




# Indian Railways KAVACH for 2,000Km Routes

- By Ankit Agrawal

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Industry › Transportation › Railways › Indigenous train collision protection system 'Kavach' to be tested with railway minister on board

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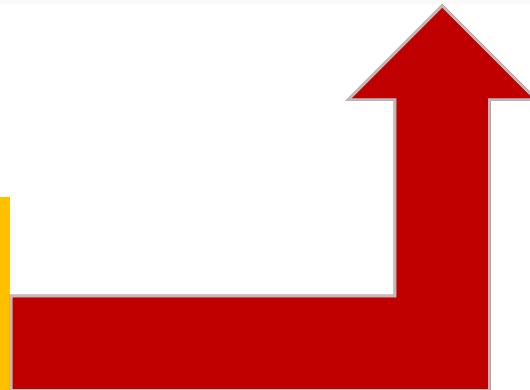
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## WHAT'S HAPPENING?

The locomotive carrying Railway Minister Ashwini Vaishnaw and another with Railway Board Chairman VK Tripathi **raced towards each other on the same track,**

But thanks to an automatic system applied brakes **200 meters apart, thus avoiding a collision.**

Kavach, this indigenously developed Automatic Train Protection System showcased on South Central Railway Friday, is **earmarked for aggressive rollout on 2,000 km in 2022-23, according the Budget proposals.**









## WHAT IS KAVACH?

It is India's very own automatic protection system in development since 2012, under the name Train Collision Avoidance System (TCAS), which got **rechristened to Kavach or “armour”**.

Simply put, it is a set of electronic devices and Radio Frequency Identification devices **installed in locomotives, in the signalling system as well the tracks,**

That **talk to each other using ultra high radio frequencies to control the brakes of trains and also alert drivers, all based on the logic programmed into them.**



One of its features is that by continuously refreshing the movement information of a train, it is able to send out triggers when a loco pilot jumps signal, called **Signal Passed at Danger (SPAD)**,

A grave offence in railway operations with respect to safety, and the key to accidents like collision.

The devices also continuously relay the signals ahead to the locomotive, making it useful for loco pilots in low visibility, especially during dense fog.

TCAS or Kavach includes the key elements from already existing, and tried and tested systems like the **European Train Protection and Warning System**, and the **indigenous Anti Collision Device**.

It will also carry features of the high-tech **European Train Control System Level-2** in future.

The current form of Kavach adheres to the highest level of safety and reliability **standard called Safety Integrity Level 4**.

## WHAT'S NEW?

In the new avatar, India wants to position Kavach as an **exportable system, a cheaper alternative to the European systems** in vogue across the world.

While now Kavach uses Ultra High Frequency, work is on to make it **compatible with 4G Long Term Evolution (LTE) technology** and make the product for global markets.

Work is on **to make the system such that it can be compatible with other already installed systems globally.**



The Research Designs and Standards Organisation (**RDSO**) in **Lucknow along with private vendors are developing the system.**

**India wants more private players** to take up the **development and subseaquent production.**

Once rolled out, it may be world's cheapest Automatic Train Protection System with the cost of rollout pegged at around **Rs 30 lakh to 50 lakh per kilometer, a fourth of the cost** of equivalent systems globally.

## ROLLOUT PLAN

So far, Kavach has been deployed on **over 1,098 km and 65 locomotives in ongoing projects** of the **South Central Railway**.

In future it **will be implemented on 3000 km** of the **Delhi-Mumbai and Delhi-Howrah corridors** where the tracks and **systems are being upgraded to host a top speed of 160 kmph**.

In addition to a trial section of 250 km, at present Kavach is under implementation on 1200 km of South Central Railway, on Bidar-Parli Vaiinath-Parbhani and Manmad-Parbhani-Nanded, Secunderabad-Gadwal-Dhone-Guntakal sections.

# INDIA

## RAILWAY MAP





Further, over 34,000 km on the High Density Network (HDN) and Highly Utilized Network (HUN) of on the **Golden Quadrilateral** have been included **in its sanctioned plans.**

Four years ago, Prime Minister Narendra Modi had turned down an ambitious plan of the Railways to roll out ETCS-Level 2 system across its network and had **asked** the transporter to look **for indigenous, cheaper solutions for such future upgrade.**

**Q. In which Governor General's reign railway lines in India were established?**

A) William Bentick

B) Cornwallis

C) Kenning

D) Dalhousie



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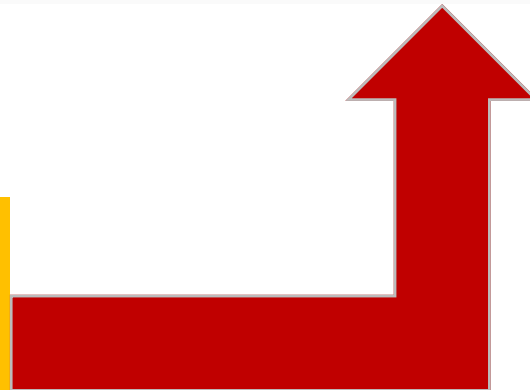
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