DIGIEDUHACK SOLUTION CANVAS

Title of the solution:	GeoQuest: 3D Accessible Geography Game
Challenge addressed:	Learning experience
Team name:	Khan Code
Challenge category:	Beginner

Background of the team:

(multiple selections possible in case of mixed teams)

- [ ] Higher Education Students
- [ ] Researchers
- [ ] Professionals
- [ ] Teachers
- [ ] Primary School Students
- [ ] Secondary School Students
- [x] Others (please specify): Secondary School Students

Solution description

What is the final product/service/tool/activity you're proposing? What are its main elements, technologies and objectives? Could you please include a brief implementation plan with some key overall milestones, resources required and eventual barriers foreseen?
How could your solution be used to enhance digital education nowadays? How could its success be measured?

What it is:
GeoQuest is an immersive educational game built with Godot that lets students virtually explore cities, monuments, and traditional structures in detailed 3D. Each location is modelled with attention to cultural and architectural specifics (for example, Baiterek tower, traditional Kazakh yurt interiors, or the Eiffel Tower), and learners can move inside and around objects, inspect features, and trigger short multimedia explanations.
Core flow:
* Player selects a city/landmark level.
* They explore freely in a simplified 3D world with guided hotspots (text, audio narration, sign language video).
* After exploration, learners answer a set of interactive questions (multiple choice, audio-based for blind students, visual for deaf students).
* Correct answers and exploration milestones award in-game coins.
* Coins accumulate in a secure wallet and can be converted into small cash transfers to a linked card (managed and verified through partner NGOs/payment processors).
Accessibility features:
* High-contrast UI, scalable fonts and adjustable camera for low-vision users.
* Full audio descriptions of scenes and objects, with shortcut keys/gestures.
* Subtitled content and embedded sign-language video clips for deaf users.
* Simple controller and keyboard navigation; alternative input modes.
Tech stack:
* Game engine: Godot (lightweight, cross-platform).
* Scalable 3D assets optimized for low-end devices.
* Backend wallet/payment integration via NGO partners and secure payment APIs.
* Localization-ready (multiple languages).

Context

What is the current or future problem you're trying to solve? How does your solution align with DigiEduHack 2025 annual theme?
How does your solution confront the challenge posed by the hackathon organiser and how does it address the challenge category?

Currentproblem:Traditional geography instruction can be passive and often inaccessible to students with disabilities. Low-income students have fewer extracurricular learning resources and less access to travel or museums. This reduces motivation and limits cultural literacy.
Why now / DigiEduHack fit: With affordable mobile devices and the need for inclusive digital education, a lightweight Godot-based 3D experience can reach underserved students. GeoQuest aligns with DigiEduHack goals: digital innovation, inclusivity, and education impact. The project targets a clear gap — engaging, monetarily incentivized, accessible cultural education.

Target group

Who is/are the target group/s of your solution and how will they benefit from it? Why is your solution relevant to them? how do you plan to engage these groups so you fully meet their specific needs?

Primary:Middleand high-schoolstudentsfrom low-income families (ages ~11–18).
Secondary: Teachers and education NGOs that support low-resource schools; special education programs for visually impaired and deaf students.
Why they benefit: Students gain accessible, motivating geography lessons and immediate, tangible incentives (financial micro-rewards) that help cover study costs or provide small family income support. Teachers gain an engaging tool to supplement lessons and track progress.

Impact

How will your solution catalyse changes in education and what impacts will it have at social and environmental level? Could you provide examples or scenarios illustrating how such changes and impacts might unfold?

Short-term:
* Increased engagement and retention in geography lessons.
* Improved knowledge about world cities, monuments, and cultures (measured by pre/post quizzes).
* Provide immediate small income relief for low-income families through coin conversion.
Medium-term:
* Greater school attendance and motivation to learn, especially among disadvantaged students.
* Improved accessibility practices adopted by local schools.
Long-term:
* Broader cultural awareness and reduced educational inequality.
* Scalable model replicable in other countries/subjects, improving social mobility and inclusion.
Metrics to track: number of active users, quiz score improvements, coins converted to cash, number of schools/NGOs onboarded, accessibility usage stats (audio mode / sign-language usage).

