INDIA INTERNATIONAL SCIENCE FESTIVAL 2023

SCIENCE AND TECHNOLOGY PUBLIC OUTREACH IN AMRIT KAAL

SPACE HACKATHON

In Association with ISRO | राष्ट्रीय नवप्रवर्तन प्रतिष्ठान – भारत National Innovation Foundation - India

Team Name: Sukrutam

Name of College/University: REVA University

Team Member Details:

- Churanta Mondal
- Spandhan D Kotyam
- MAYUR B SUVARNA
- Gollur Sankhayana

Problem Statement: *Heritage AR/VR Challenge: Preserving and Enhancing Cultural Heritage through Augmented and Virtual Reality*

Explain your understanding on Problem Statement:

The problem statement highlights the significance of harnessing AR and VR technologies not only to preserve cultural heritage but also to enhance its accessibility and appeal in a rapidly advancing technological landscape. The challenge invites participants to contribute innovative solutions that can have a meaningful impact on our understanding, interaction with, and appreciation of our cultural heritage.

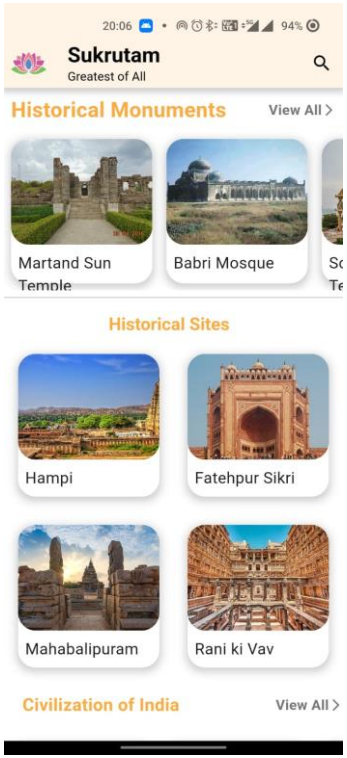
Brief about your approach:

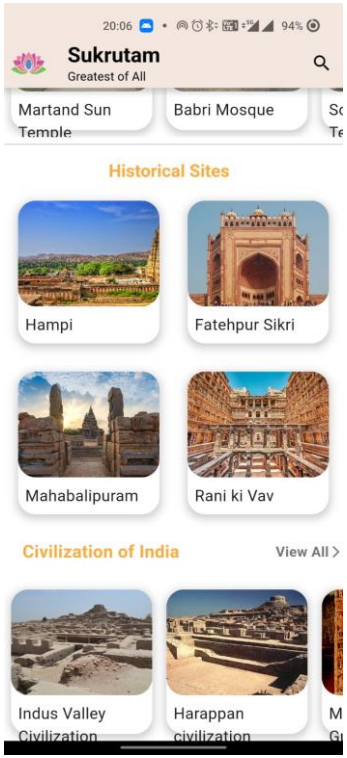
The approach is to leverage Augmented Reality (AR) and Virtual Reality (VR) technologies to preserve and enhance cultural heritage. This involves creating immersive and interactive experiences that not only showcase historical artifacts and sites but also engage users in a way that promotes understanding, appreciation, and learning.

Detailed Proposal & Solution Approach

We aim to deliver a cutting-edge Flutter app that leverages AR and VR technologies to provide users with an engaging and educational experience in exploring and preserving cultural heritage. By incorporating community involvement and expert collaboration, the application strives to create a platform that fosters a sense of shared history and appreciation for cultural heritage. Using 3D scanning and photogrammetry, historical artifacts and sites will be digitized and stored in a centralized database. The app will provide users with interactive AR experiences for artifact exploration in real-world settings and immersive VR experiences for historical site tours. Educational elements, gamification, and community involvement will enrich user engagement. Cross-platform compatibility will be ensured using Flutter, and real-time environmental monitoring will safeguard physical artifacts. Collaboration with cultural experts will maintain historical accuracy, and user feedback mechanisms will drive continuous improvement. The project will unfold in phases, resulting in a refined, user-friendly app that combines advanced technology with a deep appreciation for cultural heritage.

Detailed Proposal & Solution Approach





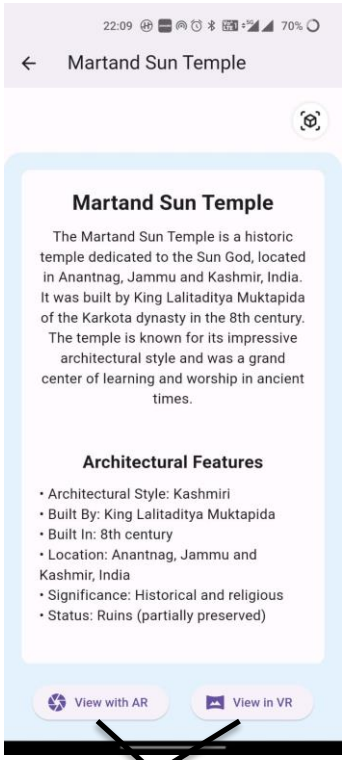
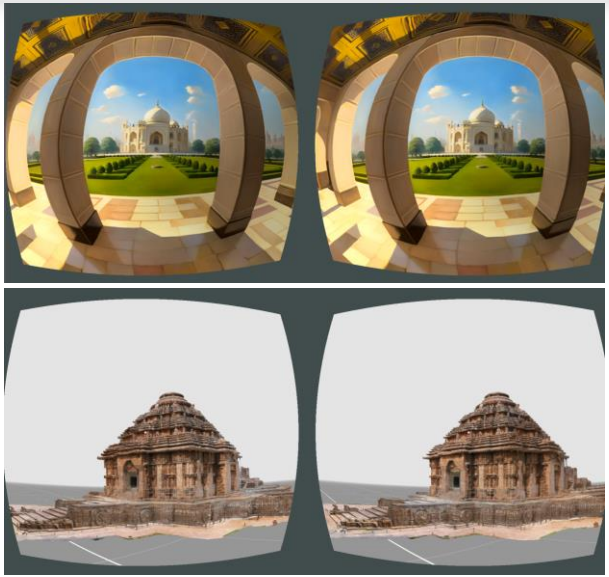


Fig: App Home Screen and Monuments screens

Features where users can see AR or VR



Virtual Reality View through our App

Augmented Reality View through our App

Tools and devices used on development

- **Tools :**Flutter Framework, Unity3D, MongoDB, CMS, Git

- **Devices**: Mobile Device(Android/ iOS), VR Headset

Technologies involved/used

- Flutter
- Unity3D
- ARCore(Android), ARKit(iOS)
- Mongo DB
- Google Lens
- VR Player
- Git

References/Acknowledgement

- https://github.com/Churanta/Flutter-VAR-Monuments.git