

NITK launches 'Nomad'

MANGALURU, DHNS: The National Institute of Technology Karnataka (NITK), Surathkal, has launched 'Nomad' (Node for Open-source Mobile AI Deployment), a fully operational AI research platform designed for deployment in field conditions.

Nomad is built to function in remote, resource-constrained and disaster-affected environments, where conventional cloud infrastructure is unreliable or unavailable.

As AI systems increasingly depend on centralised data centres, real-world environments -- disaster zones, coastal regions and field research sites -- face persistent challenges in connectivity, power, and infrastructure. Nomad addresses this gap by enabling reliable, on-site AI computing at the edge, supporting real-time data processing and decision-making in conditions where infrastructure cannot be guaranteed.

Housed within a repurposed shipping container at NITK's beachfront SEARCH research station, Nomad operates as a self-sufficient system. Power is ensured through four independent sources, grid supply, rooftop solar, a towable solar-battery unit, and a diesel generator with UPS backup. Connectivity is secured through triple redundancy, integrating institutional fibre, broadband, and a wireless bridge.

The compute stack combines open-source clusters and edge devices with high-capacity storage, while institutional HPC resources are being integrated into the facility. The workspace supports both advanced research and teaching, with immersive learning capabilities. Nomad is co-located within the NITK SEARCH complex along the Arabian Sea coast, enabling continuous, on-site field work with living quarters. Conceived by Dr Pruthviraj U, Associate Professor in the Department of Water Resources and Ocean Engineering, Nomad's current focus includes edge AI architecture, AI-driven water systems, and coastal disaster intelligence, particularly enabling local data processing during events, such as landslides and flooding, where timely insights are critical, but connectivity is unreliable.

The initiative is supported and mentored by NITK alumnus Padmanand Warrior, a technology leader with a distinguished track record in large-scale systems and innovation.