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Digital Inventory of Fossils: 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 and documented each by maintaining Stock Registers. Digitizing the Stock Registers – to convert each register in excel file which includes all the details regarding that fossil. To make it more attractive and useful in future, we have created 3dmodels of at least one specimen of each fossils' species. To have worldwide reach, we have created and hosted the website www.dinosaurfossilsnationalparkbagh.in .***

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. Proper and extensive research may unfold the mystery of Rarest and most significant (the inter-trapping fossil) which if studied properly can throw light on early life on earth. The area is notified as Dinosaur Fossils National Park, Bagh under section 35(1) Wildlife Protection Act ,1972. which gives ample security to conservation of fossils and landscape. In addition to this, ESZ has been notified on 17 Aug 2017 to an extent of 250 mts enveloping the PA. which gives further impetus to conservation activities. Significant features are 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 and Research by Local Academician. Opportunities lies as it exists in the major tourist circuit of Mandav Fort, Proximity to the ancient Bagh Caves, has a huge Research and Academic Potential and It is expected that attraction to visit the million-year-old fossil site shall gain attention with time.

II. STUDY AREA

The study area includes Dinosaur Fossils National Park, Bagh ,manavar tehsil located in dhar district ,and narmada river fault basin covering badwani and kandwa district also.The fossils are stored in old Sdo(F) residence, manawar , dhar district . the stock register work was done in manawar town , dhar district . the 3D scanning of fossils was done in dhar city.

III. METHODOLOGY

1) Repairing the building and cleaning the space in which fossils are stored. Cleaning the fossils .Arranging and storing the fossils categorically in containers and polyethene sheets .

Fig. 1 cleaning and arranging the fossils stored

2) *Maintaining Stock Registers of each Species:* All stock registers are maintained in excel files. Following are details entered in Stock Registers, Registration no., fossil name, dimensions, scaled photo, location of the area from where it is collected, estimated price, location of place where it is stored.

