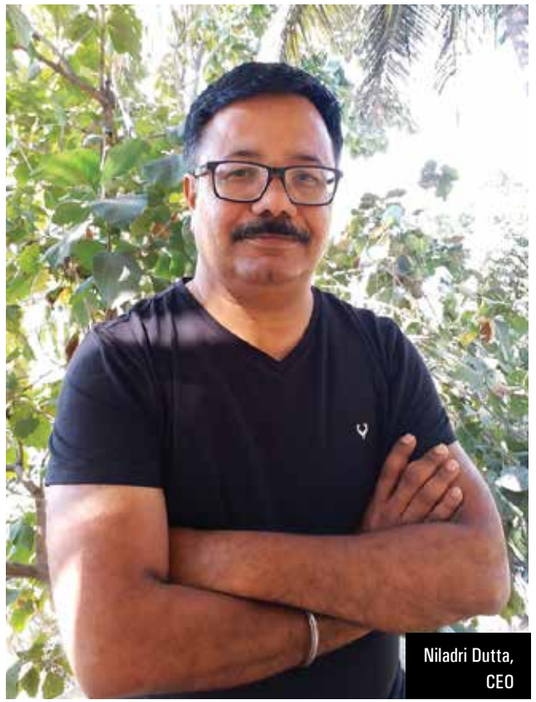
# TARDID TECHNOLOGIES

## A COGNITIVE APPROACH TO ENSURE BETTER SYSTEM UPTIME

**By Teja Boncheruvu**

The advent of cognitive technologies has caused a paradigm shift in the industrial thought process towards scientific decision making from conventional and systematic methods, enabling the understanding of governing and influencing factors of industrial assets. However, in spite of the immense capabilities of these technologies to improve business efficiency, unexpected and prolonged system downtimes still remain as impediments for businesses in their road to success. In addition to the unplanned downtimes that severely impact business continuity, proactive monitoring of machine performance and health conditions with minute detailing is another challenge being faced by businesses across different industry verticals.



Niladri Dutta, CEO

Incepted in 2016, TARDID Technologies, a Bangalore-based company addresses the above-mentioned operational issues of businesses by harnessing the untapped potential of augmented intelligence and machine learning. The company offers industry-specific turnkey solutions for Shipping, Aviation, Railways, Wind Farms, Oil & Gas, Energy, Defence, OEMs and Government sectors, helping businesses monitor performance health and performance of assets (machine and structure) to the lowest level possible and reduce unplanned system downtime.

### Minimizing Unplanned Downtime

When it comes to minimising system downtime, businesses can no longer rely on conventional preventive maintenance techniques, though it is considered to be cost-effective, because repairing or replacing components post-failure builds up pressure on production and revenue simultaneously. Also, enterprises particularly, heavy manufacturing industries can't afford machinery failures in today's highly competitive business environment, as it might have severe implications on the overall business operations. Helping businesses overcome these challenges, TARDID Technologies developed a proprietary platform named Brainbox that allows enterprises to better understand the asset's health conditions and reduce unplanned downtime. The augmented intelligence powered platform by proactively detecting, interpreting and providing human like logical reasoning helps enterprises take better business decisions through scientific decision making for improved ROI. "Modern-day businesses have diverse range of assets that are a combination of structures and machines. Our Brainbox is essentially designed to measure and monitor these things effectively. It also helps to maintain uptime, avoid unfortunate situations and monetize through performance optimization," informs Niladri Dutta, CEO, TARDID Technologies.

### Minute-level Detailing in Asset Performance Monitoring

Brainbox platform which is developed using quantum mechanical approach uses 'Quantum Stochastic Diffusion Technique' and combines the capabilities of deep learning and cognitive computing to predict structural and machine health conditions accurately. "Ships usually go through enormous amount of cyclic stress. One of the most common phenomena for ships is cracks and fissures happening at different time intervals. Brainbox can clearly assess the stress levels of ships and recommends a feasible solution for the same from the molecular level. The platform measures the governing physics, influencing physics, operational conditions, environmental conditions etc., to suggest better solution. It has capabilities to go to the depth of detecting energy depletion in molecular bonding, investigating on why it's happening, and which factors are responsible for the supply of higher energy resulting in fractures, etc.," says Niladri, explaining about the lowest possible level detailing capabilities of Brainbox platform. The same platform can be used to understand lube oil condition by measuring viscosity, wear particles and ionization to arrive at a critical decision on the oil flash point, in real-time. The platform also helps to maintain environmental balance by monitoring the health conditions of pipelines in real-time in the petroleum industry to avoid leakage that is threat to both environment and people.

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### HELPED A PETROLEUM GIANT MONITOR LPG CYLINDER HEALTH USING AI

TODAY, LPG CYLINDERS ARE ALMOST AN INSEPARABLE PART OF EVERY HOUSEHOLD, NOT TO MENTION THE COMMERCIAL USAGE. HENCE, IT IS CRUCIAL FOR PETROLEUM COMPANIES TO ENSURE MAXIMUM SAFETY WHILE DELIVERING THE CYLINDERS BY THOROUGHLY CHECKING THE HEALTH CONDITIONS OF CYLINDERS SO AS TO PREVENT UNEXPECTED LEAKAGE. TARDID TECHNOLOGIES HAS HELPED ONE OF THE INDIAN PETROLEUM GIANTS UNDERSTAND THE HEALTH CONDITION OF THEIR LPG CYLINDERS AND INSTANTLY DECIDE THEIR LIFE EXPECTANCY AND POTENTIAL THREATS USING ARTIFICIAL INTELLIGENCE. "PREVIOUSLY, THE COMPANY WAS USING THEORETICAL METHODS TO MONITOR CYLINDERS' HEALTH CONDITIONS, WHICH RESULTED IN INACCURATE RESULTS. WE DECIDED TO LEVERAGE AI TO MEASURE THE HEALTH OF LPG CYLINDERS. WE HAVE IMPLEMENTED DECISION ALGORITHM THAT CONTINUOUSLY VALIDATES THE GOVERNING PHYSICS AND THE INFLUENCING MATTERS. TODAY, THEY ARE ABLE TO IDENTIFY SUB-SURFACE CRACKS IN THE CYLINDERS AND EFFECTIVELY ASSESS OTHER RISK FACTORS AS WELL. THIS HELPS THEM TO FIND OUT AND NOT TO USE CYLINDERS WITH POOR HEALTH CONDITIONS BEFORE THE ACTUAL DAMAGE HAPPENS," ELABORATES NILADRI ABOUT A CASE WHEREIN THEY ASSISTED ONE OF THE PETROLEUM COMPANIES IN INDIA IN ENSURING SAFETY OF THE CYLINDERS.

Till now, the company's focus has primarily been on the Indian market handling the complex requirements of clients across Petroleum, Shipping, Defense and Aerospace industries. Moving ahead, the company is planning to expand its footprint across the globe from the upcoming financial year, adding brand new features to the Brainbox platform to make it more adaptive to diverse requirements of different industries. CR