# Comprehensive Diagnostic Products for Monitoring Railway Assets





— Proudly Support — #atmanirbharbharat





# CONTACT

www.apnatech.com info@apnatech.com

# ADDRESS

#### New Delhi

414, 4th Floor, Ansal Chamber-II, 6, Bhikaji Cama Place, New Delhi-110 066

#### Hosur

NO 42/A4, GROUND FLOOR, PHASE-I, SIPCOT INDUSTRIAL COMPLEX, HOSUR 635126

#### Hyderabad

The Safe Legend, 6-3-1239/B/111,4th Floor, Renuka Enclave, Raj Bhavan Road, Somajiguda,Hyderabad 500 082

#### Medchal

Door No. 3-18/9, Sy. No. 179/C & 180/B, Yellampet Village, Medchal, Medchal Malkajgiri, Telangana, 501401





#### WHEEL IMPACT LOAD DETECTOR (WILD)

- Detects high impact load caused by defects/irregularities caused by wheels/bogies
- ApnaTech installed the 1st WILD system in India over a decade ago
- In benchmarking exercises, it has proved to be superior to Imported systems in terms of accurate fault detection
- More than 70% WILD system in India are successfully Installed and maintained by ApnaTech
- 100% Wheel Coverage
  - Made in India for Indian conditions:
    - Lower power and power backup requirement
    - Rugged system runs without air conditioning
    - 16 hours backup with solar and battery
    - Fastest installation times from order to prove out



## HOT BOX DETECTOR (HBD)

- ApnaTech installed india's first HBD at Chunar in 2017
- Additional Systems installed at Kota and Dadri
- More than 75 hot boxes were detected by our system since installation
- Installed 10 Beam Hot Axle Detection System in NCRTC fully integrated with Train Management System
- Highly modular system to detect Axle Box and/or Wheel and/or Disc Temperature
- Axle scanning speed upto 250 kmph









# Wheel Profile Measurement System (WPMS)

- Measure wheel profiles of moving trains
- Camera and Laser Combination for Accurate Measurement of:
  - Wheel profile
  - Wheel diameter
  - Wheel width
  - Back-to-back gauge
- Scanning speed upto 120 kms per hour
- Accurate, Rugged and Reliable
- Automation of wheel measurements and inspections
- Measurements at line-speeds
  Works in even the toughest environments
- Digital, accurate record of wheel profile and diameter with automated warnings of issues

#### Hanging Parts Detector System (HPDS)

- ApnaTech installed India's 1st Hanging Parts Detector System at Chunar
- HPDS is a wayside system that detects any hanging part in a running train
- Consists of high speed camera with appropriate lighting to capture the images
- Automatically detect train and initiate the video recording.
- Captured images are then analyzed by Al/ML algorithms to detect hanging parts
- Generates XML reports and transfers to the central server for web-based publishing including SMS alerts
- The system can be easily integrated with other wayside systems







info@apnatech.com



A PATIL GROUP COMPANY

## **Rail Stress Measurement System**

#### • Periodic Monitoring

- Thermal Stress
- Rail Temperature
- Train Movement Monitoring
  - Vertical load of every wheel
  - Speed of every axle

apna technolog

- Derived Parameter
  - Tonnage for every train
  - Unevenly loaded rolling stock
  - Overall tonnage carried by Rail

Stress Free Temperature Monitor

PANDROL



- ApnaTech installed its 1st SFT system for Bane NOR (Norway)
- A measure of thermal stress in the Railway Track
- Measures Rail Temperature through an embedded sensor on the Railway Track
- Real-time monitoring with alerts to avoid Rail break and Buckling.







# Acoustic Bearing Detector (ABD)

- TADS<sup>®</sup> , the ABD technology invented by TTCI, US
  - Monitors Roller Bearings Identifies internal defects prior to overheating, preventing train stops and ultimate bearing failure.
- Series of trackside microphones to capture, transmit and analyze acoustic data for defective bearings
- TADS<sup>®</sup> currently runs on 150 locations spanning global railway
- Exclusive Make in India agreement signed with ApnaTech for Railway Requirements in India



#### **Overhead Equipment Monitoring**

The Overhead Catenary Monitoring system installed on a Railway Overhead Catenary Maintenance Vehicle.



- An array of digital line scan cameras monitors the overhead catenary conditions and raises alerts to the control room in real time
- Height and Stagger of contact wire relative to the track
- Wear of the contact wire
- Changes in contact wire height

- Foreign objects and loose connections in OHE catenary system
- Dynamic Forces and accelerations between the OHE and Panthograph
- Current Collection / Arcing
- Mast Detection

#### **Roof & Pantograph Inspection System**

Roof & Pantograph inspection system capable of

- View, analyze and measure components
- Estimating wear rate and there by predict possible failure rate
- Overlay previous measurement/boundary limits on the measurements made
- Overlay previous measurements for the same component
- Identifying the deviation of the current roof components as compared to roof component original images
- Generates the detailed report that includes car numbers and the variation in the components with images highlighted with color coding
- Training of new pantograph & roof top components



# RailMan (Railway Asset Management)

RailMan uses Machine Learning (ML) and Artificial Intelligence (AI) to analyze data generated by sensors and tracking systems. This generates actionable alerts, sent to the right stakeholders. RailMan enables decision making for condition-based maintenance and enhancing safety and efficient of railway systems.



- RailMan (www.railman.in) is ApnaTech's web based platform
- Collects data from all wayside and on-board diagnostic systems
- It is in use over 50 locations like Depots, C&W Control Rooms, TXR points and zonal and divisional headquarters
- RailMan bas been accepted and used by Indian Railways as web-based ITplatform for diagnostic system
- Simplifies the maintenance and operation process through alarm logs shared by operation center and maintenance depot
- Various Dashboards & Views accessible by Customer

37M

TSS

PANDROL

**Technology Partnerships** 



LABVIEW 0101

1001

MACHINE TO MACHINE

EMBEDDED SYSTEM

++

SIGNAL PROCESSING

**BIG DATA** 

liot

ARTIFICIAI Intelligenci

SEN

JAVI

IMAGE ANAL

MACHINE VISION





Weekly SFT Parameter Trend for a Single Installation

alMan

Login

technologies & solutions



