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A team of Indian and French scientists have developed a touch sensitive material that enhances response rate by thousand times from existing materials. The material which has its applications in semiconducting devices with pico-ampere sensitivity mimics any biological system. This system is also able to store electrical energy more efficiently.

The material is made of Quantum Dots (QD) with liquid crystals. QDs are very small semiconductor particles, only several nanometres in size.

The team controlled the assembly of quantum particles in liquid crystal matrix for this specific purpose and by changing the concentration of QDs. The QDs were prepared by Professor Sandeep Kumar of Raman Research Institute, Bengaluru.

"This invention opens up development of semiconducting energy storage devices," Dr. Dharmendra Pratap Singh, the corresponding author of the study and a post doctoral researcher at University of the Littoral Opal Coast in France told Indian Science Journal. "We are planning to do some more experiments to make battery for pocket devices using this material by next year."

The advantage of the new touch sensitive material is, it can store more energy in less space, for applications like mobile handsets, Dr. Singh added. The research study was published in the latest edition of Journal of Physics D: Applied Physics. Currently touch sensitive materials are made of liquid crystals on Indium Tin Oxide (ITO) in IPS mode (in-plane switching mode). It means a device captures traffic for the sensor and forwards a copy for analysis to the sensor.

Scientists have also been attempting to develop organic light emitting diode (OLED) devices which could possibly reduce the operating voltage significantly, while improving the light output and efficiency. Resistive touch screens are invented in 1970. A resistive screen consists of a number of layers. When the screen is pressed, the outer later is pushed onto the next layer — the technology senses that pressure is being applied and registers input.

Resistive touch screens are versatile as they can be operated with a finger, a fingernail, a stylus or any other object Although capacitive touch screen - a control display that uses the conductive touch of a human finger or a specialised device for input, were designed first, they were eclipsed in the early years of touch by resistive touch screens. American inventor Dr. G. Samuel Hurst developed resistive touch screens almost accidentally.

http://www.indiansciencejournal.in/r-d-news/indo-french-scientists-develop-super-touch-sensitive-material-next-only-to-human-touch-206566