Describe it in a tweet

How would you describe your solution in a short catchy way with maximum 280 characters?

GeoQuest — a 3D, accessiblegeographygame built inGodot where middle & high-school students explore realistic landmarks (e.g., Baiterek, yurt, Eiffel Tower), learn through interaction, answer quizzes, and earn playable coins that can be converted to real money — empowering low-income & disabled learners.

Innovativeness

What makes your solution different and original? Are there similar solutions or approaches currently available or implemented by education sector practitioners? If so, why and to what extent is your solution better?

* Hybridof immersive 3Dlearning + real economic incentive: Few educational gamesrewardlearners with redeemable micro-payments. This directly links learning with tangible benefits.
* Inclusive by design: Accessibility from day one (audio-first UX, subtitles, sign language clips), not as an add-on.
* Cultural micro-tourism in a game: Highly-detailed 3D micro-environments (e.g., Baiterek interior, yurt life) let learners explore cultural objects both inside and out, supporting deep learning.
* Lightweight & open platform: Built on Godot to run on low-cost devices, open to community contributions of landmarks and translations.

Transferability

Can your solution partly or fully be used in other education/learning contexts or disciplines? Could you provide any example?

Yes — GeoQuest canbe adapted and reused across contexts:
* Other subjects: history, STEM, language learning by swapping content and quiz sets.
* Other regions/countries: create new landmark packs (local volunteers, students, or partners can contribute 3D models and content).
* Different platforms: desktop, mobile, web export via Godot; can be integrated into classroom LMS.
* Partnership models: NGOs, education ministries, or private funders can sponsor local content and payment flows.

Sustainability

Once you have a prototype, what are your plans for a further development, implementation upscale and replication of the solution? How do you see it working in the mid- and long term?

