



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 Issue: III Month of publication: March 2022

DOI: <https://doi.org/10.22214/ijraset.2022.40740>

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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 of time we had collected fossils of many species. Firstly, we inventoried the fossils physically then we created 3d models 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

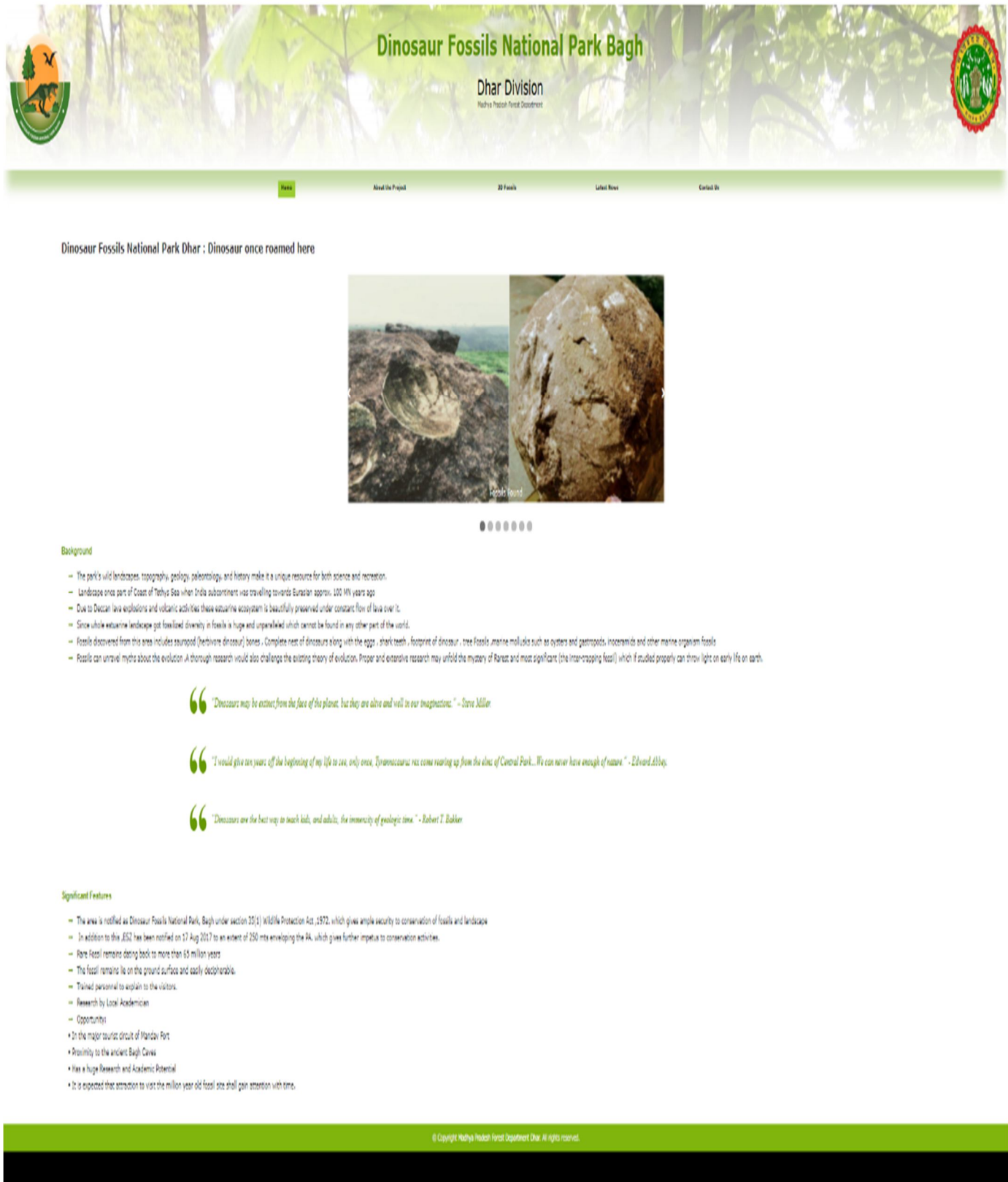


Fig.2 website homepage

C. Artificial Reality

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

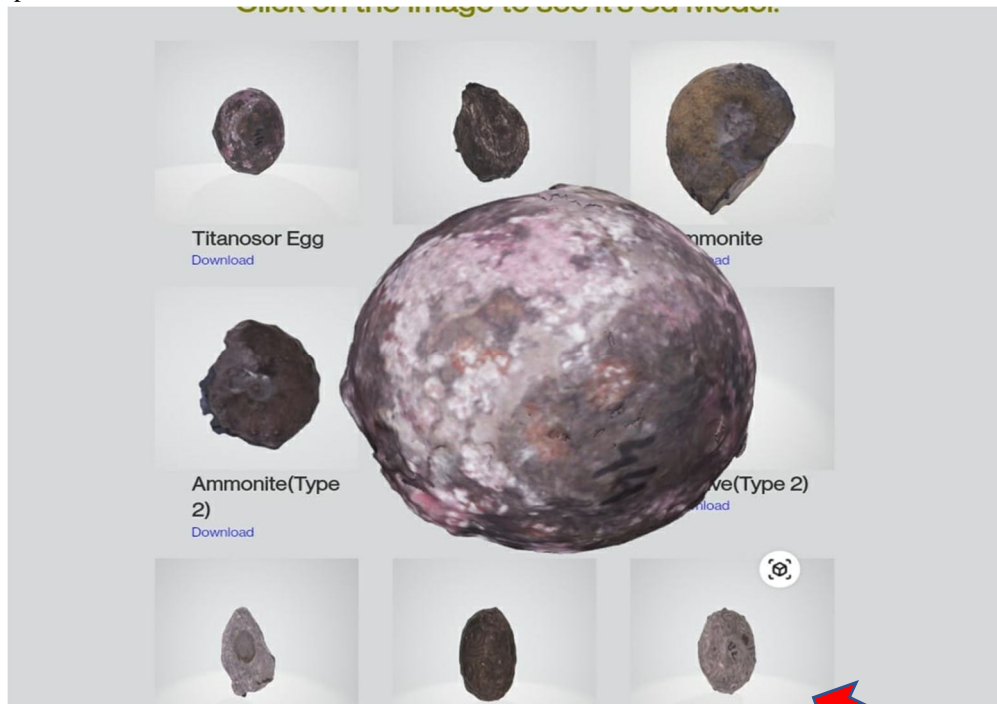
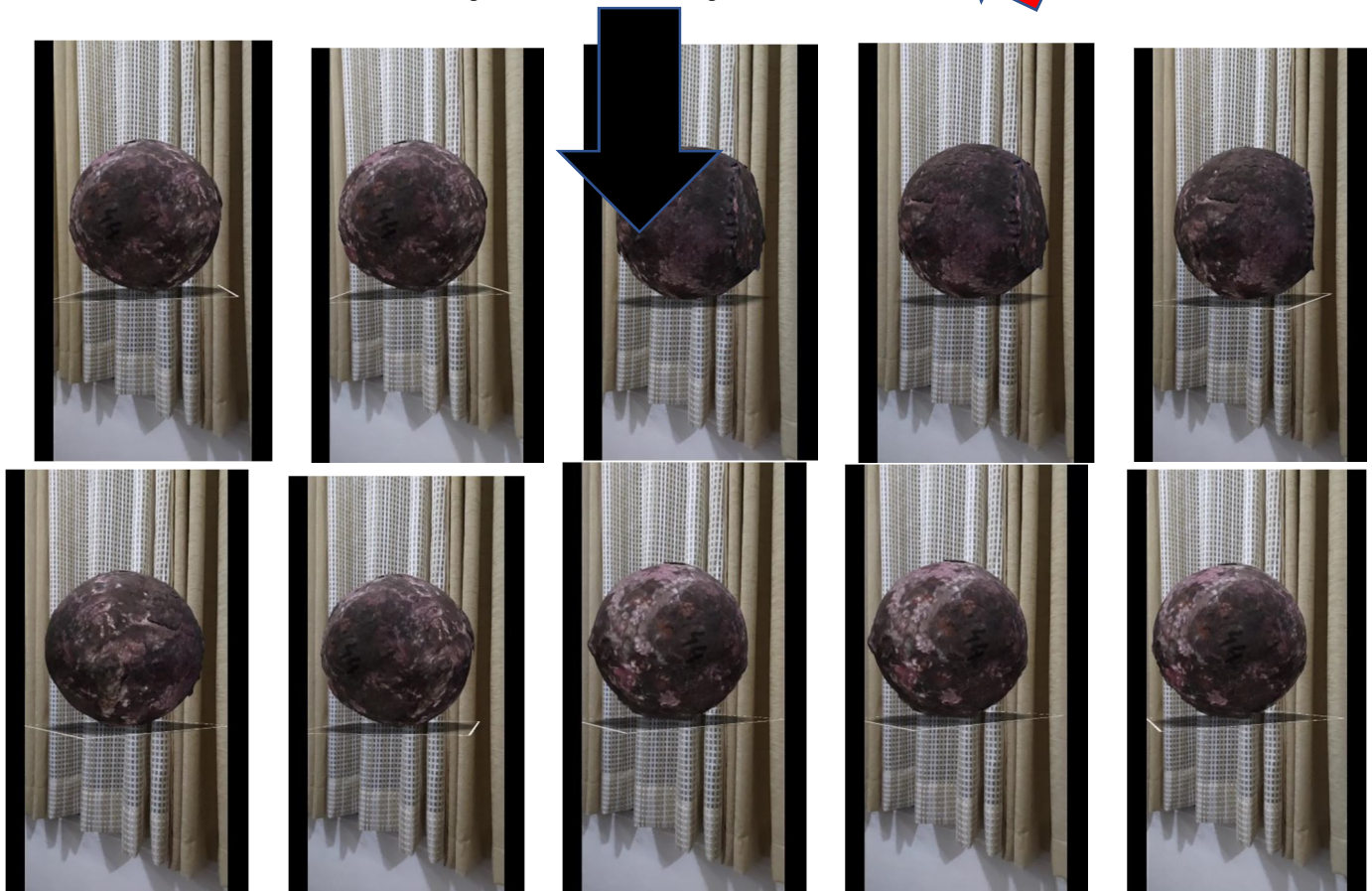