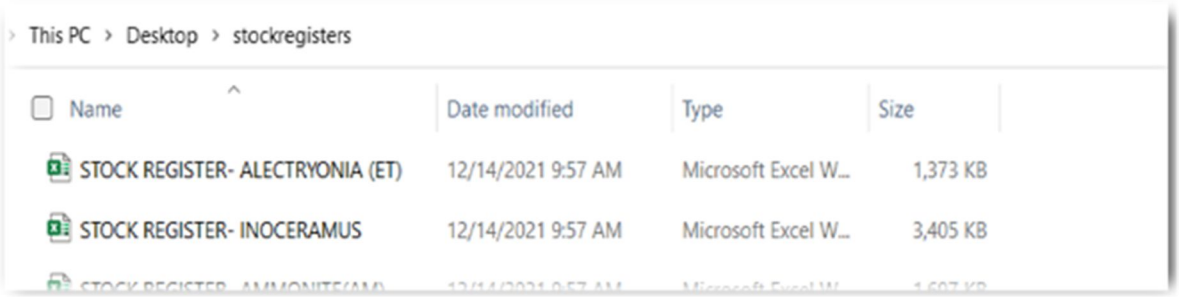

Fig. 2 species wise stock registers in excel format

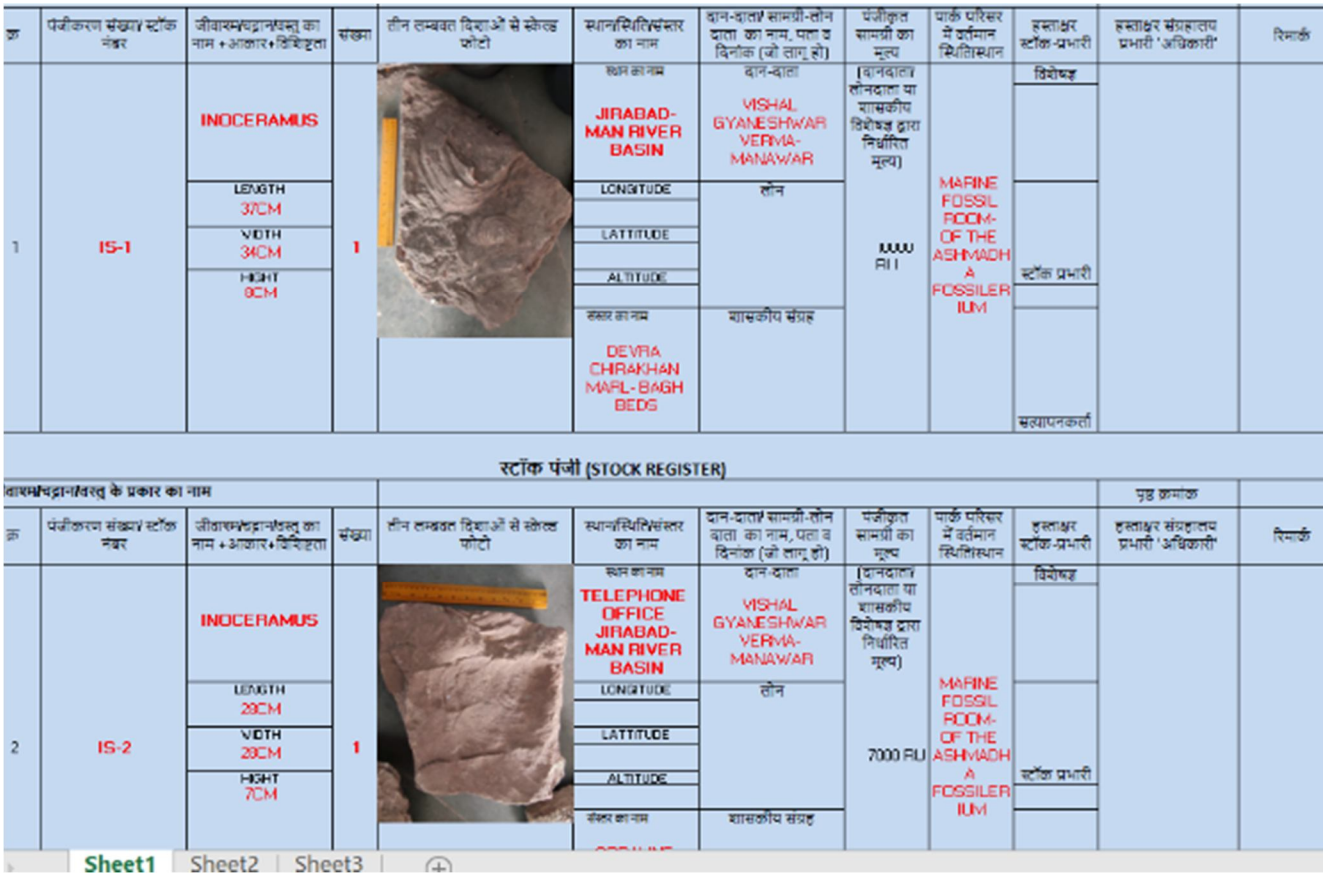

Fig. 3 details inside stock register

3) *Photogrammetry*

a) *Equipment Used*

- *3D Scanner:* Creality 3D Scanner
- *Computer:* ASUS Vivo Book S15 I7 8gb RAM
- *Photogrammetry Software:* CR Studio 1.7.3.371BETA
- *Editing Software:* Blender
- *Table Top Tripod:* Oben TT-100
- *Turntable:* Smith-Victor TT360 8" Manual Turntable

