

IIT-Kharagpur develops prototype using batteryless sensor nodes to monitor soil health

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NEW DELHI: Researchers at Indian Institute of Technology in Kharagpur (IIT-Kgp) have developed a smart solution for farmers based on Internet of Things (IoT) to help monitor soil moisture, soil temperature, nutrient contents and water levels.

Researchers from its department of computer science and engineering have developed a prototype using batteryless sensor nodes to monitor agricultural field parameters. This

There are two parts to this solution both of which do not need any Internet connectivity, allowing the solution to work even in the remotest parts of the country. One part of the device is placed in the field. It uses sensor nodes and has a processor, a radio unit and sensors for reading the soil moisture, soil temperature and water level in fields. The other portion is handheld, which tracks or reads the data from the device present on the field.

The IoT Solution

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OTHER PART
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IT TRACKS
or reads the
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device in
the field

THIS DATA IS LATER
transferred to remote servers

"The handheld device automatically reads the data collected by the device on the field when it comes in contact. This data from the handheld device is later transferred to remote servers," said Anandarup Mukherjee, one of the researchers. The data from the fields can then be used for data analytics, data visualisation and other processes. Other researchers behind this solution are Arijit Roy and Sudip Misra. They have applied for patent for this product.

The institute is still to work out the cost for this solution that could make farming more productive. "We are looking at partnerships with government bodies including the ministry of agriculture and private sector companies to take this solution to the next stage of commercialisation," said Misra, a faculty member at the institute.

The size of the two devices is about 10 cm by 10 cm — roughly the size of a tiffin box — and is developed at the Smart Wireless Applications and Networking (SWAN) Lab of the IIT.

The energy constraint keeps wireless-sensor technology out of reach of the masses in India. "We believe that reducing certain essential components in a sensor-based system, such as the battery, the net cost of each sensor nodes comes down, which in turn makes it more affordable to the masses," Misra said.

Using this device, a farmer can digitise his fields and follow scientific approaches to farming.

News Link:

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