Modular Device for Extra-terrestrial Experiments

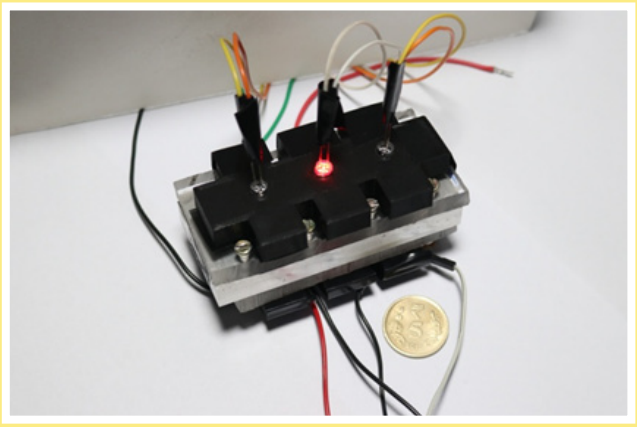
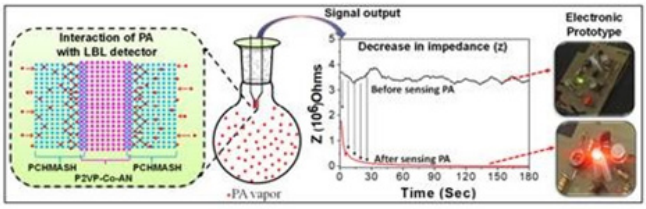


Image credit: G Sai Santosh, Project Staff, IISc

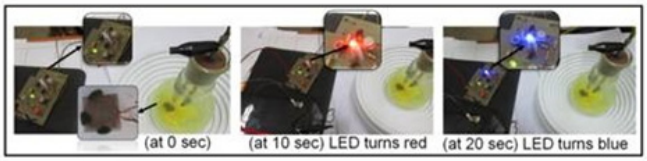
RESEARCHERS from the Indian Institute of Science (IISc) and the Indian Space Research Organisation (ISRO) have developed a modular, self-contained device to cultivate microorganisms. Similar to spectrophotometers used in the lab, the device uses an LED and photodiode sensor combination to track bacterial growth by measuring the optical density or scattering of light. This enables scientists to carry out biological experiments in outer space. The study is published in *Acta Astronautica*.

Source: IISc, Press release

Newly Devised Sensor Can Detect Explosives Swiftly



Schematic representation for the detection of PAvapour using LBL detectors via impedance (Z) measurements and the electronic prototype for visual detection of such chemicals.



The change in the colour of LED at different exposure time to NAC vapour.

A team of scientists from the Institute of Advanced Study in Science and Technology, Guwahati have developed a thermally stable and cost-effective electronic polymer-based sensor for rapidly detecting nitro-aromatic chemicals used in high-energy explosives. The device can be operated at room temperature, has a low response time and negligible interference from other chemicals. The fabrication is simple and is negligibly affected by humidity.

Source: India Science Wire

Baby Detector Software

A baby in Flinders Medical Centre's intensive care neonatal unit, one of seven infants whose vital signs were remotely monitored in the study

RESEARCHERS from the University of South Australia have developed software that can automatically detect a premature baby's face and skin when covered in tubes, clothing, and undergoing phototherapy. It is capable of remotely monitoring a baby's vital signs from a digital camera with the same accuracy as an Electrocardiogram (ECG) machine. The results have been published in the *Journal of Imaging*.

Source: UniSA Media Releases

Unique Technology for Direct Generation of Hydrogen from Agricultural Residue

Anaerobic digesters for two-stage biohydrogen and biomethane production

Continuous biohydrogen production in a reactor

A team of researchers from Agharkar Research Institute, Pune in collaboration with Sentient labs of KPIT Technologies, have developed a unique technology for direct generation of Hydrogen from agricultural residue. This innovation can promote eco-friendly hydrogen fuel-cell electric vehicles by overcoming the challenge of hydrogen availability.

Source: PIB, Press release