b) Development of 3D Model

Fig. 4 The Photography Setup

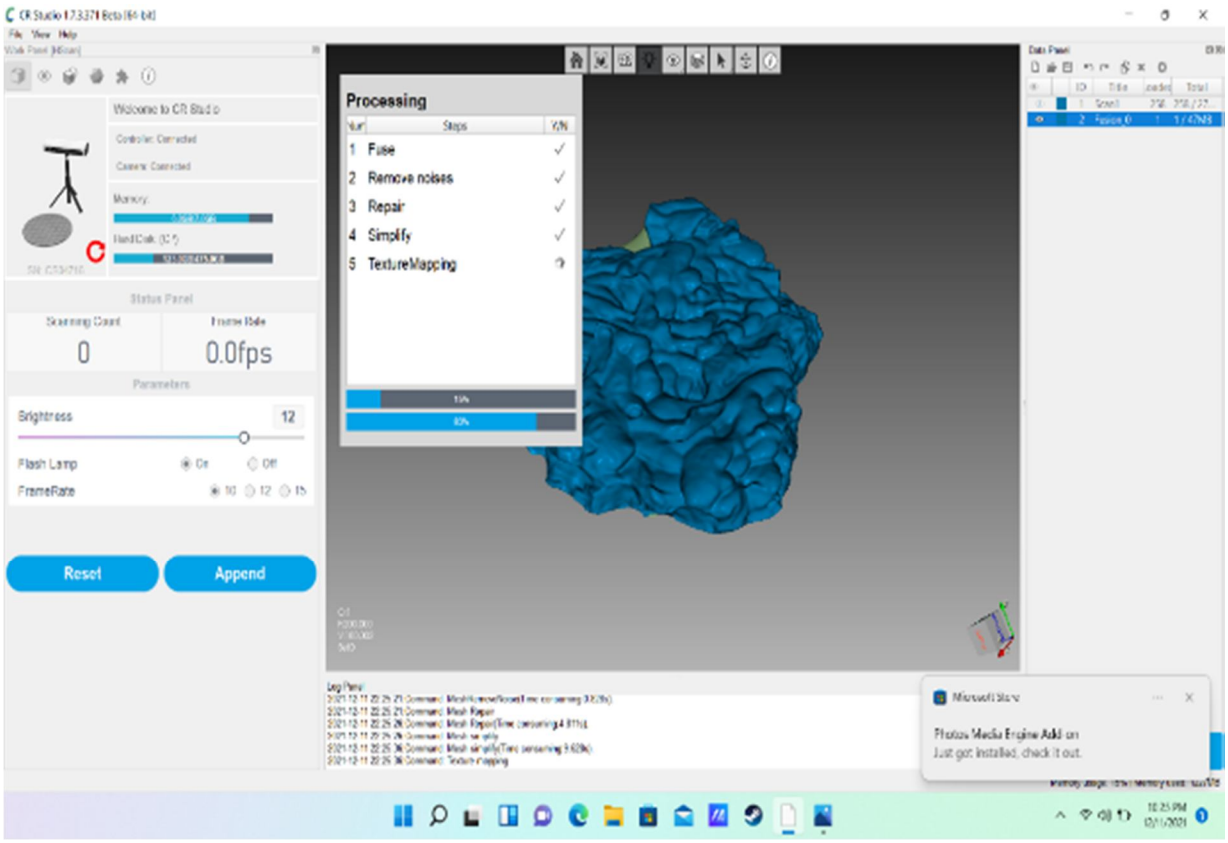

Fig. 5 The Masking the image

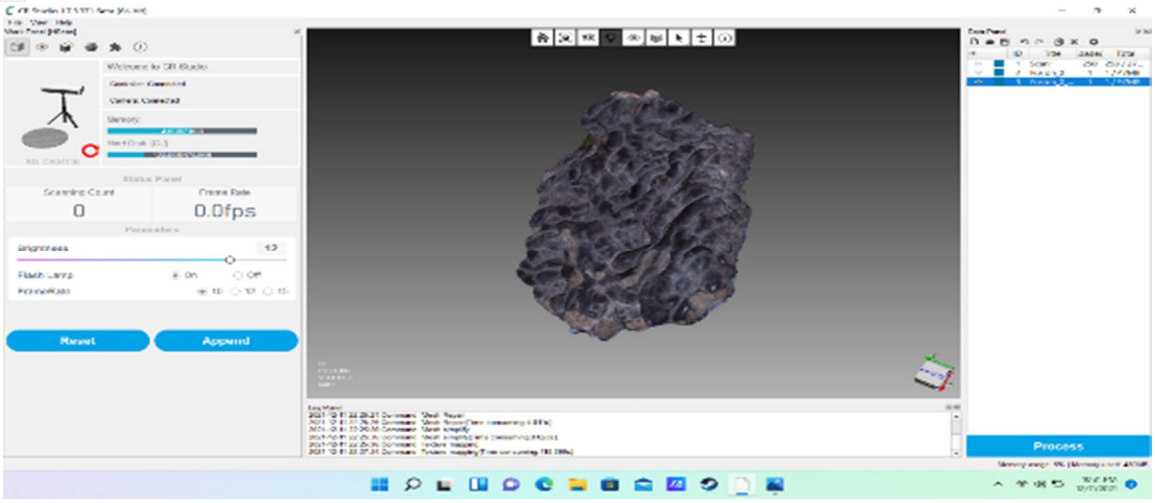

