

Students turn bus windows into emergency exits

Create A Model For Luxury Buses To Help Passengers Escape During Fire Accidents

TIMES NEWS NETWORK

On a fateful morning in October 2013, a private bus heading to Hyderabad from Bengaluru went up in flames near Mahabubnagar, killing 45 on board. Within a month, another bus inferno in Haveri claimed seven lives. Experts blamed lack of proper emergency exits for the large number of casualties. Karnataka grieved the deaths, debated the twin tragedies and moved on. But the back-to-back incidents got four mechanical engineering students from Bengaluru thinking.

The quartet mulled the idea of building an automatic emergency exit system for luxury buses to help passengers escape in case of fire or other accidents. The result: a security system which allows all windows of a luxury AC bus to function as emergency exits.

Jagadish K, Bharath R, Jeevan S and Karthik MS from Gopalan College of Engineering have developed a basic model of the system, under the guidance of their professor Shiva Shankar. "Usually, luxury AC buses have an emergency exit window on the rear: One has to break the glass with a hammer

in order to escape. Even the fire extinguishers installed in these buses can be operated only manually. They are equipped with rooftop emergency exit systems but often, panic-stricken passengers are unable to find the hammer," said Jagadish.

Also, in such a situation, passengers are at the risk of being hit by shards flying everywhere, said Bharath. "Imagine 60 people rushing towards a common exit: it can lead to a stampede. Under our model, each window glass has been modified and fitted with sensors, which will automatically get activated if a fire breaks out. The driver has a control system through which the window panels can be brought down at a click of a button," he added.

The students have approached Narendra Holkar, joint commissioner of transport (enforcement) with the model. "The transport department's technical team has instructed us to make a few changes and apply the technique to a BMTC bus," said Jeevan.

"Panel alteration and installation of the system in a luxury bus will cost an estimated Rs 5 lakh," said Dr C Prabhakar, director, Gopalan College.



TECH SOLUTION:

(Top) The charred remains of the bus which caught fire in Haveri in 2013. Seven passengers were killed in the blaze. (Left) The team of students from Gopalan College of Engineering, which has created an automatic emergency exit system for luxury buses

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HOW IT WORKS

- Rubber tubes fitted along window panes are inflated with air to seal the glass
- Constant pressure is maintained inside the tubes, which will be connected to a single input source
- Sensors (70 degrees Celsius is the ideal temperature for smoke detectors) placed at strategic locations will be activated with a sound alert system in case of fire
- A pressure relief valve connected to the actuator (a type of motor) will be activated by the sensors. Pressure will be released from the tubes, which will deflate immediately
- Within 60 seconds, all glass windows will slide down, giving passengers the chance to escape

HOW IT WILL HELP

No risk of stampede or passengers being hit/injured by broken glass pieces during emergencies

The driver can also make the windows slide down at the click of a button, through a control system installed next to him

“A lot of team effort is required to implement the project. We have to decide what materials should be used, get the design approval and estimate the cost. It is a very good project and if it can be put into practice, I will help in whatever way I can

Narendra Holkar | JOINT COMMISSIONER, TRANSPORT DEPT