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PRESS RELEASE

IIT (ISM) Research on developing less power consuming sensor equipped audio system to help visually impaired person walk freely

A six member team of faculty members of Electronics Engineering department of IIT (ISM) led by Rajeev Kumar Ranjan, assistant professor is working on mission to develop a less power consuming sensor enabled audio system for the visually challenged people to help them walk freely by notifying them about the objects coming into their way.

The audio system based on edge computing system, a distributed information technology network is being developed under the five year project titled, **Ultra Low Power Neuromorphic Spiking Architecture, assistive smart glasses.**

It has also been selected as one of the 2nd Cohort of 30 institutions for a fund grant worth Rs 86.25 lakh during the Digital India Week held at Gandhinagar from July 4 to 9 under **chips to start up programme** of Government of India (GOI).

The project being carried out by Professor Ranjan along with other faculty members of his department, including three assistant professors, Manodipan Sahu, Kaushik Mazumdar and RahulBhattacharya besides two professors, Sajal K Paul and Jitendra Kumar is aimed at developing a system that could change the visual world into an audio world by notifying the blind people about the objects in their path.

Further explaining the aim of developing the system under the project Professor Ranjan said, "According to the World Health Organization (WHO), more than one billion people worldwide have vision difficulties, which includes blindness, low vision and some kind of visual impairment".

"Most blind people and people with vision difficulties are not in a position to complete their studies as special schools for them with special needs are not available everywhere and most of them are private and expensive" explained Professor Ranjan.

"The only alternative for them was to study at home acquiring basic knowledge from their parents and since such education was not technical enough and hence they cannot compete with other people" elaborated Professor Ranjan.

"Such people need to be provided special facilities so that they can live comfortably" further said Professor Ranjan .

Giving further details Professor Ranjan said, “We can take the help of computer vision technology to make special aids which the visually impaired people can live comfortably, as far as possible”

About the intricacies of Edge computing system being used in generating smarter world machine that can sense, perceive and reason, Professor Ranjan said “ the edge systems around us are battery powered systems that have limits in terms of computation”

“These computational systems consume significant power in the idle state as they continuously process the incoming data” said Ranjan and added that the wake-up systems offer a very elegant solution to improve the power consumption of systems that run more complex algorithms and require high power consumption.

“The objective of the project is to create an ultra-low-power novel wake-up system for assistive glasses”

EOM

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