Project Profile for an AR/VR-based Devbhoomi Darshan initiative in Uttarakhand

1. Introduction

The AR/VR-based Devbhoomi Darshan project is envisioned as a cutting-edge digital initiative to offer immersive virtual reality tours of Uttarakhand's pilgrimage sites, natural landscapes, cultural festivals, and spiritual heritage. Visitors, both domestic and international, can experience places like Kedarnath, Badrinath, Hemkund Sahib, Gangotri, Yamunotri, Valley of Flowers, and Kumaon temples through high-resolution 360° AR/VR content without physically travelling. The platform will include interactive storytelling, historical narration, and guided virtual pilgrimages replicating real terrain, ambience, and seasonal changes.

The project aims to preserve and showcase Uttarakhand's spiritual and cultural heritage while making it accessible year-round, including during harsh weather or pandemic disruptions. It also serves educational aims, allowing schools, museums, and cultural centres to integrate Devbhoomi stories into curricula via immersive modules. The platform will be accessible through VR headsets, mobile AR applications, and web-based 360° tours, making it inclusive across user capabilities.

Beyond tourism and education, this initiative aims to support rural economies by collaborating with local storytellers, historians, filmmakers, and tech developers. Content creation and updates will involve local youth and cultural experts, ensuring authenticity and community benefit. Thus, the project bridges tradition and technology, delivering spiritual tourism in a scalable, sustainable digital format.

2. Industry Overview

The global AR/VR tourism market has grown rapidly, with forecasts indicating a compound annual growth rate (CAGR) exceeding 20 percent over the next five years. Virtual tourism has become especially viable post-pandemic, as consumers seek immersive experiences without travel. Leading destinations worldwide are launching virtual tours of heritage sites and spiritual destinations, reflecting increasing demand for accessible cultural experiences.

In India, the popularity of AR/VR in education, heritage preservation, and tourism is rising. The Ministry of Tourism and Ministry of Electronics & IT are promoting digital initiatives under “Digital India” and “Innovate in India” schemes. Uttarakhand, with its pilgrim circuits and scenic landscapes, is an ideal candidate for a state-led AR/VR project. There currently is no dedicated immersive Devbhoomi tour platform delivered through AR/VR, providing first-mover advantage.

The convergence of smartphone penetration, affordable VR hardware, and improved mobile internet connectivity (4G/5G) makes AR/VR delivery feasible across urban, semi-urban, and even rural markets. Collaborative models involving state tourism boards, tech incubators, and local cultural institutions are transforming how spiritual tourism is packaged. This project positions Uttarakhand at the intersection of heritage and digital innovation.

3. Products and Application

The core product is a **Devbhoomi Darshan AR/VR platform**, offering narrated 3D/360° experiences of pilgrimage sites, landscapes, temples, local festivals, mountain vistas, and seasonal phenomena. Each virtual tour includes interactive hotspots, audio narration in multiple languages, guided pilgrimages, and optional quiz/learning modules. Users can explore sacred architecture, take part in rituals virtually, and access historical context.

Applications include tourist engagement (virtual preview before travel or remote access), educational usage (schools using immersive history and geography modules), corporate and institutional consumption (wellness retreats, conference venues offering AR/VR content), and event tie-ins (exhibitions, museums, fairs). The same AR/VR content can be used for promotional exhibitions, tourism trade shows, and partnerships with travel agencies.

Additional services include content licensing to museum dashboards, hotel virtual zones, spiritual organizations, and heritage trusts. Customizable modules can be commissioned for pilgrimage theme weeks, festival tie-ups (like Char Dham Yatra journey in virtual form), and multilingual narration packages for global tourists.

4. Desired Qualification

User-side access requires no formal qualification; the platform is designed for all age groups, school students, senior citizens, temple devotees, and international enthusiasts. For educational integration, teachers may use structured lesson plans accompanying VR modules. No prior tech experience is needed for users—guided UI and voice prompts ease navigation.

On the content and operations side, project staff must include qualified professionals in AR/VR development (3D artists, Unity/Unreal developers), cultural historians or heritage scholars with deep understanding of Uttarakhand spirituality, and audio/video production experts. Educational technologists and UX designers will shape user journeys. Project leads should ideally have backgrounds in tourism management, IT or heritage communication.

The team will also include local coordinators—linguists, translators, guides, and cultural experts—to ensure authenticity. External mentors from tech incubators, digital heritage institutions, and state tourism boards may support content validation and platform outreach. Certification or training programs by AR/VR institutes are preferred for core developers and content curators.

5. Business Outlook and Trend

AR/VR tourism is emerging as a sustainable growth frontier with multiple revenue streams, including pay-per-view subscription, institutional licensing, grant-funded development, and branded content tie-ups. Destinations around the world (e.g., Virtual Vatican Tour, Smithsonian Virtual) have proven that virtual experiences can attract global audiences and generate revenue outside physical visitation.