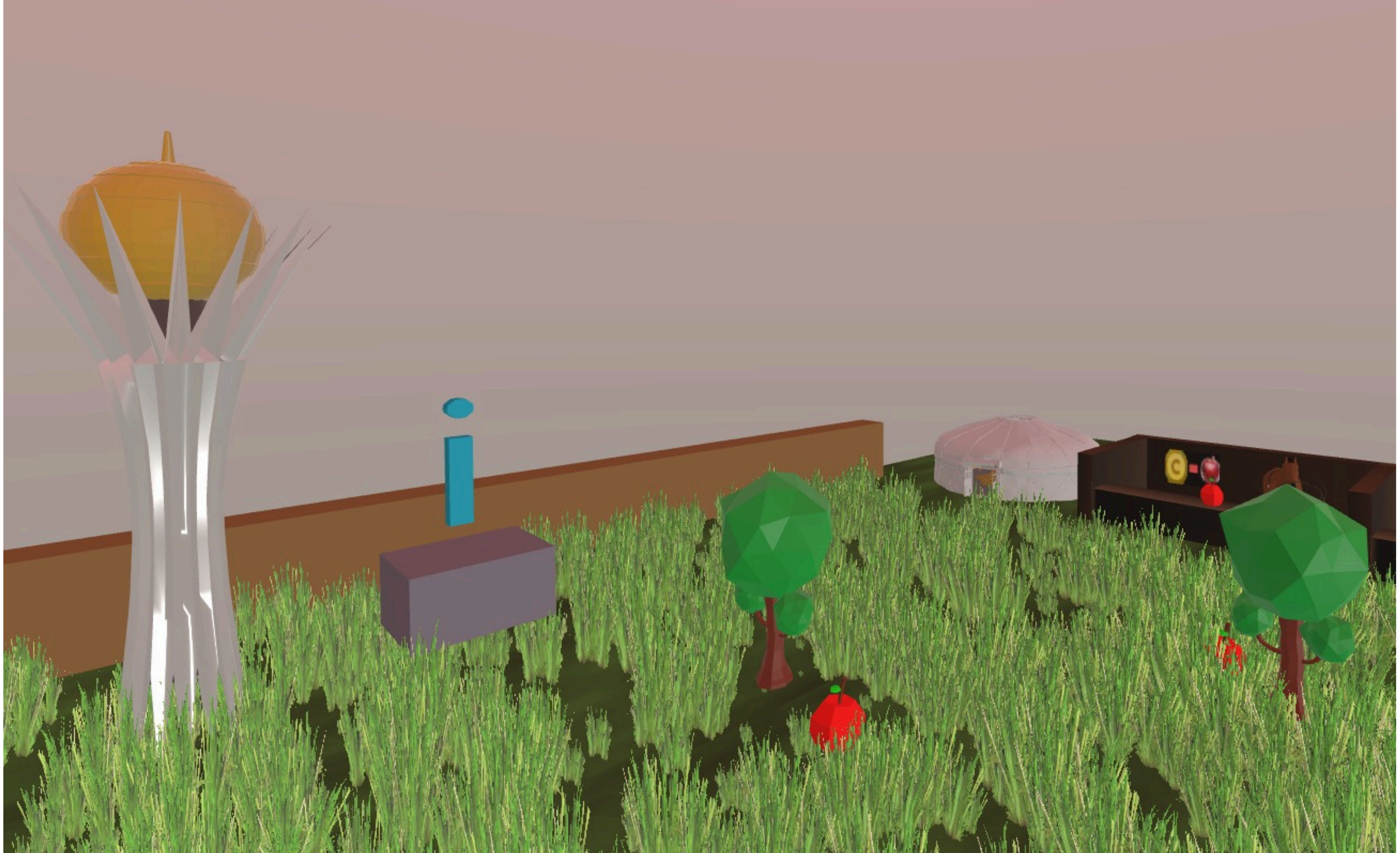
Revenue&funding model:
* Seedfunding & grantsfrom NGOsand educational foundations to build core content.
* Philanthropists and crowd donations to sponsor conversion pools (ensuring coins can be cashed out responsibly).
* Optional premium features for donors/schools: custom landmark packs, teacher dashboards, analytics (keeps core learning free for students).
* Partnerships with payment providers and NGOs to manage small cash transfers with low fees.
Operational sustainability:
* Community-driven content creation (volunteer 3D modellers from universities; student projects to model local heritage).
* Teacher training modules and integration guides to embed GeoQuest in curricula.
* Gradual monetization of non-essential cosmetic or sponsor-branded content to cover maintenance.

