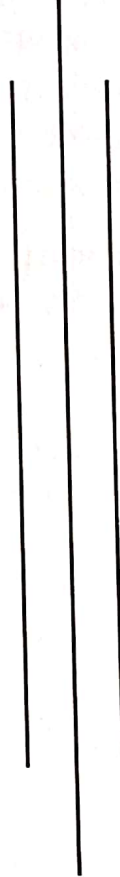


Terms of Reference for
Development of PC/Mobile **3D Virtual Outdoor Tour Guide**
Application in Province 5



Government of Province
Province no 5
Ministry of Industry, Tourism, Forest and Environment
Butwal

1. Background

Use of Information technology is drastically transforming the Nepalese tourism. Airlines operator, travel intermediaries, hotels, and destination management offices are being well equipped with IT to deliver its services to mass number of tourist conveniently. It has helped the perspective tourists to search the needed information worldwide. At this situation the internet based marketing has become a great tool for the promotion of tourism destinations. Virtual reality is an evolving and fast growing IT based marketing tool widely practiced by developed and developing countries.

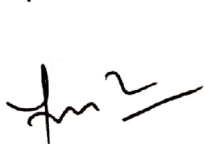
Virtual reality can be defined as a computer mediated sensory experiences which facilitate access to visual and auditory dimensions of a travel destination. Planning and management, marketing, entertainment, education, accessibility, and heritage preservation are six areas of tourism in which VR may prove particularly valuable. Virtual tour gives virtual experiences that tourists may accept as substitutes for real visitation to threatened sites. However, the acceptance of such substitutes depends upon the tourist's attitudes toward authenticity, his other motivations and constraints. Basically, developing a 3D interactive virtual tour comprises of the following different components integrated together. They are; GIS part, Virtual Tour, Modelling part, Application development part, Interaction and simulation part.

In the developing countries like Nepal there are some technological, infrastructural and financial constraints to develop systems which could generate experience to satisfy all five senses. Financial constraints in developing countries urges to go with middle approach between a complete virtual tour and passive web presence.

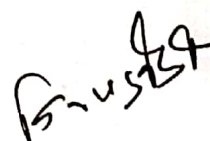
Province 5 is home to many heritage tourism destination and at the juncture of visit Lumbini year 2019 and Visit Nepal 2020, the use of IT based marketing tool has become utmost need to reach billions of tourist worldwide. Thus, MoITFE, Province 5 has allocated budget to develop PC/Mobile 3D Virtual Outdoor Tour Guide Application and this ToR has been prepared to procure qualified national consulting firm for this task.

2. Objectives for development of 3D Virtual outdoor tour guide application

- Create an application that is not only accessible to everyone but also combines all different types of data (Archaeological works and reports, pictures 3D, 2D etc.)



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- Enhance tourism development increasing the destination accessibility through which the economic sustainability can be dramatically improved.
- Accessible for mobility impairments as well elderly tourist.
- It also immensely influences the purchase decision of tourist.
- Advanced promotional tool for tourism for prospective tourist.
- Immensely helps the tourists with panic disorders.
- Could be used to substitute the travel experience of endangered destinations which are inaccessible to even normal tourists.
- Can be used for environmental gains especially eco-efficiency of tourism destinations could be indirectly enhanced through increasing the virtual visits instead of trouping horde of people across delicate habitats.
- Could be used for developing virtual theme parks.
- Revenue Generation
- It is not subjected to reduce the demand of Tour Guide.

3. Scope of Works

Scope of works of the proposed task

Pre-Production

- Analysis of Brief
- Research
- Brainstorming
- Game Objectives
- Map Development
- Concept Art

Production

- Scale and Proportion
- Blocking out
- Texture
- Lighting
- Particle system
- Interactivity
- A.I. Programming
- Cinematics
- HUDS and Menus

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Post-Production

- Testing
- Redesign
- Packaging Design
- Promotion
- Launch
- Maintenance

4. Study Area

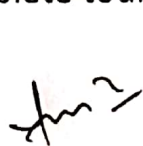
Major Heritage sites of Greater Lumbini or the Buddhist circuit covering Nawalparasi, Rupandehi and Kapilvastu districts has been selected as study area for this project however some other destinations can be added as destinations by ministry after stakeholder's discussion.