Nationally, the government's focus on virtual heritage (e.g., Varanasi virtual reality, Amritsar's Golden Temple VR) has created demand for professionally produced guided virtual tours. Uttarakhand's Devbhoomi Darshan can ride on this momentum, differentiating itself with immersive pilgrimage-focused content, panoramic Himalayan vistas, and multilingual delivery.

Collaboration with state tourism boards, promotion at travel trade fairs, and partnerships with educational boards will drive adoption. As digital tourism spreads, revenues through virtual

tickets, educational use licenses, corporate tie-ins (wellness retreats, spiritual organizations), and international licensing are expected to rise steadily. Over time, AR/VR experiences might complement physical pilgrimage, increasing interest in actual visits and generating cross-traffic.

6. Market Potential and Market Issues

The market potential spans three segments: Direct consumer pay-per-view users (VR headset or mobile apps), institutional clients (schools, museums, hotels), and intermediaries (travel agencies, wellness centres). Uttarakhand attracts over one crore pilgrims and tourists annually; even a fraction opting for virtual previews or remote participation represents significant revenue.

However, market issues include limited awareness of AR/VR content, high initial hardware access cost for users (though mobile AR mitigates this), possible resistance from local pilgrimage organizers, and the challenge of ensuring high-quality 3D capture in remote locations. Connectivity in mountainous regions can hinder real-time streaming quality. Content updates and seasonal accuracy also require ongoing investment.

These issues can be addressed through user education, tiered pricing (free demo, premium features), partnerships with local tourism and adventure centers (VR booths), and offline app caching. Reliable migration strategies for data updates and alternate content delivery (SD cards, kiosks at tourism booths) will also mitigate access challenges.

7. Raw Material and Infrastructure

The “raw materials” consist of high-resolution 360° camera footage, drone captures, 3D scans of temples/landscapes, audio narration, and digital 3D assets. Infrastructure includes AR/VR development studio, video stitching workstation, sound studio, servers for cloud hosting, mobile/web app frameworks, and VR headset/booth hardware.

On-site infrastructure includes rugged 360° cameras, drones, stabilizers, scanners, voice recording kits, and backup power for field shoots. Development work will take place in a digital lab set up within or near Dehradun or a district hub. Reliable broadband and cloud services are essential for storage, rendering, and streaming.

Additionally, user deployment points require VR booths or AR kiosks in tourist centers (e.g. Rishikesh, Haridwar, Nainital), basic seating, headset hygiene tools, display monitors, signage, and off-grid power options. Backup storage and periodic content updates ensure freshness and technological reliability.

8. Operational Flow

The process follows this structured step-by-step flow:

1. **Concept and Site Selection** – Identify pilgrimage sites, cultural events, landscape zones; plan capture schedule
2. **On-site Capture and Content Collection** – Field visits, drone footage capture, 3D scanning, interviews with local historians
3. **Data Processing Studio** – Stitching, editing, rendering immersive tours, integrating narratives and audio in multiple languages
4. **App and Platform Development** – Build mobile AR/VR app, web 360° portal, VR headset version, and management dashboard
5. **User Testing and Pilot Launch** – Deploy pilot versions in schools, tourism centres, user groups; collect feedback
6. **Content Packaging and Marketing** – Curate tour packages (e.g. Char Dham VR, Himalayan Treks), define pricing models, prepare promotional materials
7. **Launch and Distribution** – Deploy via app stores, install VR kiosks, license to institutions, partner with travel agencies
8. **Monitoring and Updates** – Collect user analytics, update content season-wise, add new locations/modules, provide user support
9.

10. Target Beneficiaries

Category	Estimated Users (Yearly)	Support Type
Virtual Pilgrims	50,000	Direct App/VR Access
Schools & Colleges	200 institutions	AR/VR Educational Licensing

Category	Estimated Users (Yearly)	Support Type
Tourism Booth Centres	20 kiosks (Rishikesh, Haridwar, etc.)	Booth deployment & maintenance
Hotels & Wellness Retreats	50 locations	Licensing AR/VR content in lobbies

11. Suitable Locations

Three categories of deployment locations support reach and visibility:

1. **Content Capture Hubs** – Dehradun or Nainital, offering studio facilities and access to field logistics
2. **Virtual Deployment Zones** – Tourist centres Rishikesh, Haridwar, Kedarnath base, Badrinath transit hubs; installing VR booths
3. **Institutional Outreach Sites** – Schools, colleges, museums in Dehradun, Almora, Tehri; for educational licensing and classroom VR use

12.Manpower Requirement

Role	Number	Qualification
Project Manager	1	MBA IT/Tourism or equivalent
AR/VR Developer & Unity Expert	2	BTech CS/Animation with Unity/Unreal skill
3D Artist / Animator	2	Degree in 3D Modeling/Graphics
Audio-Visual Specialist	1	Diploma in AV production
Cultural Content Curator	1	Heritage/history background
Local Field Coordinators	3	Graduate with local language fluency
Marketing & Sales Executive	1	MBA Marketing / Tourism

