

# Automated & Intelligent Machine-aided Construction (AIMC) System

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## What is AIMC?

- India's National Highway network spans **1.46 lakh km**, with **3,000 km** of high-speed corridors.
- By 2047, the Ministry aims to expand the network by an additional **45,000 km**, ensuring a robust and efficient infrastructure system.

## What is AIMC?

- **AIMC (Automated & Intelligent Machine-aided Construction)** is an advanced system being implemented by the **Ministry of Road Transport & Highways (MoRTH)** for efficient **National Highway construction**.
- It integrates **intelligent machines** and **real-time data sharing** to expedite construction and enhance road quality.

## Objective of AIMC

- To **increase productivity**, ensure **durable and long-lasting roads**, and reduce dependency on traditional surveys post-construction.
- To tackle challenges such as **outdated technologies**, uncoordinated data, and **poor contractor performance** that lead to project delays.

## Types of AIMC Machines

- **GPS-Aided Motor Grader (3D Machine Control Technology)**: It uses **Global Navigation Satellite System (GNSS)** data and angle sensors to position the grader's blade with precision.
    - Processes data in real-time to ensure alignment with digital design plans.
  - **Intelligent Compaction Roller (IC Roller)**: It assists in minimizing post-construction consolidation.
    - Reduces air pockets or water voids in materials, preventing damage to roads.
  - **Single Drum/Tandem Vibratory Roller**: This ensures proper soil and base layer compaction for road stability.
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### Q1: What is FASTag, and how does it work?

FASTag is an electronic toll collection system in India that uses Radio Frequency Identification (RFID) technology to automatically deduct toll charges when vehicles pass through toll plazas. It is linked to a prepaid account, ensuring seamless travel without stopping for cash payments.

**Source:** [Why Roads Ministry will deploy 'intelligent machines' for National Highways construction | Explained News – The Indian Express](#)

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