

Non-contact and in-field soil analysing device based on diffused reflectance spectroscopy technique

At the Photonics Laboratory in IIT Bombay, we are developing various photonic devices based on different spectroscopic techniques. They are tailored for various opto-electronic and sensing applications in the agricultural, healthcare and environmental sector. One such device is the non-contact and in-field soil analysing device based on diffused reflectance spectroscopy technique. The project 'Moisture sensor for controlled irrigation' is funded by the Konzeptogen company.

Motivation

- Development of accurate, reliable, user-friendly and in-field soil analysing Internet of Things (IoT) device for smart and controllable farming

Capabilities

- Quantitative surface and depth profiling of moisture in soil matrix
- Fast estimation of water holding capacity of soil
- Remote measurement of field parameters through user-friendly mobile application

Salient features

- Instantaneous (< 1 sec) in-field soil analysis, free from any sample pre-processing
- IoT device with user-friendly mobile interface for continuous soil monitoring

Extended features

- Measurement of micronutrients present in soil
- Linking with GPS for wide area soil analysis which can help government in developing various schemes and policies thereby take care of soil health in a particular region

