A New Device — Error-correcting Cat

PHYSICISTS at Yale University, New Haven, Connecticut, have developed a new device called an error-correcting cat. This newly developed device combines the Schrödinger's cat concept of superposition capable of fixing the fiddliest errors in quantum computation. The device can correct an array of errors that come up among fragile bits of quantum information, called qubits while performing a task. The study appears in the journal *Nature*.

Source: https://news.yale.edu/

(Image credit: Michael S. Helfenbein)

Wearable Sweat Sensor

RESEARCHERS from Brazil have created a wearable sweat sensor which is a skin-adherent biosensor based on pure nanocellulose fibre substrate. The natural polymer offers a breathable interface with the skin and permits sweat to travel through for further electrochemical analysis with the help of printed electrodes. It can measure a range of metabolites and biomarkers present in sweat and monitor problems like diabetes. This wearable sensor overcomes various drawbacks caused by plastic sensors including sweat to build up, irritation etc. It can measure various biomarkers like glucose, lactic acid, potassium, and sodium. The related study is published in the journal *Talanta*.

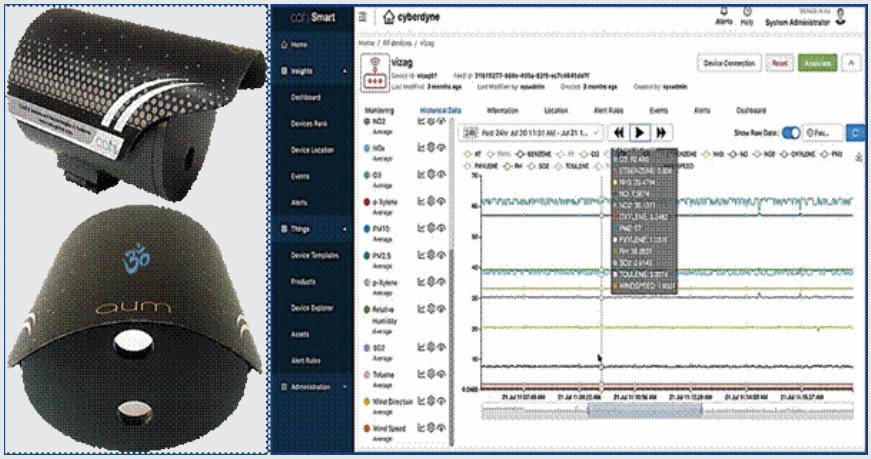
Source: medgadget.com

Colonoscopy-like Bacteria Grabber

PURDUE University researchers have built a way to swallow a tool that acts like a colonoscopy, except that instead of looking at the colon with a camera, the technology takes samples of bacteria. The tool is a drug-like capsule that passively weasels through the gut without needing a battery. The technology could also move throughout the whole GI tract, not just the colon. This tract, in addition to the colon, includes the mouth, esophagus, stomach, pancreas, liver, gallbladder, small intestine and rectum. Essentially, this tool would make it possible to conduct a "gut-oscopy." An initial demonstration of the prototype is published in *RSC Advances*, a journal by the Royal Society of Chemistry.

Source: https://www.purdue.edu/

Image credit: Jialun Zhu, Shuyu Lin, and Yichao Zhao (I²BL/UCLA)



Air Unique-quality Monitoring (AUM)

WITH support from Department of Science and Technology's Clean Air Research Initiative, Prof. Rao Tatavarti, Director of Gayatri Vidya Parishad-Scientific and Industrial Research Centre (GVP-SIRC) & GVP College of Engineering, Visakhapatnam, has developed an indigenous photonic system for real-time remote monitoring of air quality parameters. The AUM system (patent pending) is an innovative application of the principles of laser backscattering, statistical mechanics, optoelectronics, artificial intelligence, machine/deep learning, and Internet of Things. It can identify, classify, and quantify various pollutants simultaneously (of orders of less than one part per billion) and meteorological parameters, with very high precision, sensitivity and accuracy.

Source: https://dst.gov.in/

Smartwatch Tracks Medication Levels

RESEARCHERS of UCLA Samueli School of Engineering, Los Angeles, California along with Stanford School of Medicine have developed a smartwatch that can trace drug levels inside the body. The smartwatch analyses the chemicals present in sweat. This wearable technology can be used to design an ideal drug and decide its dosages as per the requirements of an individual. According to the researchers, existing efforts to personalize the drug dosage rely profoundly on repeated blood draws at the hospital. These solutions are inconvenient, time-consuming, invasive and expensive. The related research is published in *Proceedings of the National Academy of Sciences*.

Source: https://samueli.ucla.edu/