

They leave digital history for posterity!



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■ Through specially designed field workflows and algorithms, these scans are integrated to develop a complete three dimensional model of the monument

■ A 3D point cloud data of Jajmau mound with colour, as developed by the team of Dr Bharat Lohani of the IIT-K

■ (1) A polygon model of the Bhitargaon Temple and (2) a cross section of the Bheetergaon temple with various measurements



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KANPUR: The historical Jajmau mound (Tilai) is no more there to tell the story of its heritage. It has been dug up to give way to a bridge over the Ganga.

Considering the need for better documentation approaches for such archaeological sites and heritage monuments, Geokno, an incubate company at the Indian Institute of Technology (IIT-K), mentored by a professor in the Department of Civil Engineering at the IIT-K Dr. Bharat Lohani, has developed new technologies which will make the documentation fast, complete and accurate.

The new technology being developed is based on laser scanning, where millions of points are observed remotely on the surface of the monument, which is generally referred to as a scan. Through specially designed field workflows and algorithms, these scans are integrated to develop a complete three dimensional model of the monument.

Digital photographs are also captured simultaneously which are wrapped over the three dimensional model. These three dimensional models are digital equivalent of the physical site and at any time and anywhere, one can visualize the site, and carryout measurements over the monument and understand the relationships of different structural components of the monument, said Dr Lohani.

He said, "When I learnt that Jajmau mound, containing history of over three thousand years, will give way to a bridge, I requested Dr Rakesh Tiwari, Director, Uttar Pradesh Archeological

Doing nothing

KANPUR: It may be the World Heritage Day on April 18, but for Kanpur, the day holds not much of significance.

Thanks to the lackadaisical approach of authorities and ignorance of the common populace; historical monuments in the city are in a dilapidated state.

There are almost 200 heritage sites in the city. Bhitargaon in Kanpur Dehat, Kacheri Cemetery, Nana Rao Park, Sawada Kothi, Subedar Ka Taalab, Bithoor and Jajmau Tila are a few prominent ones.

It may also be pointed out that several artifacts have been recovered from Jajmau Tila but the city doesn't have a museum where such relics can be conserved. However, a few officials of the Archeological Survey of India (ASI) have proposed to construct a museum at Bithoor.

Sarvesh Pratap Singh, co-convenor, Indian National Trust of Art Culture and Heritage (INTACH) says, "There are innumerable historical monuments and sites in the city which should be included in the list of heritage sites. The mills that have

Department (UPSAD) to let us use our technology to electronically capture the Jajmau mound. He kindly allowed us to do so."

Palanisamy, who is laser scanning expert at Geokno, led a team for data capture and the data were processed at Geokno at IIT Kanpur. Palanisamy said, "Despite availability of a very limited time for data capture,

We are not planning to do anything special to mark the day

RAKESH TIWARI

Director, Uttar Pradesh State Archeology department

been shut down and have a beautiful structure, can be converted into hotels or tourist destinations. This would also help conserve these historical sites."

The Kanpur Museum, with water seeping from its ceilings, is in a shambles and needs conservation as this is annihilating the artifacts kept there.

On the issue, Rakesh Tiwari, director, Uttar Pradesh State Archeology department (UPSAD) said, "We are not planning to do anything special to mark the day." When quizzed about whether something is done about creating awareness about the sites, he said, "No we aren't doing anything just the normal exhibitions that are held by the department." **HTC**

and other difficulties due to the ongoing construction there, a good amount data has been captured, enough to bring the site alive digitally."

"With these digitals models, one can visualize the site and also carry out various measurements," Dr Lohani said.

He further said that Geokno in association with

Geoinformatics Laboratory of IIT- K also completed documentation of Brick Temple at Ghatampur in Kanpur. This fifth century temple needs urgent attention for its conservation. Working in association with Dr Dwivedi and Shri Pathak from the Archeological Survey of India (ASI) Lucknow, a complete 3D model of the temple has been made. "This model is now a complete digital record of the temple," said Balaji who carried out laser scanning and 3-D modeling of the temple.

Dr Lohani said, "India has a very rich archaeological background witnessed by the innumerable heritage sites and monuments dotting the country. However, these architectural marvels and historical sites are facing a difficult time due to natural and anthropogenic forces. The centre and state archaeological departments do their best to document these, but this is a gigantic task and the conventional techniques employed are not suitable as these are slow and inaccurate. The other danger facing these is that of the development. In view of making way for large infrastructural projects, which are the need of country, these sites and monuments are sometime bulldozed. But now they could be preserved for posterity with the laser scanning technology."

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