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Come Saturday, IIT-D will show how cheap tech can simplify lives

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Right from an Android app to help partially disabled navigate a building without assistance to a device which lets the blind independently board public transport, several innovative products and solutions will be on display at IIT Delhi's open house on April 18.

Be it technology to convert carbon dioxide to fuel and beat global warming or an injectable hydrogel developed from mulberry silk cocoons designed to eliminate surgical solutions to back pain, the researchers, who have both creativity and scientific talent on their side, have put their best foot forward.

Funded by government agencies including the department of science and technology, some of these projects are on trial run or being used on pilot basis in various cities. For example, 'On Board' for the visually impaired is being used in Mumbai's BEST (Brihanmumbai Electric Supply and Transport) buses for a few weeks now, with 250 successful boardings.

High-impact and cheap, some of the gadgets comes at a fraction of the cost of existing technologies. A case-in-point is the injectable silk hydrogel developed from mulberry silk cocoon solution, which could impact millions suffering from back pain due to intervertebral disc degeneration.

"The present practice is to surgically make a metallic implant or fusion of the discs. A surgical procedure costs as much as Rs 10 lakh and is a temporary solution. The injectable hydrogel would be available at Rs 100 per disc, setting aside Rs 2,000-3,000 as doctor's fee. We are now waiting for approval of the clinical trials, but that will take 2-4 years. We're in touch with AIIMS though", Dr Sourabh Ghosh, Department of Textile Technology, said. By the time the silk hydrogel gets assimilated inside the body, the native tissue is regenerated. "This all-silk composite hydrogel system will be the first of its kind to provide both symptomatic and long term treatment for degenerative disc diseases", said Sumit Murab, a research scholar on the project.

HIGH ON IMPACT, LOW ON COST	
Combining creativity with a public spirit and scientific acumen, innovators have put forth several products on show at the IIT Delhi open house on April 18	
ON BOARD A bus identification system for visually impaired TECHNOLOGY <ul style="list-style-type: none">➤ Radio frequency-based system has two modules—for user and bus➤ User initiates query for route number by pressing a switch➤ Device speaks out numbers of all buses in vicinity➤ User presses selection switch on	 <p>module immediately after hearing desired number</p> <ul style="list-style-type: none">➤ Bus module responds with audio cues STATUS: Installed on IIT Delhi and DU buses. Final pilot run taking place in Mumbai
INTER-VERTEBRAL DISC TISSUE ENGINEERING Tissue-engineered disc with silk threads wrapped around silk hydrogels TECHNOLOGY <p>Controlled release of drug molecule from silk fibroin capsules will help disc cells produce tissue matrix that will help regenerate the tissue</p> STATUS: Awaiting approval for clinical trials	 STATUS: In dialogue with IOCL
INDIALSI Indoor Navigation Access to Location Specific Information for partially handicapped to explore building spaces TECHNOLOGY <ul style="list-style-type: none">➤ An Android app. Hardware involves a user module (Android phone) and wall module➤ A pedometer counts the steps the user takes➤ Direction handling is done via infra-red signal receipt and transmission through Bluetooth➤ Wall module periodically transmits IR signals in order to inform user module its location STATUS: The prototype has been tested successfully at IIT Delhi campus	
CO2 CONVERSION TO FUEL TECHNOLOGY <p>IIT-D has developed a reactor in the lab and converted CO2 to methane and some other value-added products. While conversion to methane and other products is done from soluble CO2 in liquid medium, IIT-D engineers have used it directly in their reactor</p> STATUS: In dialogue with IOCL	