Department of IT & DS

தமிழ் இணையக் கல்விக்கழகம்

Tamil Virtual Academy

Chennai –600 025

(Part – II)

Expression of interest for creating hybrid VR / AR / XR platform

Tamil Virtual Academy (TVA) is functioning under the Information Technology and Digital Services Department, Government of Tamilnadu. TVA teaches Tamil through the internet and provides information about Tamil history and culture through the Tamil digital library to the Tamil Diaspora across the globe. TVA has developed websites for Tamil digital library, namely, www.tamildigitallibrary.in and www.tagavalaatruppadai.in.

In order to take this digital library and repository services to the next level, TVA is planning to create a Virtual Reality Museum pertaining to Tamil Culture and Heritage. Not only covering museums but also long lasting Tamil culture; ports; kingdom; continents etc; archaeological, heritage and historical sites; documentation of pre-history, excavations, monuments, temples, inscriptions, sculpture, coins, painting and copperplates etc - bringing them to life through use of innovative multimodal visualisation technology in a virtualized environment. This initiative will be helpful in gaining knowledge about the lost Tamil pride, culture and heritage, pedagogically.

In this regard, TVA intends to propose a hybrid VR / AR / XR platform available on the web, to create, enjoy and share VR experiences. It has been derived into two important factors, (1) Already developed AR / VR Projects from other government agencies / institutions will be implemented through an API or other latest technology, (2) Citizens will enter their innovative ideas and enhance them through AR / VR technology.

Importantly, the web platform needs to have a strong, customized content management system backing it with AR / VR / XR technology. This web platform

needs to be standardized and follow the Guidelines for Indian Government Websites (GIGW) and also AR / VR standards.

Expression of interest is invited from reputed firms, who are proficient in the field of VR / AR technology-related software development to create a hybrid VR / AR / XR platform.

The platform should serve as follows:

- The web platform must support all kind of VR technology tools.
- Provision for multiple input, such as 2D, 3D animation, passive VR files, Interactive VR files, other latest technology.
- The platform should be enabled for cloud sourcing and in house hosting.
- The portal has supported multiple file formats, such as exe, mp4, etc,
- User registration and secure login provision.
- Connect to media production pipelines through industry standard-FBX, USD, Alembic support and any other
- Python scripting
- Convert entire scenes-including animation and metadata-from 3ds Max, Revit, SketchUp Pro, Cinema 4D, Rhino, SolidWorks, Catia, and a whole host of other DCC, CAD, and BIM formats at high fidelity. Also nondestructive re-importing including automated data preparation through Python scripting or any applications.
- Interface to easily automate data preparation workflows with a simplified visual tool that lets you create a “recipe” of filters and operators to save and reuse on other scenes or projects. Make LODs, set up Lightmap UVs, substitute materials, and delete or merge objects based on factors such as class, name, metadata tags, or size.
- Platform integration to offer a streamlined connection with both upstream 3D asset data created by artists in other applications like Maya, etc, and downstream image data that needs to be reviewed by supervisors and directors.

- LiDAR point support -Aggregation and use of huge datasets captured from the real world, with the ability to import, visualize, edit, and interact with point acquired from laser scanning devices directly to the portal.
- Rendering, lighting etc features
- Simulation and effects
- Gameplay and interactivity authorization;
- Visual production;
- Other related developed tools.
- Should support the highest-quality solution for creating augmented reality (AR), virtual reality (VR), and mixed reality (MR) experiences with the most popular platforms including Oculus VR, SteamVR, HoloLens 2, PlayStation VR2, ARKit, and ARCore including support for OpenXR.
- Multi platform development.
- Pixel streaming
- Efficient multi display rendering – to play on multiple physical or projected screens such as Powerwalls, domes, CAVEs, and LED volumes. With rendering from multiple networked workstations, or from multiple instances.
- Virtual scouting;
- Metaverse platform
- UMG and AI support;
- The portal should have all the controls for Master data management, User Management, Role Management, User Access controls etc.
- Confirm content from crowdsourcing. For example, if someone has uploaded content from a 360° view. It should be automatically converted and displayed correctly by the appropriate tool.
- A separate application to receive the crowd-source requests and process such requests by the authorities separately and the approved requests should be added to the web portal for avoiding unwanted content.
- Provision for sharing the content on social media.
- This should be done automatically through API integration provided by the crowd source users in the online application process for "request for publishing".

- Geographical location to be enabled for uploading content.
- The web portal should support hybrid mobile technology also.

Expression of interest should be sent to **The Director, Tamil Virtual Academy** in a sealed cover or by mail (tva@tn.gov.in) on or before 16.12.2022 along with the detailed description of the experience of the co-ordinators in the field, work done, method of accomplishing the project, funds requirements, time line etc.

The proposals will be evaluated and screened by an Expert committee.