Fig.3 Red cursor showing AR in website



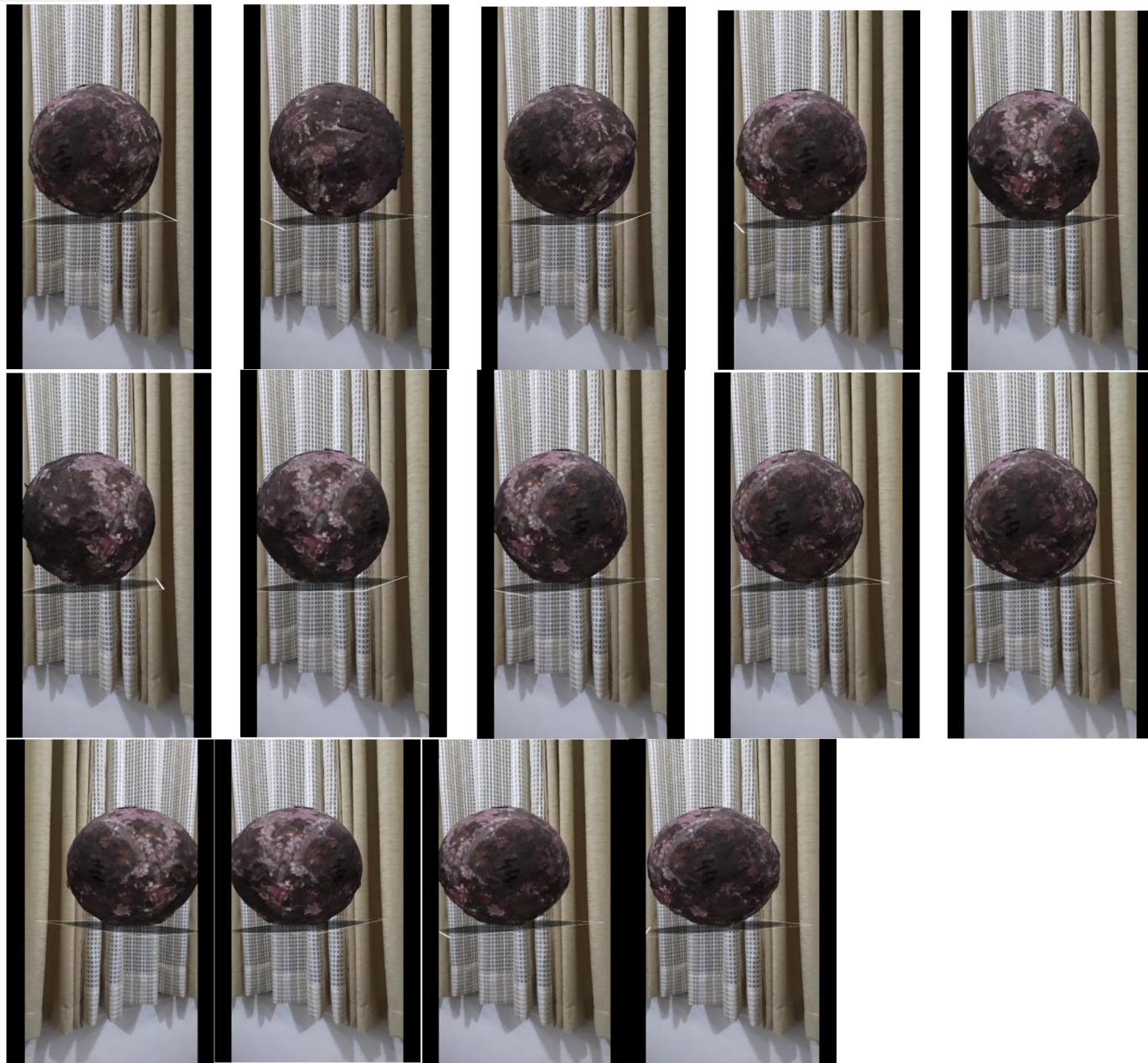
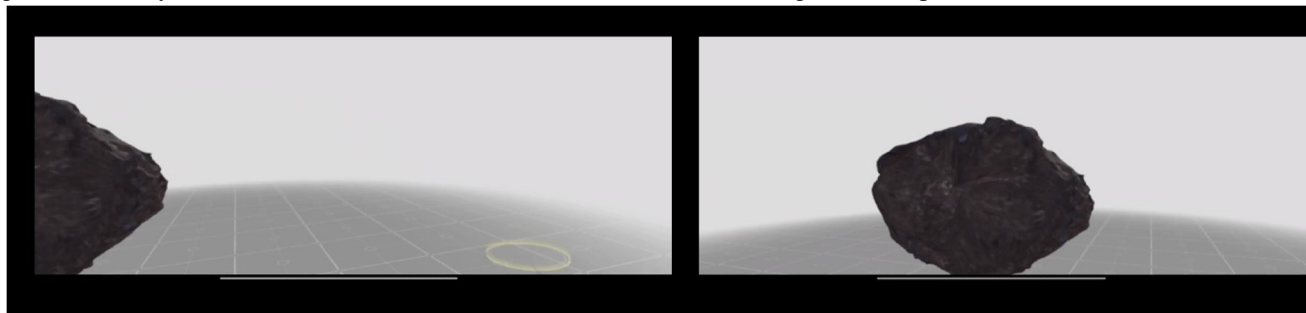
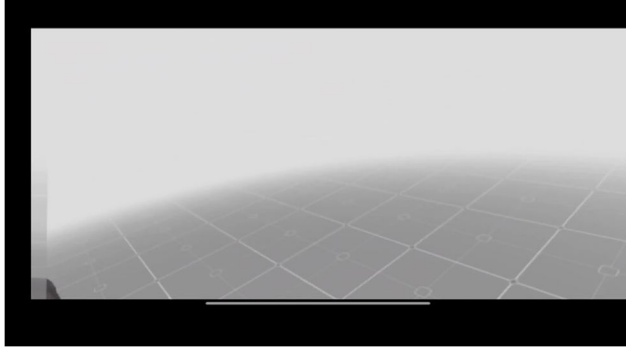
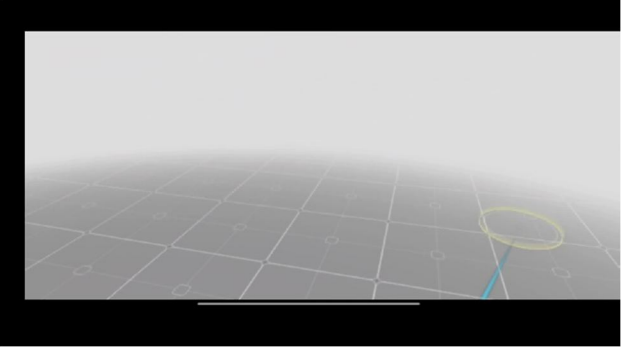
