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Stay ahead in Monitoring

NV SUBPOWER PRIVATE LIMITED

Manufacturer, Testing &
Measuring Service Provider in Electrical,
Power and O&G Industry

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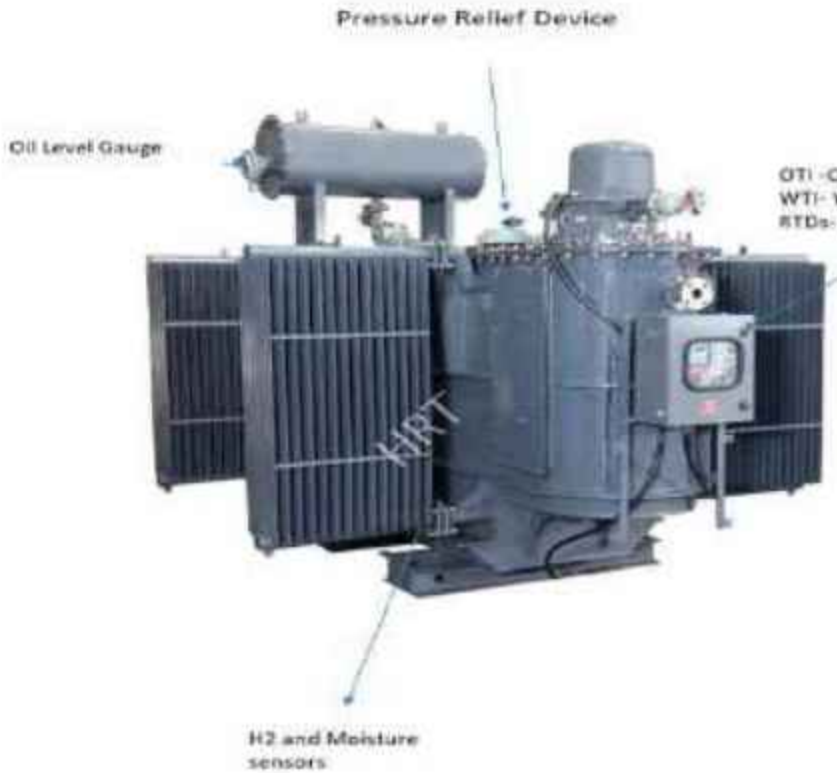
Typical Mid and Low voltage Substation - Present Situation



Typical Basic Monitoring Parts Mid and Low voltage transformers Present Situation

Basic Monitoring after Wireless Communication

Moitoring Unit

Data Concentrator
along with Laptop PC

User configurable outputs like,
Modbus through RS485 , IEC61850
– SCADA communication etc

Typical Mid and Low Voltage Substation - Future Situation - Option 1

Typical Mid and Low voltage Substation - Future Situation
Option 1:User configurable outputs like, Modbus through RS485 , IEC61850 – SCADA communication etc

Moitoring Unit

Data Concentrator
along with Laptop PC

User configurable outputs like,
Modbus through RS485 , IEC61850
– SCADA communication etc

