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# This device can prevent collisions, underruns

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The device will prevent car from going under a truck through an energy absorbing pivoting mechanism.

As part of the recently held maiden six-week summer programme, Invent@IITGN at Indian Institute of Technology Gandhinagar (IITGN), two students of IIT Madras and Gandhinagar, respectively, Shubham Nandeshwar and Tanmaey Gupta, have invented a car underrun protection device. The device will prevent a car from going under a truck through an energy absorbing pivoting mechanism.

Nandeshwar said, "After one-week of training, we were asked to find a solution to day-to-day problems. Since road accidents are the most common problem, we decided to find a solution to prevent damages."

He informed, "Its a device that reduces impact of a collision between a high ground vehicle and a car. It prevents the car from sliding under a high ground vehicle. The device has a pivot mount that connects to the centre of the underside of the truck chassis and two upright support arms."

The support arms reach to the back of the truck and connect to an energy-dissipating subassembly. Rotational motion of the subassembly upon a collision is restrained by two high stiffness springs that attach to the truck chassis and the support arms. "The sub-assembly includes an energy absorption element sandwiched between both an inner and an outer bumper. The

energy absorbing sub-assembly can pivot about a central mount for assisting passenger vehicle towards side thereby reducing the severity of underrun collisions."

Gupta added, "In India, only a metal rod is used as an underrun device. We used metal foam to stop collision. Metal foam is generally used in aircraft. The device was designed in six-week time with a budget of Rs 50,000."

Nandeshwar informed that they have also applied for the US patent. Invent@IITGN is inspired by USA's Invention Factory and was funded by four IIT Bombay alumni.