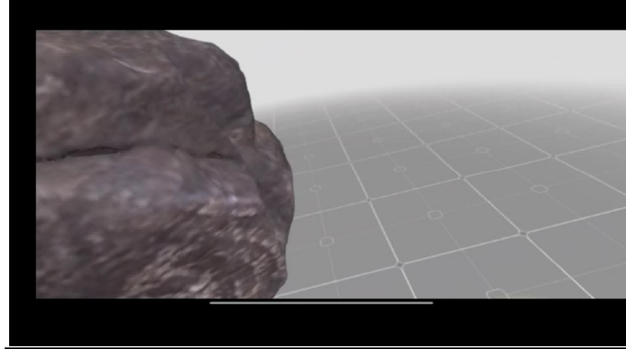
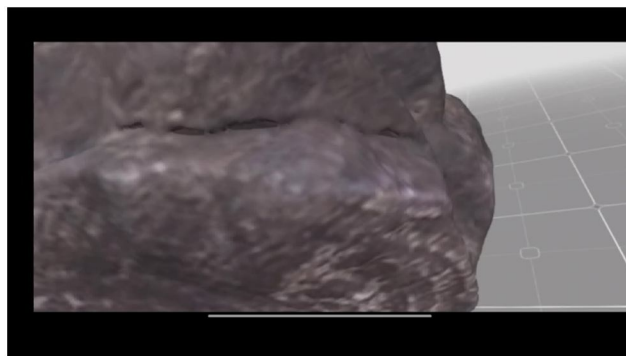
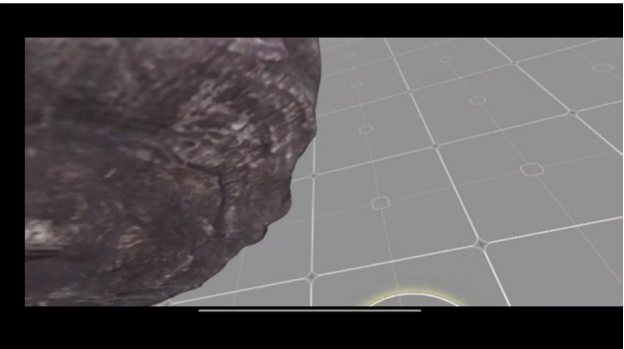
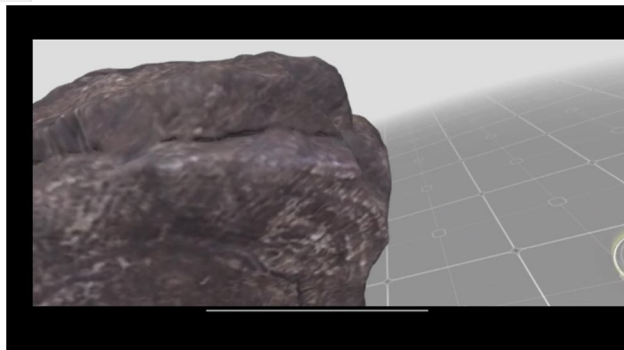


