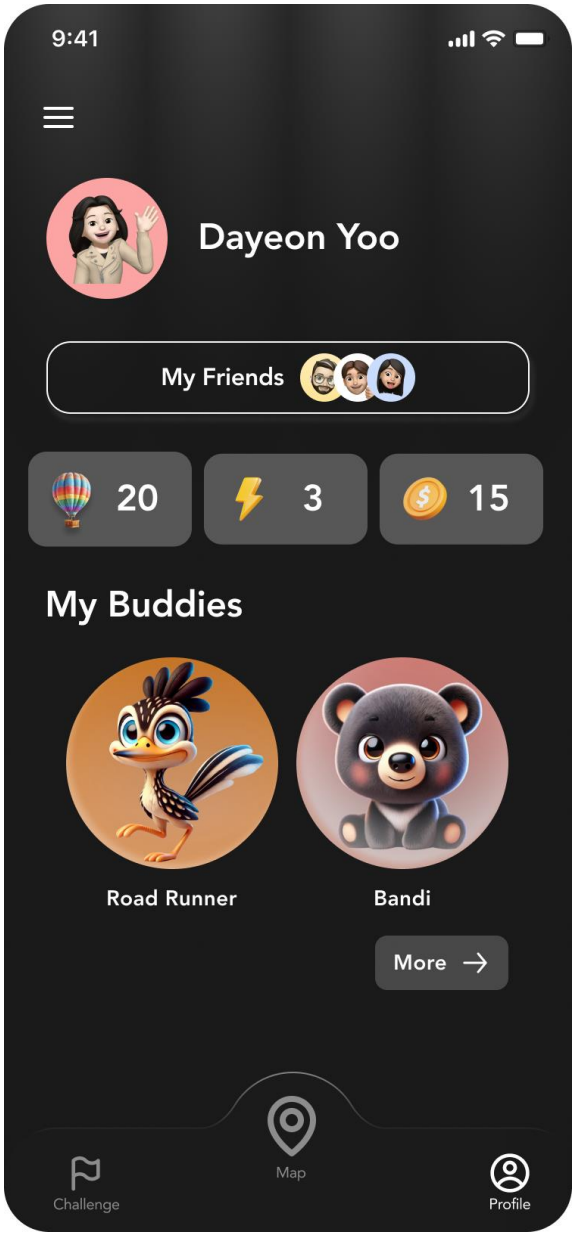

9:41
What Are You Looking For?
Places
NM Buddy
Road Runner
Chacito
Mesa
Bandi
Challenge
Map
Profile


9:41
CHACO
ULTURE
TIONAL HISTORICAL PARK
WORLD HERITAGE SITE
1/10
Chaco Canyon
COMPLETED!
Hidden In The Heart Of New Mexico's Desert, Chaco Canyon Is An Ancient Wonder That Once Thrived As A Bustling Center Of Ancestral Puebloan Culture. Over A Thousand Years Ago, Between 900 And 1150 AD, Chaco Canyon Was Home To A Large And Vibrant Community Who Built Incredible Structures Called "Great

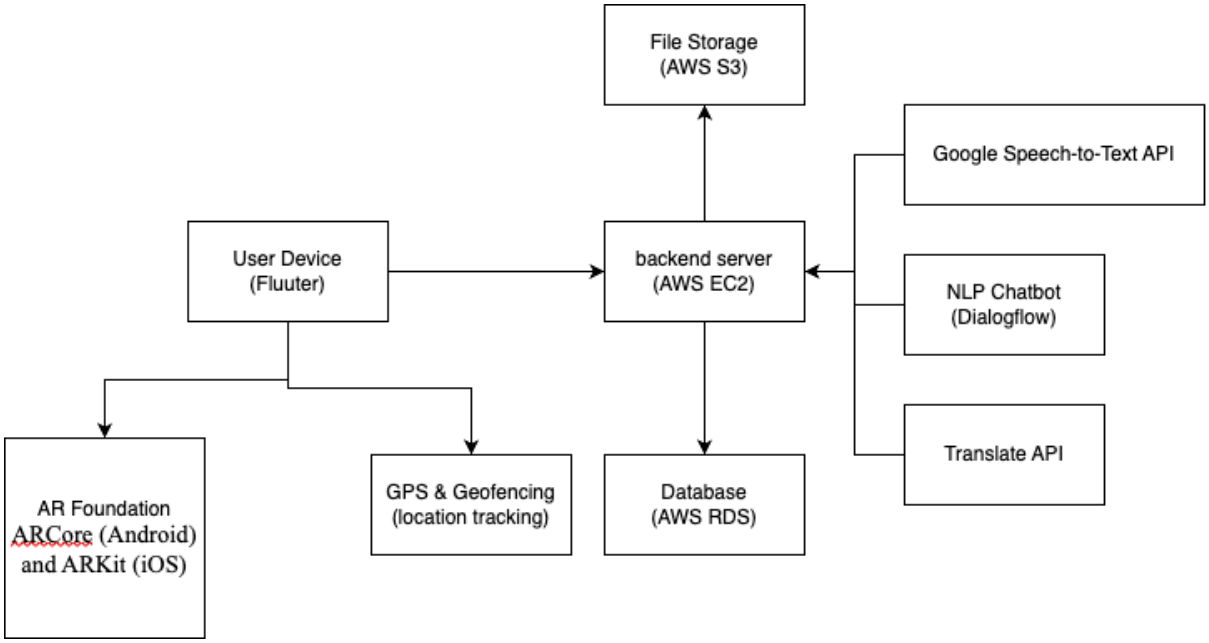


Profile Screen

Progress tracker, and account information.


9:41
Dayeon Yoo
My Friends
20
3
15
My Buddies
Road Runner
Bandi
More
Challenge
Map
Profile

Architecture diagram



Security

1. User Authentication and Authorization

Mechanism: Use Firebase Authentication or OAuth for secure, streamlined login.

Security Protocol: Implement HTTPS/TLS to encrypt data during transmission, protecting login c redentials and session tokens.

Session Management: Employ secure tokens for session management and set expiration times to prevent unauthorized access.

2. Data Encryption

In-Transit Encryption: All data transmitted between the app and the backend server should be en crypted using HTTPS with TLS 1.2 or higher.

At-Rest Encryption: Sensitive information stored on Firebase or any other database should be en crypted using industry-standard encryption protocols (e.g., AES-256).

3. Privacy of User Data

Minimal Data Collection: Collect only essential data, such as location data for app functionality and user data for login, and avoid unnecessary data retention.

Personal Data Anonymization: Any data used for analytics or reporting should be anonymized to

avoid exposing individual user identities.

4. Location Data Protection

Location Permissions: Request user permission before accessing location data, clarifying the purp ose of collection to ensure user awareness.

Geofencing Data Security: Use secure APIs for geofencing to prevent unauthorized location track ing, ensuring user location data is kept secure and used strictly for app functionality.

5. Compliance with Privacy Regulations

GDPR Compliance: Implement data protection features allowing users to manage their data, inclu ding data deletion requests to comply with GDPR.

COPPA Compliance: Since the app may be used by children, comply with the Children's Online Privacy Protection Act (COPPA) by incorporating parental consent options and data privacy meas ures.

7. Secure Storage of Sensitive Data

Firebase Security Rules: Use Firebase security rules to limit database access based on user authe ntication and authorization.

Regular Security Audits: Conduct regular security audits and vulnerability assessments to identify and address potential security risks.

Figma Prototype

https://www.figma.com/design/QYmPiK4pXHrAuHSatse1yB/FindYourPack?node-id=0-1&t=AgyJA a29xYkqS6rv-1