Role	Number	Qualification
Support Staff, Admin	2	Graduates

13. Implementation Schedule

- **Months 1–3**: Project planning, MoU with tourism board, site mapping, team recruitment
- **Months 4–6**: Field capture of primary pilgrimage sites and landscapes; raw data collection
- **Months 7–9**: Content processing, app and platform development, user testing with pilot groups
- **Months 10–12**: Launch pilot kiosks, educational licensing, digital launch, marketing campaigns

14.Estimated Project Cost

Cost Component	Estimated Amount (INR)
Field Capture Equipment (cameras, drones)	25,00,000
Studio Infrastructure and Software Licenses	20,00,000
Cloud Hosting, Servers, Maintenance	5,00,000
Content Production (narration, editing)	10,00,000
App/Platform Development	15,00,000
Marketing, Pilot Deployments, VR Booth Setup	8,00,000
Salaries (Year 1 team cost)	30,00,000
Contingency (10%)	11,30,000
Total Estimated Cost	**1,24,30,000**

15.Means of Finance

Funding may be sourced from state innovation funds (Uttarakhand tourism board grants), central government digital heritage schemes (Ministry of Tourism, Digital India), CSR grants from tech firms or travel companies, and cultural preservation bodies. Further support may be available via digital content creation grants or heritage documentation programs. Pilots in educational institutions may attract fee-based licenses, and deployment kiosks may be revenue-sharing with tourism departments.

16. Revenue Streams

- **User subscriptions/pay-per-view** for VR tours
- **Institutional licensing fees** to schools, museums, hotels
- **VR kiosk access fees** at tourism centres
- **Content customization contracts** for festival or event modules
- **Sponsorships or branded content**, e.g., corporate wellness retreats, religious organizations

17. Profitability Streams

Though initial setup is capital intensive, recurring revenues from licensing and subscriptions can lead to surplus from Year 2 onward. Institutional clients (schools, hotels) provide stable revenue via annual contracts. VR kiosks generate daily income. Custom content requests from event organizers or CSR-backed cultural campaigns can result in premium charges. As reach broadens to international users, foreign license fees can add meaningful income. Over time, content reuse across years and seasonal updates keep marginal costs low while enabling recurring income.

18.Break-Even Analysis

With a total investment of ₹1.24 crore and projected yearly revenue of around ₹40 lakh by Year 2, break-even is expected near the **end of Year 3**. Year 1 focuses on content creation and pilot deployment with limited revenue; Year 2 brings institutional contracts, kiosk income, and consumer subscriptions. If revenues grow 30–40 % in Year 3, operating costs will be covered and surplus generated from subsequent years.

19. Marketing Strategies

Marketing will involve tie-ups with Uttarakhand tourism board for promotional campaigns, showcasing at travel and technology expos, digital promotions through social media demonstrating VR previews, partnership with travel agencies and pilgrimage organizers offering pre-visit virtual tours. Content demos will be arranged in schools and colleges to showcase educational applications. Guest lectures, webinar sessions, and influencer-led promotions of heritage VR experiences will enhance visibility. PR and heritage media coverage, along with government channels, will reinforce credibility.

20. Machinery Required and Vendors in Uttarakhand

Equipment/Software	Quantity	Vendor in Uttarakhand	Approx. Cost (INR)
360° Camera (Insta360 Pro 2)	2	TechCapture Studios, Dehradun	8,00,000
Drones for Aerial Footage	2	Himalayan Drone Services, Dehradun	6,00,000
Audio Recording & Narration Kit	1 set	Dehradun AV Solutions	2,00,000
Workstation & Editing PC	3	Dehradun IT Hardware Co.	6,00,000
VR Kiosk Setup (headset & booth)	5 kiosks	Uttarakhand Tech Booths, Rishikesh	5,00,000
Cloud hosting (annual)	—	Local cloud partner, Dehradun	5,00,000

21. Environmental Benefits

This is a **digital initiative** with minimal physical footprint. Since content is virtual, no additional carbon emissions from tourism travel are incurred. Virtual experiences reduce

pressure on fragile environments like high-altitude pilgrimage sites and flower valleys, helping conserve biodiversity. Energy consumed in servers and workstations can be offset using solar power in studio and kiosk locations. The platform encourages sustainable tourism by offering virtual alternatives, thereby reducing crowding and ecosystem strain.

22. Future Opportunities

In future, the platform can be expanded to include **augmented reality trekking guides**, **immersive festival simulations**, and **heritage storytelling games**. International licensing—providing Devbhoomi modules to global VR content platforms—can open wider markets. Collaborations with educational institutions across India and abroad can embed Devbhoomi in curricula. Seasonal updates (e.g. monsoon treks, snowfall themes) keep content fresh. Potential also exists for hybrid pilgrim passes—users experience VR before physical trips, increasing physical tourist numbers. The platform can serve as a model for other spiritual and cultural tourism states, paving way for networked heritage VR services.