Typical Mid and Low Voltage Substation - Future Situation - Option 2

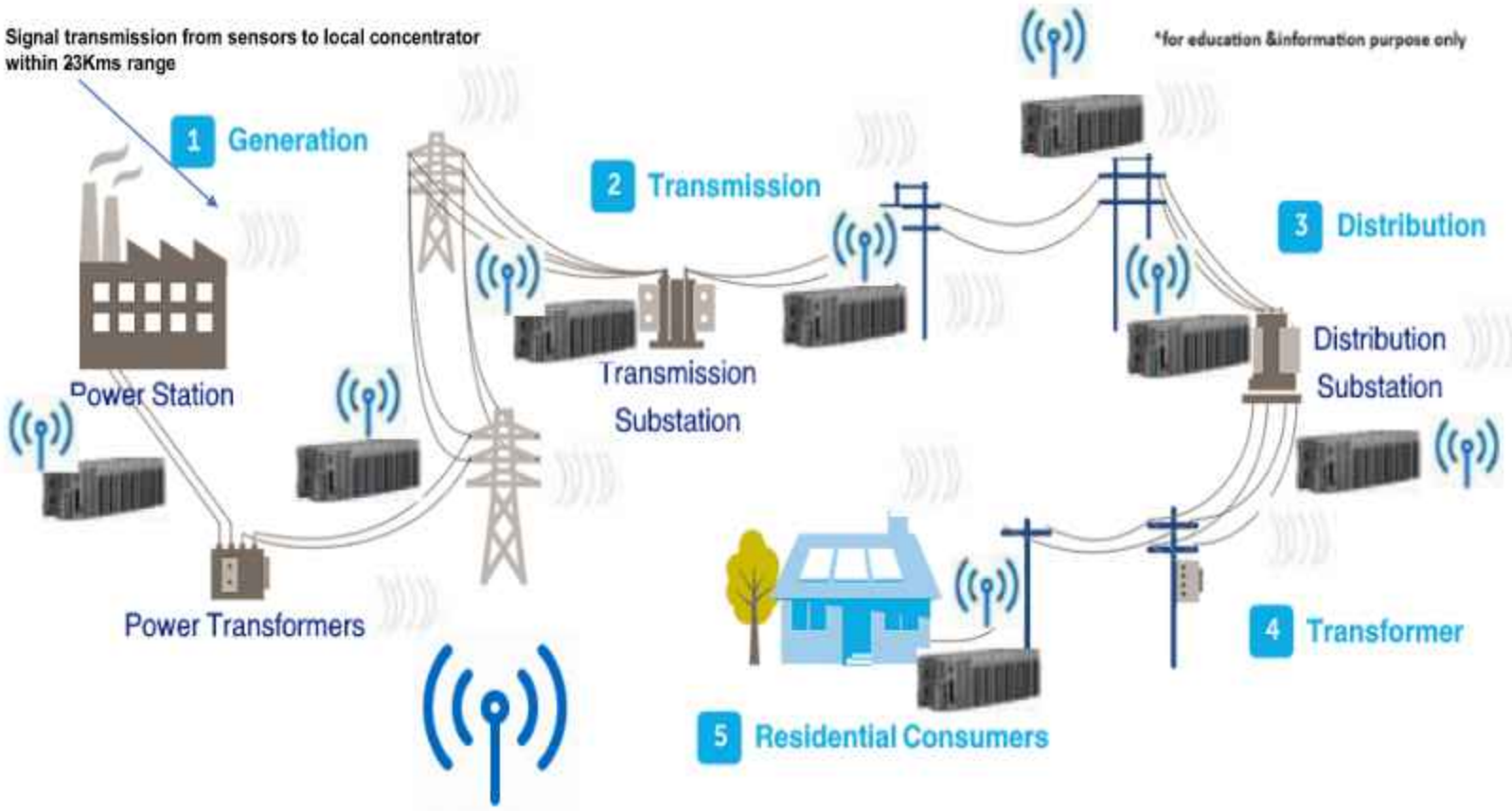
Details of real time data analytics and health Index per given real time data point within 2-3 KM radius coming from wireless transformer OTI, WTI, DGA, H2 sensors, Moisture and all other parameters of electrical assets in substation in charge mobile phone, app or web browser-based application available at their vehicle to identify potential real time issues

Moitoring Unit

Data Concentrator
along with Laptop PC

User configurable outputs like,
Modbus through RS485 , IEC61850
– SCADA communication etc

Classification of Electric Power Distribution Network



3G,4G.5G or related Communication ANN algorithm based specific app, Web Browser for providing real time health and criticality index per data given by Online electrical assert through wireless communication

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Monitoring Unit

Data Concentrator
along with Laptop PC

Data transfer through web browser / Wireless communication through LoRaWAN,RF, 3G,4G,5G or equitant

Specific app , Web Browser with real time health and criticality index per data given by electrical assert through wireless communicatior

As per spec

ANN algorithm based specific ap Web Browser for providing real tim health and criticality index pe data given by electrical assert through wireless communication

As per spec

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Online Wireless Condition Monitoring for Electrical Transmission and distribution Substation includes following parameters should be measured :

Application will be urban , sub urban , and very useful for remote and rural areas where its very difficult to reach the effective electricity site and will save patrolling cost,

Transformers:

Following are the basic sensors of EHV, MV and low voltage transformer , reactor or equivalent should be installed during manufacturing or retrofit stage

1. **OTI (Oil Temperature Indicator) Wireless Data Sensor:**
   - Measurement range: -40°C to +150°C
   - Wireless Data communication method: LoRaWAN Or Related , Ingenu,802.15.4 etc
   - Battery life: 3 to 6 months
   - Data transmission interval: best option from 1, 2, 5 &10 minutes
   - Accuracy: ±2%
   - Operating temperature: -20 to +70 Deg C
   - Suitable for WTI well through Wireless Data PT100 sensors
   - Usage: outdoor installation
   - IP rating : IP65
   - Sensor material: Compatible with transformer oil and can withstand the temperature range
2. **WTI (Winding Temperature Indicator) Wireless Data Sensor:**
   - Measurement range: -50°C to +200°C
   - Wireless Data communication method: LoRaWAN Or Related , Ingenu,802.15.4 etc
   - Battery life: 3 to 6 months

