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Title : GFSU works on nanotech fuel cell

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# GFSU works on nanotech fuel cell

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**Ahmedabad:** The traditional batteries, ranging from lithium-ion to alkaline commonly used in sectors ranging from mobile phones to electric cars has ruled the roost for long due to a number of factors including easy operation. However, it also poses a number of questions including safe disposal, comparatively shorter lifespan and quick discharge after a while. As an alternative, the fuel cell is discussed for applications such as electric cars that run on hydrogen.

The world over, the scientists have turned to nanoparticles to reduce negative factors and boost performance of traditional sources of power. The Institute of Research and Development (IR&D) of Gujarat



Forensic Science University (GFSU), has successfully made a prototype of a fuel cell based on nanotechnology and are now working towards efficient models. The officials said that the researchers, working for the defense sector, have shown interest in jointly developing variants for multiple purposes.

Professor Y K Agrawal, director of IR&D, said that traditional fuel cells generate electricity by a chemical reaction.

The anode and cathode – electrodes with positive and negative charges – exchange electrically charged particles through an electrolyte to generate electricity.

“Nanotechnology improves the functionality over the traditional method in fuel cells. So far we have worked on a specific set of nanoparticles to prepare very thin membrane layers which work as a medium and catalyst. The semi-conducting material is used for the chip-like device which has also reduces the size of the cell drastically,” he said.

How does it function? Researchers said the chip initially requires an external power source to initiate the chain reaction moving ions from one electrode to another, which gener-

ates electricity. The process will continue till the power is not switched off manually.

Researchers claimed that the technology is not only energy-efficient but also safe and eco-friendly as the cell can be used for comparatively longer periods and can be disposed of safely. Researchers are now looking at making the fuel cells affordable.

The power generated can be used for multiple purposes ranging from mobile phone charging to addressing energy needs of a weapon. The researchers want to test the existing chip and material for various purposes for development of compatible devices. Its applications have attracted a major national defense research institute, said GFSU officials.