Fig. 6 Building Texture of the image

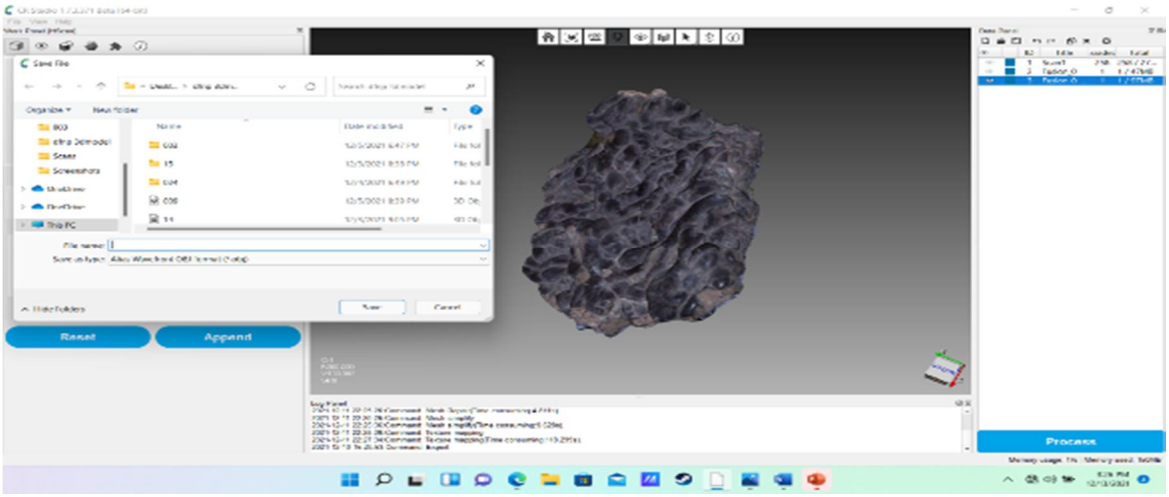

Fig. 7 Exporting the image

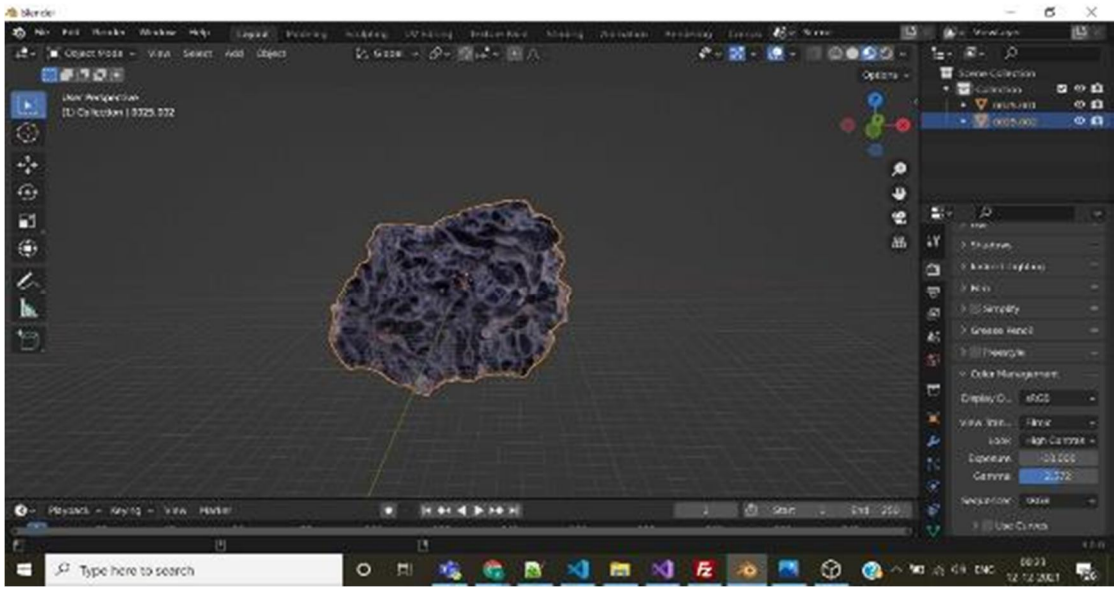

Fig. 8 Editing the image

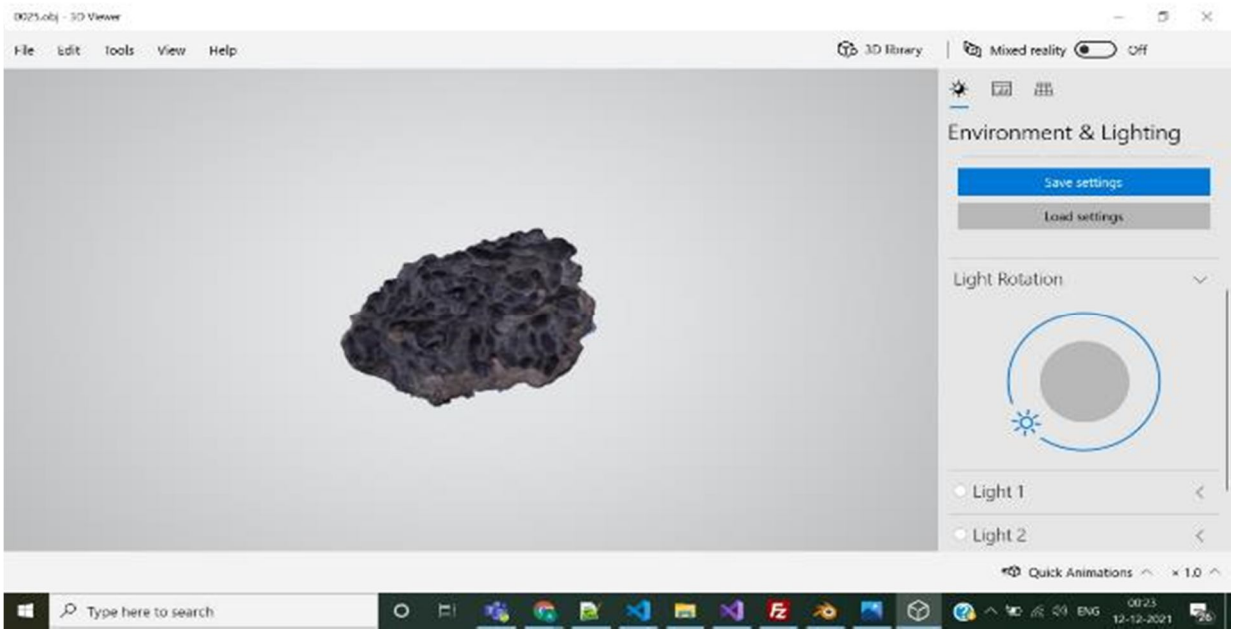

Fig. 9 Final view of the image

4) *Website Design & Hosting:* To showcase the 3D models of fossils and details about the dinosaur fossils national park Bagh, website is created.

