

TiHAN Testbed for Autonomous Navigation

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In news— Recently, India's **first-of-its-kind, state-of-the-art "Autonomous Navigation "** facility to develop unmanned ground and aerial vehicles was launched in the IIT Hyderabad campus.

What is TiHAN?

- **TiHAN (Technology Innovation Hub on Autonomous Navigation)** is a multidisciplinary initiative that will make India a global player in the futuristic and next generation **'smart mobility' technology**.
- It is developed at a budget of Rs. 130 crores by the Union Ministry of Science & Technology.
- **The vision of TiHAN-IITH is to become a global player for next generation smart mobility technologies** and the Ministry of Science & Technology has come forward to support this initiative, which will be a trendsetter for others as well.
- It will be the source of futuristic technology generation for autonomous vehicles.
- **Limited testbeds or proving grounds exist worldwide to investigate the operation of unmanned and connected vehicles** in a controlled environment by simulating various scenarios that may occur in real-life traffic operations, ranging from frequently occurring to extreme cases.
- **A few examples include Millbrook Proving Grounds in the UK, M-City in the USA, CETRAN in Singapore, K-City in South Korea, JARI in Japan, etc.**
- **In India, there is presently no such testbed facility for assessing autonomous vehicle performance, and hence there is need for this TiHAN Testbed.**
- **TiHAN is developing and deploying a real-time Cyber Physical Systems (CPS) system utilising autonomous UAVs**

and ground/surface vehicles for many application sectors of the national importance of this decade.

- This testbed includes simulation platforms that **allow for non-destructive testing of algorithms and prototypes.**
- Also, several real-world scenarios can be emulated on the testbed.
- **It also provides dummy signboards, pedestrians, overpasses,** and bikers to test all real-world conditions.
- The **testing facility also includes an airstrip, soft landing area, hangar for keeping drones, a Ground control station (GCS),** Telemetry Station for Performance Evaluation.
- Under this national mission, IIT Hyderabad has been awarded the Technology Innovation Hub in the technological vertical of 'Autonomous Navigation and Data Acquisition Systems (UAVs, ROVs. etc.)'.
- **TiHAN is recognised as a Scientific and Industrial Research Organization (SIRO) by the Department of Scientific and Industrial Research.**
- TiHAN, in collaboration with IIT Hyderabad, has started a two-year **MTech programme on Smart Mobility, a first-of-its-kind programme in the country.**