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Use of Artificial Reality and Virtual Reality in Creation of Virtual Fossils Museum: Dinosaur Fossils National Park Bagh Dhar

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Abstract: Dinosaur Fossils National Park Bagh has huge fossils reserves of late cretaceous period that includes Dinosaurs bones, whole dinosaurs' nests, dinosaurs' eggs, tree fossils, shark teeth, ammonites, bivalves, inoceramids, and other marine organisms. With the help of local researchers and forest staff over the period oftime we had collected fossils of many species. Firstly, we inventoried the fossils physically then we created 3dmodels of at least one specimen of each fossils' species. These 3D models can be displayed on website using Artificial Reality and also using virtual reality with the help of VR headsets.

I. INTRODUCTION

The park's wild landscapes, topography, geology, paleontology, and history make it a unique resource for both science and recreation. Landscape once part of Coast of Tethys Sea when India subcontinent was travelling towards Eurasian approx. 100 MN years ago. Due to Deccan lava explosions and volcanic activities these estuarine ecosystem is beautifully preserved under constant flow of lava over it. Since whole estuarine landscape got fossilized diversity in fossils is huge and unparalleled which cannot be found in any other part of the world. Fossils discovered from this area includes sauropod (herbivore dinosaur) bones, Complete nest of dinosaurs along with the eggs, shark teeth, footprint of dinosaur, tree Fossils, marine mollusks such as oysters and gastropods, inoceramids and other marine organism fossils and Fossils can unravel myths about the evolution. A thorough research would also challenge the existing theory of evolution. Artificial reality and virtual reality are the two upcoming technologies which can be used to give best enriched experience to the viewer.

II. METHODOLOGY

A. Creation of 3D Models of Fossils



Fig.1 3D Model of Tree Fossil



B. Website Creation Since all the 3d models are hosted on website www.dinosaurfossilsnationalparkbagh.in



Dinosaur Fossils National Park Dhar : Dinosaur once roamed here



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Background

- The park's wild landscapes, topography, geology, paleantology, and history make it a unique resource for both science and recreation.
- Landscape once part of Coast of Tethys Sea when India subcontinent was travelling towards Eurasian approx. 100 MN years ago
- Due to Deccan lava explosions and volcanic activities these estuarine ecosystem is beautifully preserved under constant flow of lava over it.
- Since whole estuarine landscape got fossilized diversity in fossils is huge and unparalleled which cannot be found in any other part of the world
- Fossile decrement from this area includes sourcool (betware dinatory) banes. Complete nets of dinators is long with the eggs , shark teeth. Accoprint of dinatory. The Fossile manine moliuda such as optimes and getmapods, incorrentiation of other marine organism fasalis
- Rests can unavel mybs shout the evolution A thorough reason's would also challenge the existing theory of evolution. Proper and extensive reason's may unfold the mystery of Renets and most significant (the inter-trapping feasil) which if studied properly can three light on earth.

Doceaus may be extensive the face of the plane, but they are also and well in our transportance." - Store Millio.
Twood give recovers of the beginning of my life to sea, only ones, Tyramacancu recome rearing up from the elect of Cannal Park...We can never have enough of name." - Edward Albert.

Significant Features

- The area is notified as Dinosaur Rossis National Park, Bagh under section 35(1) Wildlife Protection Act, 1972. which gives ample security to conservation of fossils and landscape

Dinozaurs are the best way to teach kids, and adults, the immensity of geologic time. "- Robert T. Bakker

- In addition to this .ES2 has been notified on 17 Aug 2017 to an extent of 250 mts enveloping the PA. which gives further impetus to conservation activities.
- Rare Fossil remains dating back to more than 65 million years
- The fossil remains lie on the ground surface and easily decipherable.
- Trained personnel to explain to the visitors.
- Research by Local Academician
- Opportunitys
- . In the major tourist circuit of Mandav Fort
- · Proximity to the ancient Bagh Caves
- Has a huge Research and Academic Potential

 ${\mbox{ }}$ It is expected that attraction to visit the million year old fossil site shall gain attention with time.

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Fig.2 website homepage



C. Artificial Reality

Since all the 3d models are hosted on website <u>www.dinosaurfossilsnationalparkbagh.in</u>. Using AR tool, we can give better experience to smart phone users.





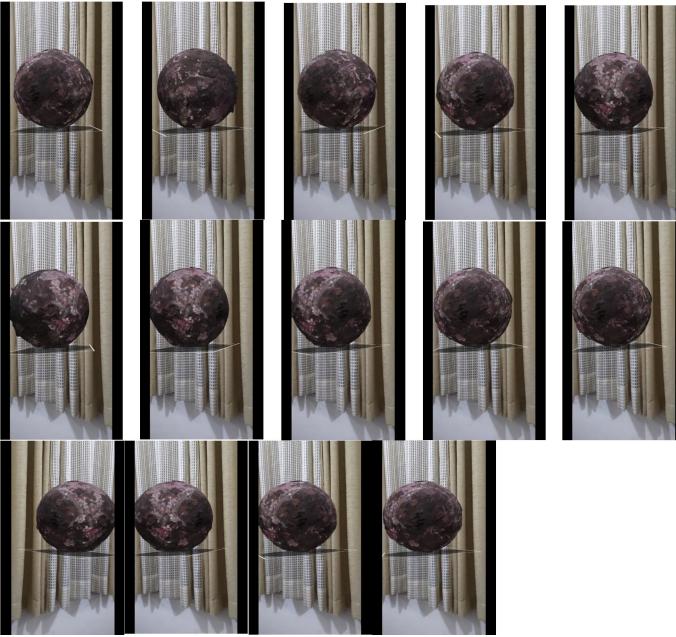
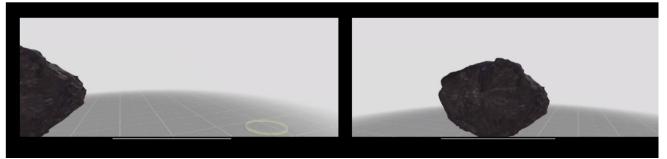