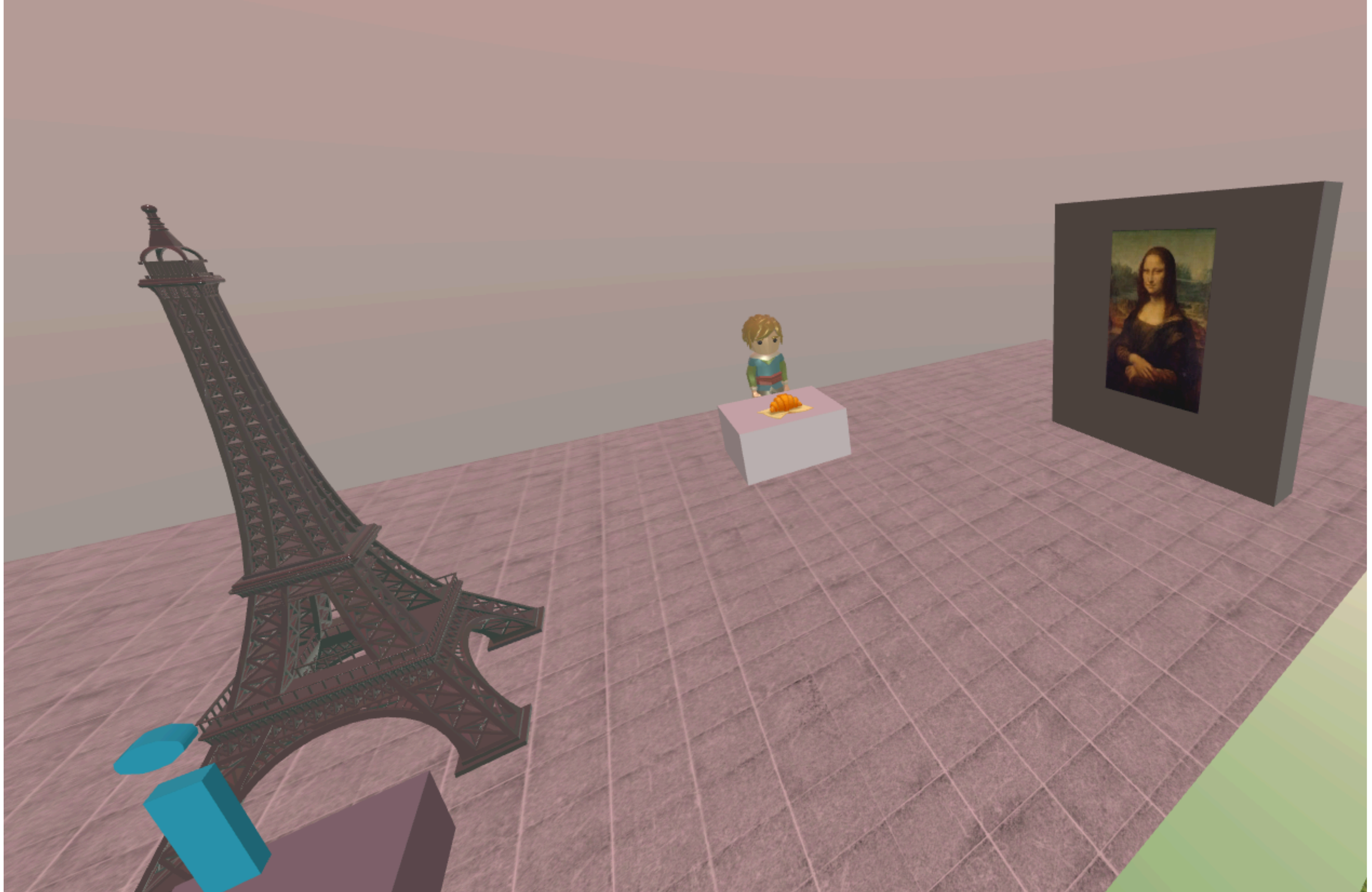
Team work

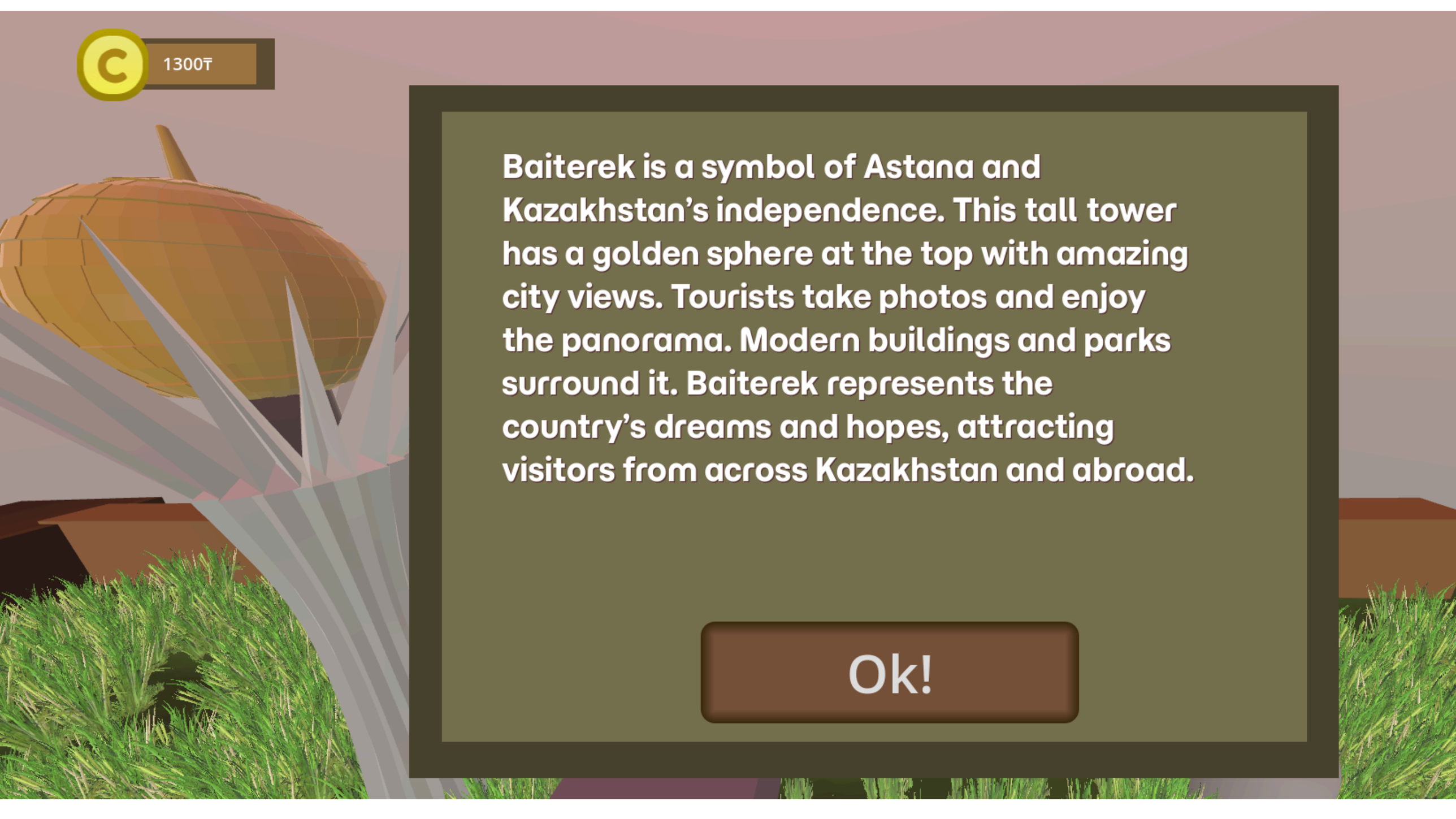
Present the members of your team. Why are you the perfect team to develop this work and what are the competencies you all bring in so the solution is developed successfully? What is your expertise within the thematic field concerned? Are you planning to continue working as a team in the future? If so, why?

Coreteam (TeamKhanCode):
* Amirkhan Kanatov(Lead Developer & Project Manager):Godot development,technicalarchitecture.
* Education Specialist/ Teacher Partner: curriculum alignment, quiz design, teacher training.
* Designer/Artist: UI/UX design and testing for visually/hearing impaired users.
* Backend/Payments Dev: wallet, coin conversion, integration with NGO payment systems.
* 3D Artist / Modeler (volunteer or student interns): landmark and scene creation.
* Community & Partnerships Lead: NGO outreach, fundraising, localization coordination.
Why this team: Mix of technical skill, pedagogical knowledge, and community connections to scale and keep the product educationally relevant and accessible.
Additional practical notes / Risks & mitigation
Risks:
* Financial/administrative complexity of converting game coins to real money.
* Abuse/fraud in claiming payouts.
* Device performance limitations for 3D scenes.
* Ensuring content accuracy & cultural sensitivity.
Mitigations:
* Partner with reputable NGOs/payment processors with KYC and audit trails for payouts.
* Limit conversion rates and require teacher/NGO verification for withdrawals.
* Optimize assets for low-end devices; provide 2D fallback modes.

European Commission






1300₸
Baiterek is a symbol of Astana and Kazakhstan’s independence. This tall tower has a golden sphere at the top with amazing city views. Tourists take photos and enjoy the panorama. Modern buildings and parks surround it. Baiterek represents the country’s dreams and hopes, attracting visitors from across Kazakhstan and abroad.
Ok!