

## IIT-Gn students' cutting-edge innovations

As part of their term end project, third-year mechanical engineering students build innovative machines that address some of the social problems faced by India

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Thinking out of the box has become the trademark for students of IIT Gandhinagar. They can take the most mundane equipment and give it an innovative twist, in the process increasing its utility. The third year mechanical engineering students of the institute came up with some very innovative creations as a part of their term-end project. Under the guidance of their professors Murali Damodaran and Harish Palanthandalam-Madapusi, the students finished their projects within three months. On Tuesday, their innovations were exhibited at the institute. "I am happy to see what the students have accomplished. They have come up with some very innovative ideas," said Prof. Damodaran.



### Dual-pin stapler

The dual-pin stapler is the brain child of Suyash Patkar, Saurabh Garg and Spandan Das. Suyash said, "In the market, we find separate staplers for both large pins and smaller pins. So, we thought of combining both. We modified the original stapler and replaced some of its parts with those we had made using the rapid prototype machine of our college. Now, we have a single stapler machine that dispenses both large and small pins." The team is planning to improvise on the product and commercialise it.

### Portable house for construction workers



The living conditions of the construction workers on IIT campus moved three youths to do something for them. That is how Deep Karpe, Nihar Kotak and Sumit

Deshmukh came up with the portable and durable home. Deep said, "This is a light-weight and foldable structure made of hollow steel rods. The frame can be covered with tarpaulin and can be easily dismantled. We also have made provision for ventilation and light. It can also be used in disaster relief camps and army cantonment areas".

### **Pyromate: A firecracker making machine**



What is so special about a firecracker machine, you may wonder. Pyromate, the firecracker-making machine designed by three IITians might be the answer to eradicating child labour in the cracker-making business. Avinash Tumkur, Sudhamsu Krishna and Jinesh Shah have made a unit that claims to eliminate any contact between the machine operator and gunpowder. Avinash said, "The frame of the machine is made of light steel. We have developed the machine in such a way that its operator doesn't have to touch gunpowder, which otherwise is harmful for health." Avinash further explained, "We have a plastic roller that rolls the paper and simultaneously sticks a fuse to the paper. This rolled sheet of paper is then placed on a rubber conveyor belt which passes through three stations. One that will seal the bottom with clay, second will insert gunpowder in it and third will seal the mouth of the paper roll," he added.

### **Manual sweeping machine**



Dirty railway station is everyone's nightmare. But, it is never easy to keep a place that is visited by thousands of people in a day clean. And while mechanised floor cleaners are available in the market, they are expensive as well as complicated to operate. Hence, three IITians – Pradeep Nikhade, Tushar Kodap and Poonamchand Meena came up with the idea of a manual cycle that would help clean the platforms and such places effectively at low cost and without much effort. Nikhade explained, "We equipped a tricycle with a mop attached to an iron rod, a water drip and PVC pipe. The water drips through the pipe onto the mop. When the cycle is paddled, the iron rod moves and helps in effectively mopping the floor." The trio invested Rs 6,000 to make the prototype of the sweeping machine and plan to market it. "This machine can be used in malls, airports and railway stations," he added.

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