5. Methodology

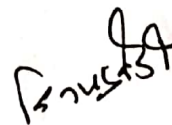
- On site survey
- Photogrammetry and Terrestrial Laser Scanning (TLS) Technique to collect geometry of site.
- Treatment of Data and Creation of 3D
- Identification and numbering of elements according to its position and function.
- Association of any type of data in digital form (drawing, photography, mode of assembly, drawing, collecting descriptive report, hyperlink to web page etc.) to each constitutive element of the site.
- Integrate 2D and 3D data into GIS
- Archaeological data in the form of script and story
- Integration of 3D model with other features as well as database, web pages and digital data.
- For archaeological site it becomes Integration of Model into Archaeological Knowledge Information System (AKIS).
- Data Linking
 - 2D Documents
 - Other Database
 - Tour linked with web environment

6. Expected Outputs

- a. A complete tourism database of heritage site will be prepared.



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- b. GIS database of hotels, transportation route and service, destination information, tourism service providers, restaurants, foreign exchange, airlines etc will be prepared.
- c. 3D model of selected destinations integrated with GIS system will be prepared.
- d. 3D virtual tour of selected sites will be prepared and integrated with mobile and PC application.

7. Deleverables

The consultant shall prepare and submit the following:

SN	Deliverables	Time	Remarks
1	Inception Report	Within 15 days after signing the contract.	Detailed methodology, Working schedule, understanding of Scope and study area, software to be used etc.
2	Field Report	Within 2 months after signing the contract	Survey data and other field data such as maps, photographs, minutes of interaction with local people, consultants observation and finding etc.
3	3D Model and GIS database	Within 4 months after signing the contract	Complete 3D model of selected sites
4	3D virtual outdoor tour guide application	Within 5 months after signing the contract.	

8. Human Resource Requirement

The human resource requirement for the proposed assignment has been categorized into key human resource and supporting human resource. The consultant must submit CV and certificates of Key resources along with EOI proposal.

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8.1 Key Human Resources Required

a. Tourism Expert-1

He/ She should have completed Masters in Tourism or equivalent with at least 7 years of experience after master's in relevant field.

b. IT Expert-1

He/ She should have completed Masters in CSIT/Computer application/Computer Engineering or equivalent with at least 7 years of experience after master's in relevant field.

c. Culture Expert/Archaeologist-1

He/ She should have completed Masters in Nepalese History, Culture and Archaeology or equivalent with at least 5 years of experience after master's in relevant field.

d. Quality Control Supervisor-2

He/ She should have completed Bachelor in CSIT/Computer application/Computer Engineering or equivalent with at least 5 years of experience after master's in relevant field.

e. IOS Application Developer-2

Bachelor degree in any discipline with minimum 5 years' experience in Mobile application design and development.

f. Android Application Developer-2

Bachelor Degree with minimum 5 years of experience in Mobile application design and development with knowledge of Android environment SDK, JSON parsing, Material design and Google SDK etc.

g. IT Programmer-2

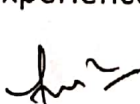

He/ She should have completed Bachelor degree in Software engineering with at least 3 years of experience in Mobile Application development (Android/IOS).

h. UI Designer-2

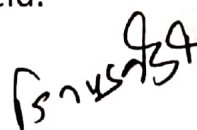
He/ She should have completed Bachelor degree in any discipline and completed short term training course with at least 3 years of experience in relevant field.

i. GIS Expert-2

He/ She should have completed MA Geography/M.Sc. GIS/RS with at least 5 years of experience after masters in relevant field.

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j. Architect-3

He/ She should have completed B.Arch. with at least 5 years of experience after bachelor's degree in relevant field.

k. 3D Modeler-4

He/ She should have completed Bachelor degree in any discipline and completed short term training course on Graphics design/Architectural 3D modelling / Animation. He/ She should have at least 3 years of experience in relevant field.

l. Photographer-2

He/ She should have completed Bachelor degree in any discipline with short term training course in Photography/Videography with at least 5 years of experience after bachelor's degree in relevant field.

8.2 Supporting Staffs

a. Cinematographer-1

He/ She should have completed Bachelor degree in any discipline with short term training course in Photography/Videography with at least 5 years of experience after bachelor's degree in relevant field.

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