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Govt defers roll-out of new satellite-based toll system

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NEW DELHI: The Union government has decided to put on hold the roll-out of a satellite-based highway toll collection system that could eventually pave the way for fare booths to be removed, according to officials aware of the matter who said the plan is now to wait for India to activate its own constellation of navigation satellites for a more accurate system.

The Union ministry of road transport and highways (MoRTH) is exploring if India can adopt an automatic toll collection system that will gradually replace toll booths by calculating charges based on the actual distance travelled on toll roads. The system, according to an MoRTH workshop in June 2024, is meant to rely on an unspecified global navigation satellite system — or GNSS.

At present, the most widely used GNSS is the American global positioning system (GPS).

An official aware of the plans said the decision now is to wait till the Indian alternative to the GPS, known as the Indian Regional Navigation Satellite System (IRNSS) is fully operational. "The system that was proposed to ensure nonstop travel and replace toll plazas will be implemented once NavIC developed by Isro is fully ready," this person said.



Officials aware of the plans said the decision now is to wait till the Indian alternative of GPS is fully operational. HT PHOTO

IRNSS, also known as NavIC (Navigation with Indian Constellation), has till now sent up 11 satellites but a number of these have suffered malfunctions, making it far from fully ready till now. Relying on the Indian system will pose a crucial benefit: IRNSS is expected to be accurate down to 3m, compared to roughly 30m of the GPS system when used in India.

ISRO is yet to formulate a strategy on how to make NavIC fully operational after the NVS-02 satellite launch faced partial setbacks on February 2 (after its launch on January 29). Currently, five of the 11 satellites launched as part of this constellation are fully operational.

As part of a pilot programme, Dwarka Expressway in the national capital region was the first highway stretch in the country chosen to implement a barrier-free tolling system. In the

request for proposals (RFP) for such stretches, the Indian Highways Management Company Limited, a public sector unit under MoRTH said solution providers should be "future ready", signalling the ministry's willingness to adopt the technology. Such technology is widely used in Europe and in countries such as Singapore and Indonesia.

The GNSS-based system of collecting tolls is based on tracking the movement of vehicles using a satellite or constellation of satellites. The MoRTH discussion on June 25, 2024 indicated such a system, like in use elsewhere in the world, will include an OBU, or on-board unit, that will record the start and end coordinates of when a vehicle enters or leaves a toll road. The information from this device will then be used for fare calculation — which makes its accuracy a crucial factor.

"A system tracking highway usage needs to balance data protection with accuracy in toll calculations. Ensuring anonymisation while maintaining reliability in toll charges will be critical," Sreeram Amanthasaynam, partner at Deloitte India, noted while acknowledging the advantages of GNSS-based toll collection. He concurred that the wide error rate of GPS might be a hindrance to smooth rollout as it does not accurately locate if a vehicle is on a highway or an adjacent service road.