

Revolutionizing Campus Transportation: Deployment of LiDAR Enabled 3D Point Cloud Map - Based Autonomous Campus Shuttles at IIT Hyderabad

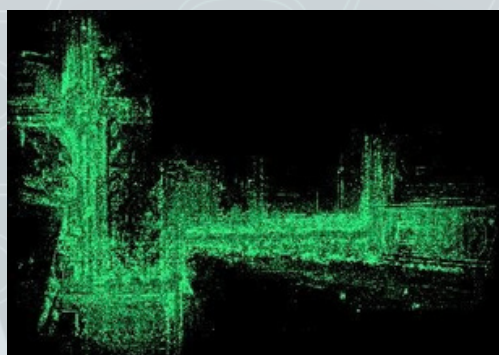
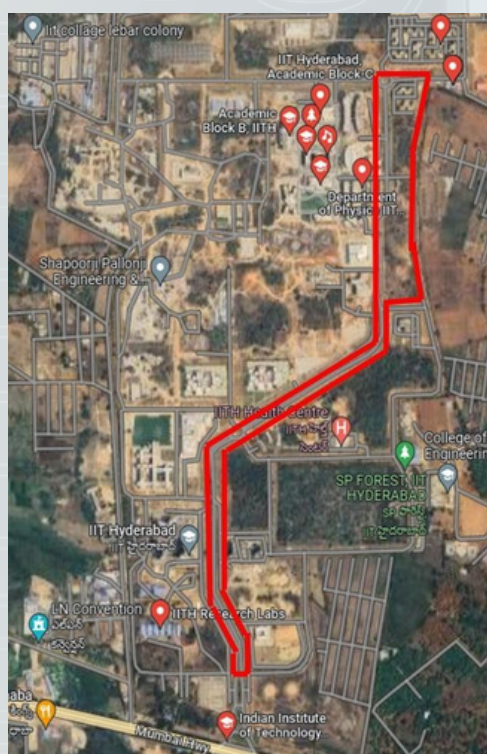
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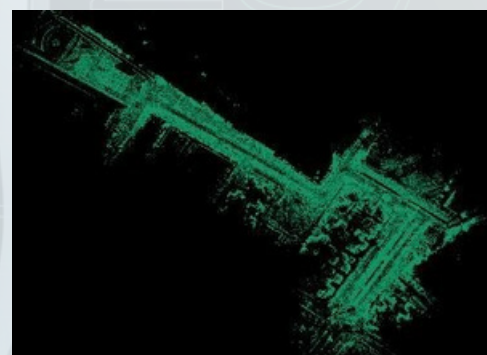
Autonomous Campus Shuttle (ACS) is a self-driving electric vehicle designed for autonomous transportation within controlled environments like university campuses, research facilities and smart cities.

NMICPS TiHAN foundation at IIT Hyderabad has been at the forefront of autonomous mobility research and innovation.

TIHAN has developed ACS by employing in-house developed drive-by-wire. Over the past two years, TiHAN has successfully deployed ACS within the IIT Hyderabad campus at different routes (as portrayed in Fig. 1) marking a significant step toward smart and sustainable transportation. ACS is equipped with LiDAR, Cameras, GNSS and AI-based perception systems enabling it to navigate predefined routes without human intervention.



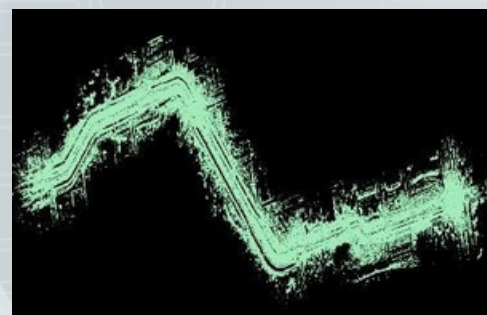
(a)



(b)



(c)



(d)

Fig. 1. 3D PointCloud map of different routes within the IIT Hyderabad campus (a) TiHAN testbed to hostel circle, (b) hostel circle to IITH main gate, (c) IITH main gate to hostel circle and (d) hostel circle to TiHAN testbed.

TiHAN has successfully deployed its in-house developed ACS on various routes (as shown in Fig. 1) at the IIT Hyderabad campus operating seamlessly for the past two years (as illustrated in Fig. 2).

The shuttle has covering 7 km per trip with six daily trips around the IITH campus and served over 1,500 passengers.

Passenger feedback indicated strong confidence in the shuttle's safety with 97.3% of respondents feeling secure during their rides.

Do you feel safe while on the Autonomous campus shuttle?

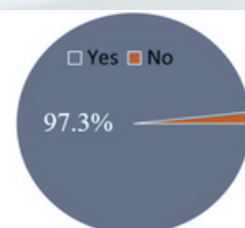




Fig. 2. Autonomous campus shuttle deployed in IIT Hyderabad campus

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