Fig.4 Artificial Reality glimpses

D. Virtual Reality

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





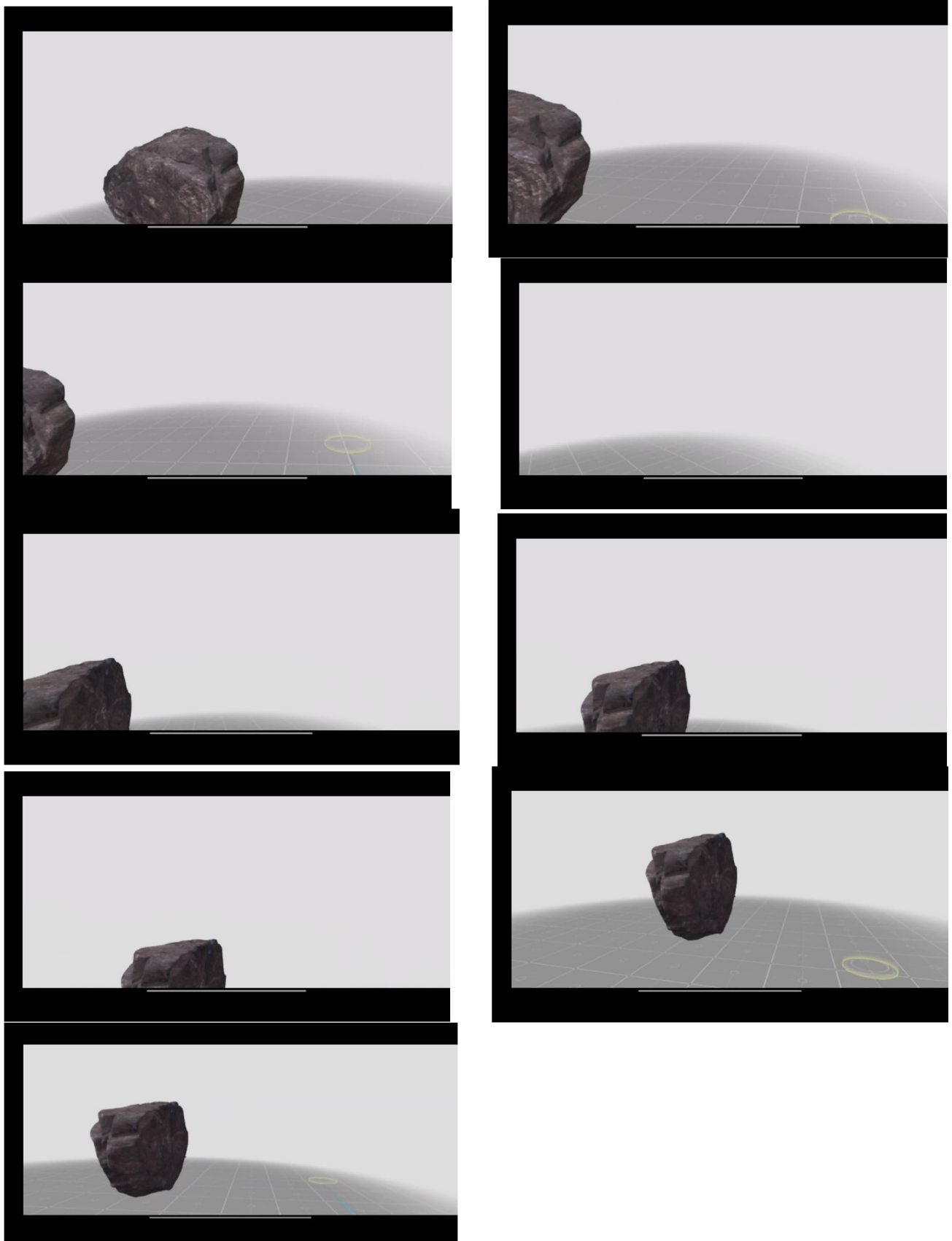


Fig.5 Virtual Reality glimpses

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.

IV. ACKNOWLEDGMENT

The Authors are grateful to Sh. Alok Kumar, CWLW, MP forest Dept., Sh. HS Negi, APCCF, Sh. Aseem Shrivastava, APCCF for funding this project. Special Thanks to Smt. Sameeta Rajora, APCCF for motivating our entire team and giving valuable inputs regarding Development of this project. We thank Sh. HS Mohanta, CCF, Indore circle for giving us constant guidance.

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