- Data transmission interval: best option from 1, 2, 5 &10 minutes
- Accuracy: ±2%
- Suitable for WTI well through Wireless Data PT100 sensors
- Operating temperature: -20 to +70 Deg C
- Usage: outdoor installation
- IP rating : IP65

3. H2 (Hydrogen) Wireless Data Sensor:

- Measurement range: 0 - 1000 ppm
- Wireless Data communication method: LoRaWAN Or Related , Ingenu,802.15.4 etc
- Battery life: 3 to 6 months
- Data transmission interval: best option from 1, 2, 5 &10 minutes
- Suitable for WTI well through Wireless Data PT100 sensors
- Operating temperature: -20 to +70 Deg C
- Usage: outdoor installation
- IP rating : IP65
- Accuracy: ±2%

4. CT (Current Transformer):

- Type: clamp on
- Rated current: 15VAC
- Wireless Data communication method: LoRaWAN Or Related , Ingenu,802.15.4 etc
- Battery life: 3 to 6 months
- Data transmission interval: best option from 1, 2, 5 &10 minutes
- Accuracy: ±2%
- Operating temperature: -20 to +70 Deg C
- Usage: outdoor installation
- IP rating : IP65

Data Concentrator

All of the above parameters can be customised and taken into data concentrator and analytic software for providing full online condition monitoring of electrical system within 3 Kms range

Technical parameters should be :

- Wireless Data communication method: LoRaWAN Or Related , Ingenu,802.15.4 etc (compatible with the chosen Wireless Data communication methods of the sensors)
- Communication range: Up to 3 km
- Data storage capacity: Sufficient storage capacity for 2 years of data with a capture rate of Every 1,2,3 &10 min selectable
- Data processing capability: Adequate processing power for analysing the collected sensor data
- Operating temperature: -20 to +70 Deg C
- Usage: outdoor installation
- IP rating : IP65

Options for powering up:

Inbuilt Solar Panel Option:

- Solar panel will power on through transformer clamp on CT 1-5A
- Battery backup: for 3- 6 months
- Charging mechanism: through transformer CT, by taking clamp on CT methods

Clamp On CT 1-5 A VAC input to Wireless output to Data concentrator

Patent Applied

Patent Number : 202323077172

Product Portfolio

Own Developed Product :

Online AI based Wireless Condition Monitoring

- AI based monitoring for Transmission system
  (final Development stage - Patent applied)
- AI based condition monitoring for distribution system
  (Final Development stage : Patent Applied) - SaaS

I&C Services Facility :

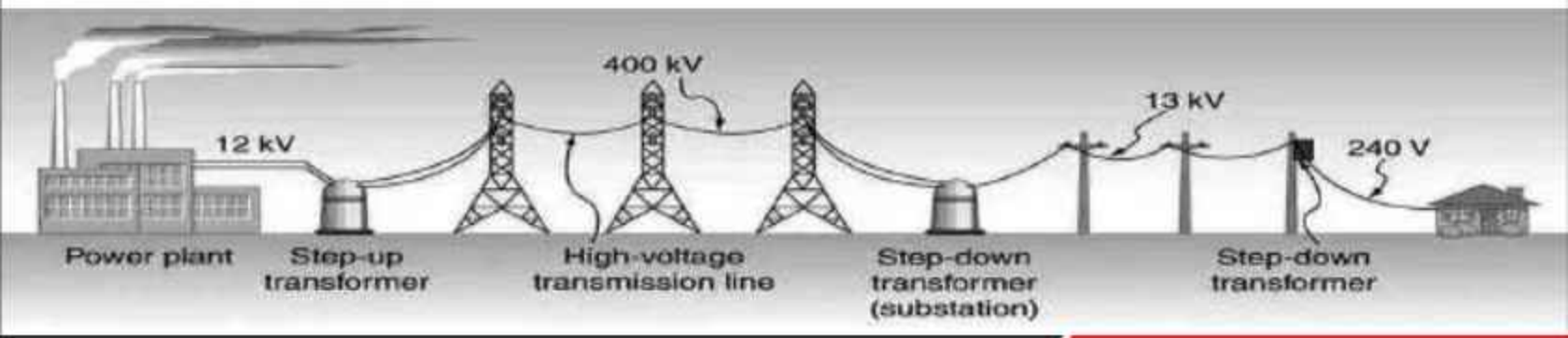
Saas

Site Testing & Measuring for Electrical Transmission System

Site Testing & Measuring for Electrical Distribution System

Exclusive / Partners Product & Services

1. Online Motor Current Signature Analyser - Volta Insite
2. Online Electrical Signature Analysis - Volta Insite
3. Power Quality Monitoring - Volta Insite
4. SaaS for above application - Volta Insite
5. Online Dissolved Gas Analyser
6. Online Transformer Monitoring



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