Foundation for Innovation and Technology Transfer

Invitation of Expression of Interest (EoI) for a subcontract work of 3D Model Fabrication, AR/VR Interface Development, Installation, Testing and Delivery of product in a Govt. sponsored project 'Augmented Reality Interactions with Physical models of Monuments'

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Foundation for Innovation and Technology Transfer (FITT), Indian Institute of Technology Delhi, invites Expression of Interest from innovative, technically competent start-up for association in executing a project on '**Augmented Reality Interactions with Physical models of Monuments**' on sub-contract basis.

EoI Submission Deadline: **3:00pm, 12th April, 2018.** Bid opens on 5th April 2018.

How to Submit: Name of the Firm, EoI name and Bid Due Date & Time should be clearly written on the sealed envelope. Sealed envelope containing EoI shall be submitted at the following address:

Chief Operating Officer
Foundation for Innovation and Technology Transfer
Indian Institute of Technology
Hauz Khas, New Delhi 110016

The Sealed envelope to contain 2 separate envelopes for the Technical bid and financial quote respectively

1 Background

The Indian Digital Heritage (IDH) Project, a unique and successful initiative of the Department of Science & Technology (DST), Government of India, had supported collaborative projects between researchers in the areas of technology and humanities for the digital documentation and interpretation of the tangible and intangible heritage of India. The first of its kind project had highlighted the need for a broader research framework to encompass all scientific research into digital heritage as well as the need to take the research out of the Labs and translate into commercial products for the world to see. Multiple research groups from IIT Delhi participated in this project and IIT Delhi was also the coordinating institute for this project.

Consequently, FITT proposed a project to translate one of the proven technology outcomes of IDH and apply it to five selected monuments in India, along with other collaborating institutes, under the Interdisciplinary Cyber Physical Systems (ICPS) Call for Proposals. This technology engages techniques to generate virtual and physical models and representations of the tangible heritage which include realistic walk-throughs of heritage sites and monuments. The final deliverable is a physical installation, an exhibit which includes a scaled down 3D printed physical model of a monument complex augmented with an immersive virtual reality based interaction system.

The knowledge part including the soft-coding generation, if any; shall primarily be developed at the laboratories of IIT Delhi. On the other hand, applications are invited from start-up / competent vendors for 2D and 3D data acquisition, data processing and modelling, development of physical and

virtual 3D models, field deployment and field work necessary for the installation and maintenance of the installations.

2 Scope of Work

The main objective of the project is to produce installations of scaled down 3D physical replicas and virtual models of selected, prominent Indian monuments and/or sites, and present this heritage to public with immersive, augmented reality-based interaction. The five monuments selected are

1. **Tajmahal**, Agra, UP
2. **Rani Ki Vav**, Patan, Gujarat
3. **Sun temple Konark**, Bhubaneshwar, Orissa.
4. **Kashi Vishwanath temple,** Varanasi, UP
5. **Amer Fort,** Jaipur, Rajasthan

The 3D laser scan and model data for each of these monuments will be provided by collaborating partner in the project. Following is the description of tasks to be executed by the sub-contractor to be selected.

1. **Data Acquisition**
    a. Acquisition/Creation of Layout: Architectural layout plan of the monument will be acquired from source, if available; or created from 3D models.
    b. High Definition imaging: High resolution images of the monument will be taken. Aerial Laser scanning or photography by deploying drones, hot air balloons may be required in certain cases where the monument is of a considerable height.
2. **Data Processing to create textured 3D models**
    a. Texture creation: High resolution images will be processed to create textures for the 3D models.
    b. Integration of textured models with layout plans: Reconstructed textured models will be laid out according to its layout plan to create a virtual replica of the monument.
3. **3D printing/fabrication:** 3D monument models will be fabricated to create a physical replica of the monument. This fabrication shall involve components of 3D printing, conjectural digital reconstruction and artistic fabrication.
4. **Building of Kiosk physical structure:** Table with screens for projection and compartments for hardware and wiring.
5. **Setup of the Kiosk**
    a. Installation of hardware required for interactive interface: The interface hardware includes a screen, two LCD projectors, one webcam, PC (graphic workstation), laser pointer, wiring, cables, etc.
    b. Assembly of 3D printed model inside kiosk: Physical replica of the monument will be assembled on the table top.
6. **Setup and calibration of Interface between physical and virtual model:** Interface software installation and calibration between physical replica and virtual monument will be done.

3 Eligibility Criteria

Interested start-up/vendors should meet the following requirements.

1. The start-up/vendor should be registered in India.

2. The start-up should preferably be incubated at TBIU, IIT Delhi or any other IITs.

3. The start-up/vendor personnel should have domain expertise and required skills to execute the project.

4. The start-up/vendor personnel should have proven, prior experience and should preferably have been part of the Indian Digital Heritage (IDH) project of the DST

5. The start-up/vendor personnel should have competency in prototype development as described above.

4. Expected Expertise:

- Understanding of the scope of work
- Domain specific experience in the areas relevant to Scope of Work
- capacity to meet the Scope of Work

5. Submission Procedure

Interested start-ups/vendors should submit documents with the following information.

3. Legal status/Registration Certificate

4. Particulars of lead technical persons.

5. Works of similar nature completed earlier

6. Timeline for completion

7. Quote for the project

6. Period of Engagement

6 months from the date of commencement of the Project

EoIs shall be opened on 12th April 2018 in FITT and the process for selection shall follow thereafter in soonest possible time so that the project deadline can be adhered to. Venue for opening of EoIs and subsequent meetings shall be FITT, IIT Delhi.