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# Sikkim gets IoT-based real-time landslide warning system

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KOLKATA: Internet of Things (IoT) based realtime landslide warning system has been installed in Sikkim, the first of its kind in the Himalayan region by Amrita Vishwa Vidyapeetham (AVV) University, a AVV director said here on Wednesday.

The system has been installed under the aegis of the Ministry of Earth Sciences at a cost of Rs 5 crore, director of the Centre of

Wireless Networks and Application of the institute, Maneesha Sudheer said.

"The data has started flowing in from the project site to the control room. There are 200 sensors that goes as deep as 13 metres underground and reading of the various data for analysis getting transmitted. It is almost three years since we started the journey," she said.

To improve the systems reliability and enhance the early warning duration a three-level Landslide Early Warning Model has been developed, she said.

The project was given to AVV University after it sucessfully deployed and managed similar IoT based landslide warning system in the western ghats region of Munnar in Kerala since 2009 that continues to protect lives with sucessful warnings, Sudheer said.

The Sikkim project, which is the second one, is being implemented in collaboration with Sikkim State Disaster Management Authority, AVV vice-chancellor Venkat Rangan said.

It will monitor a densely populated area spanning 150 acres around Chandmari village in Gangtok district and be a life saving system for at least 5,000 people, Sudheer said.

This area has seen several landslides in the past with the first one reported in 1997, she said.

She said AVV has been selected as the only Indian institution as the world centre of excellence in landslides and risk reduction till 2020.

Sudheer said Sikkim was selected after scanning 17 landslide prone zones in some north east states and Uttarkhand. The project was delayed due to difficult terrains and work conditions but the major challenge was vandalism of critical sensors and equipment at least twice causing time and monetary loss of about Rs 40 lakh to Rs 50 lakh.

A report by Indian Roads Congress estimates that 15 per cent of Indias landmass is prone to landslide hazard, including areas like Western Ghats and Konkan Hills, Eastern Ghats, North East Himalayas, and North West Himalayas.

In North East Himalayas, the Sikkim-Darjeeling belt is at the most risk of landslides, it said.