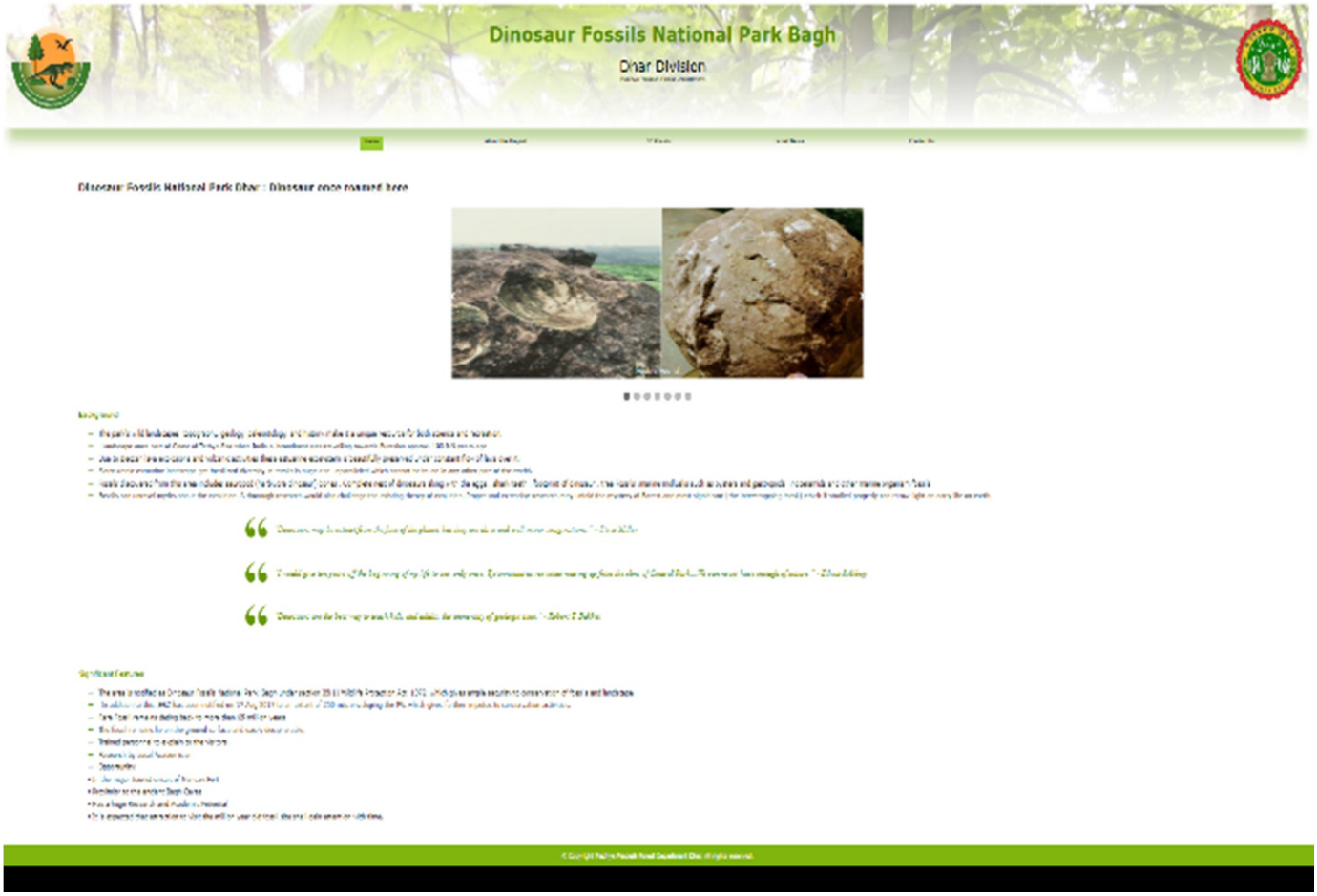

Fig.10 Homepage of website

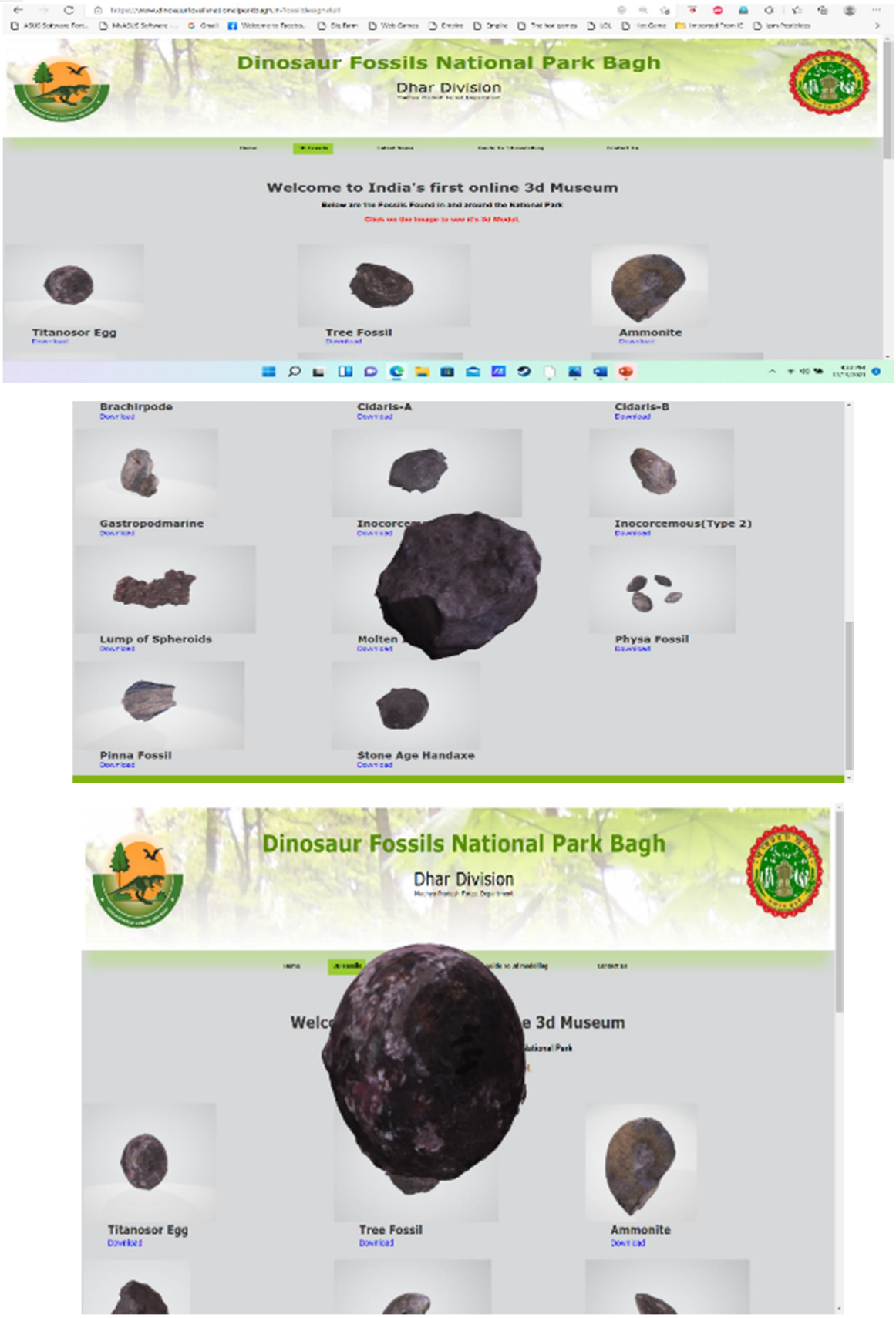

Fig.11 3D fossil tab of website

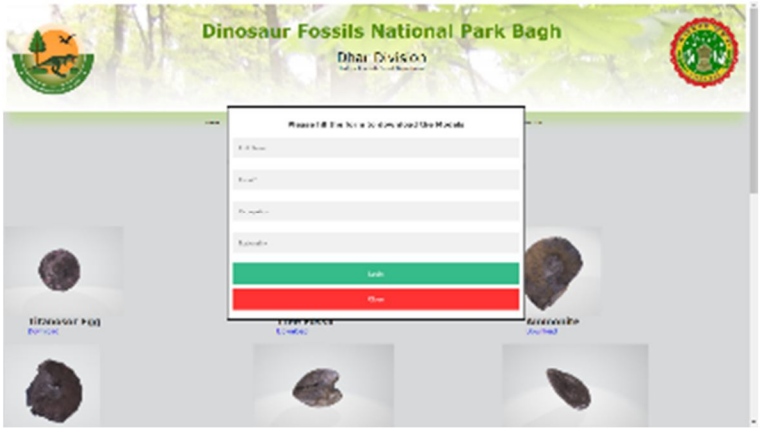

Fig.12 Downloading option for 3D model Download

Fig.13 3D Model of Tree Fossil

IV. CONCLUSIONS

A. The Stock registers in excel form are the best and easiest way to document fossil discoveries in the field.
B. Since these include each detail regarding place of collection, date, type and place of storage. these are very comprehensive document.
C. It can be stored safely and also shared without any limitations.
D. It gives more Authentication to fossil inventory
E. 3D Models are more interactive, viewers have full view without any restriction on angle of viewing.
F. Using 3d printer, these models can be replicated which can be used even after loss of original fossil.
G. Replicas of these models can act as souvenirs which help in sensitizing the tourist visiting fossil park.
H. Website creation and hosting content online will have impact on researchers, hobbyist and tourists greatly.
I. Researchers will have direct access of these models which will lead in better knowledge sharing among researchers.
J. Hobbyists and Aspiring paleontologists will have access to these models which help in generating better zeal among them for paleontology.
K. Tourists will have access which will promote Dinosaur Fossils National Park Bagh for tourist activities.

