On Digital India anniversary, researchers at IIT Bhubaneswar showcased how technology can serve the needs of modern society

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Making life easy, HI-TECH

Researcher Chinmay Panda showcasing his project at IIT Bhubaneswar | IRFANA

Inside a lab at IIT Bhubaneswar, researcher Palli Mishra selects a file on the monitor using the computer's mouse, drags the cursor to highlight an Odia text composed in English script, clicks on it and waits for a response. In a few seconds, the speaker attached to the device plays a system-generated voice message that reads out the text. And, it's an eureka moment for her. Along with her team, Palli is working on text-to-speech technology for Odia language. Not just that, the researchers have decoded the technique of automatic speech recognition in Odia. Integrating both the technologies, the researchers are trying to develop smart kiosks for filling up various government forms using spoken instructions in Odia language.

"Suppose, you want to fill an adhaar form, you can select the texts which the system will read out for the user. Next, you can utter the answers in Odia, which will be recognised by the system and converted into texts. So, you have successfully filled up the form using voice instructions," she explained. While the technologies are available for English, the researchers in various branches of IIT, including Bhubaneswar, are applying the tech-

nology to Indian languages like Odia, Hindi, Telugu, Assamese and Bengali. Brahan Nayaki, Jaisri, Chirasmita Swain, Devi Moonchand and Palli are trying to make life easy with the help of technology.

So far, Palli and her team have recorded more than 35,00 Odia 'phonetically balanced' sentences from various magazines, newspapers and journals. They claim their program can convert an Odia sentence containing 15 words into speeches in two to three seconds. These researchers demonstrated their projects

on the premises of IIT Bhubaneswar to observe the fifth anniversary of Digital India in association with Software Technology Parks of India, (STPI) last Monday. 'Digital India' is a flagship programme of the Government of India initiated with a vision to transform India into a digitally empowered society.

They showcased their projects at the Centers of Excellence in "Virtual and Augmented Reality for Immersive Visualization (VARCoE), the school of Electrical Sciences and the Design and Innovation Center.

Another researcher, Chinmay Panda showcased a program for audio-based surveillance of forests. In his protype, he has used wireless acoustic sensors that can be fitted to trees in forests. The senors can detect sounds of vehicles entering the forest, chirping of birds, cutting of woods, movements of animals, firing and stone-cutting. "Once the sensor detects the sound, it

will flash text messages on the monitor at a central control room to caution the rangers about deforestation, poaching activities or any movement in the forest. The program can make things easy for rangers who depend on visual surveillance of the forests," said Panda. He has also developed digital radio sets which can transmit messages, without using commercialised communication bandwith, within the limits of 300 metres. "You will not have to depend on mobile networks for contacting its users within a compound," he said.

Researcher Simhadri Vadrevu used technology to facilitate healthcare system in rural pockets. He has developed a program for real time transmission of the health records of a patient to a central control room.

He has used PPG (photoplethysmography) sensors to sense the rate of blood flow as controlled by the heart.

"While the patient's pulse rate

is recorded using an oximeter, PPG signals are sent to the control room or hospital headquarter. These signals help in getting clinical findings of blood pressure, condition of the heart and blood vessels and their functioning.

If integrated in the healthcare system, a poor patient will not have to travel to the district hospitals for sharing reports with the doctors," he claimed. The researcher had conducted trials on at least 20 individuals so far.

Meanwhile, director of the institute, professor R V Rajakumar talked about the importance of new age technologies for serving the needs of the modern society.