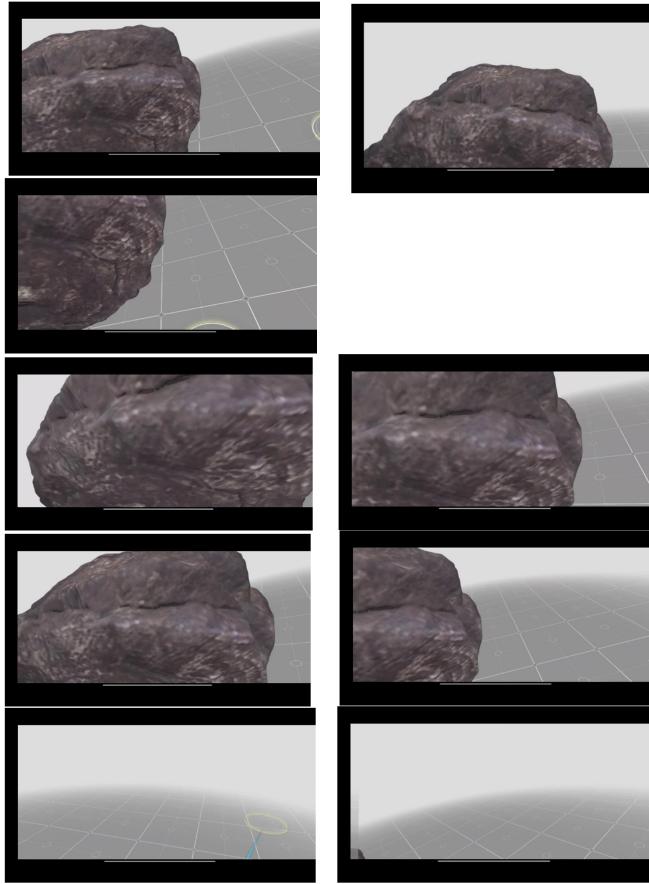
Fig.4 Artificial Reality glimpses

D. Virtual Reality

Using Virtual reality headset, these 3D models can be viewed as below which give rich experience to the viewer.









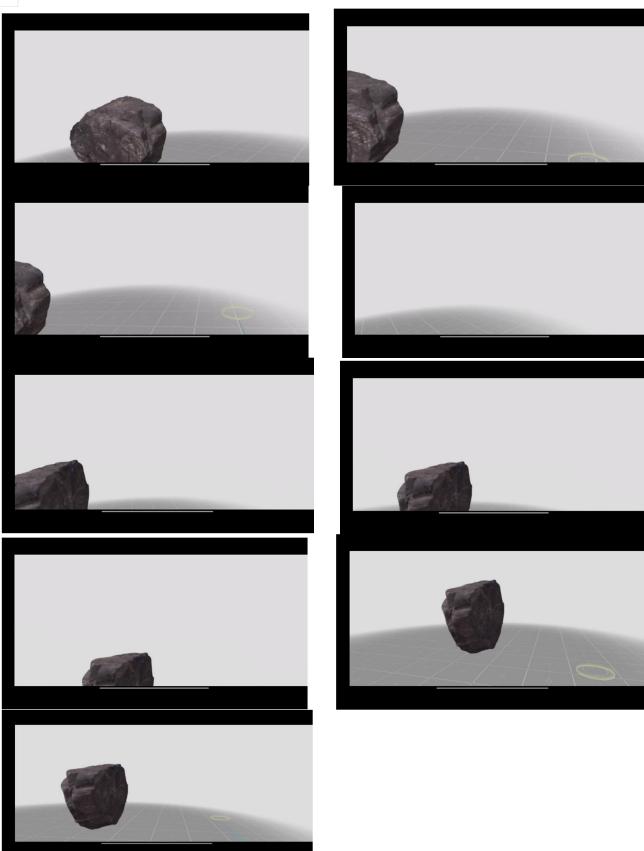


Fig.5 Virtual Reality glimpses



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III. CONCLUSIONS

- A. It gives more Authentication to fossil inventory and also gives best experience to the viewer.
- B. 3D Models are more interactive, viewers have full view without any restriction on angle of viewing.
- C. Using Artificial Reality, smartphone users can have full enlarged view.
- D. Using QR code, we will give visitors of park to have artificial reality view in specified space. (for smart phone users).
- *E.* Using Virtual Reality, 3d models can be viewed as it is in center and viewer can have literally 360 degree view.
- *F.* We can create virtual museum which will be exact replica of physical museum and with the help of VR headset one can explore the virtual museum.
- G. Researchers will have direct access of these models which will lead in better knowledge sharing among researchers.
- *H.* Hobbyists and Aspiring paleontologists will have access to these models which help in generating better zeal among them for paleontology.
- I. Tourists will have access which will promote Dinosaur Fossils National Park Bagh for tourist activities.

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