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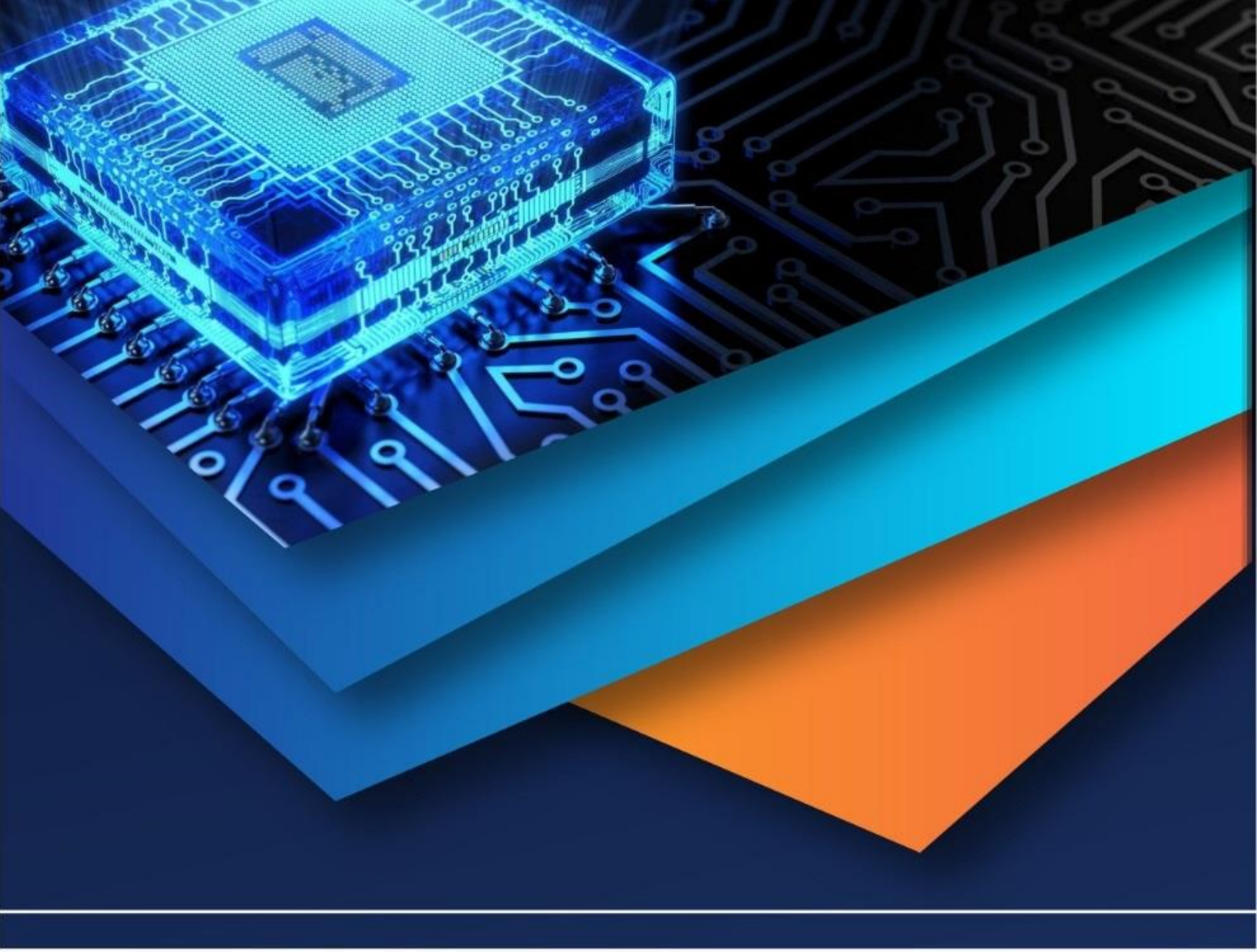

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