# FLOWLINC V1

BRINGING INDUSTRY & INTELLIGENCE TOGETHER

MAKE IN INDIA

AATMA-NIRBHAR BHARAT

#startupindia

Digital India
Power To Empower

USHVA

**01** COMPANY INTRODUCTION

**02** TEAM

**03** FLOWLINC – V1

**04** BENEFITS AND OFFERING

**05** CUSTOMERS AND PARTNERS

# USHVA

**BRINGING INDUSTRY & INTELLIGENCE TOGETHER**

**Name**: Ushva Clean Technology Pvt Ltd
**Focus**: Energy and IoT Technology Development
**Launched**: 2015
**Founded by**: IIT Bombay Alumni Members

## INNOVATION AWARDS

- Top 34 global innovations (Japanese Government) (2019)
- Top 15 Global Innovations – GMIS2019, Russia (United Nations, Russian Government & UAE Government) (2019)

## START-UP RECOGNITION

- Globally among top 10 hardware start-ups (Hong Kong Trade Show by start-up Launchpad) (2019)
- Top 20 Energy startups (by Startup Istanbul) (2017)

## COMPETITIVE WINS

- 33 under 33 International Clean Energy Challenge winners – Founders (Ashutosh Kumar & Visat Patel) Austria(2019)
- Top 8 for GetInTheRing (Berlin, Germany)  - 2019.
- Top 9 teams across complete Asia Pacific in the Power & Energy Sector (by Schneider Electric) Singapore(2018)

## GOVERNMENT SUPPORT

- Offered Virtual Acceleration by Ministry of Electronics & Information Technology (MeitY), India under its Electropreneur Park initiative.(2018)

# TEAM

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## FOUNDING MEMBERS

**ASHUTOSH KUMAR**
Founder & CEO
- IIT Bombay (B.Tech)
- Ex-Co-Founder @ Saathi Inc. (winner @ 2014 HBS Business Competition)
- Ex-Core Team Member @ IIT Bombay Racing

**VISAT PATEL**
Founder & CTO
- IIT Bombay (B.Tech + M.Tech)
- 6 years experience in the family business
- Ex-Core Team Member @ IIT Bombay Racing

## KEY MEMBERS

**SAMIR PANDYA**
**Strategy & Business**
- 30+ years experience across MNCs in Asia-Pacific | Power, Oil & Gas and Technology
- Ex-Director at Schneider Electric / Invensys Board

**RISHABH VERMA**
**Business & Innovation**
- Serial Entrepreneur with 8 years experience
- Harvard Entrepreneurship Alumni
- Found 6 companies and consulted 200+ startups

**JIGAR VYAS**
**Finance**
- 11 years of experience across FMCG, Media and Startups
- ITC Ltd, Nielsen, Rivigo, BARC
- Chartered Accountant

**SHOUNAK DHAR**
**Technical**
- SoC Design Engineer @ INTEL
- PhD in Electrical and Computer Engineering @ University of Texas
- IIT Bombay | Electrical (B.Tech)

**ABHISHEK SHARMA**
**Technical**
- SoC Design Engineer @ INTEL
- M.S. in Electrical & Computer Engineering @ UIUC
- IIT Bombay | Electrical (B.Tech)

## ADVISORS

**BALAWANT JOSHI**
**Business**
- Managing Director at IDAM Infrastructure Advisory Pvt Ltd
- Founder & Secretary – Indian Renewable Energy Federation
- Work Experience – 28 Years

**SUBODH PATEL**
**Manufacturing**
- Director @ Metaforge Industries
- Work Experience – 30 Years
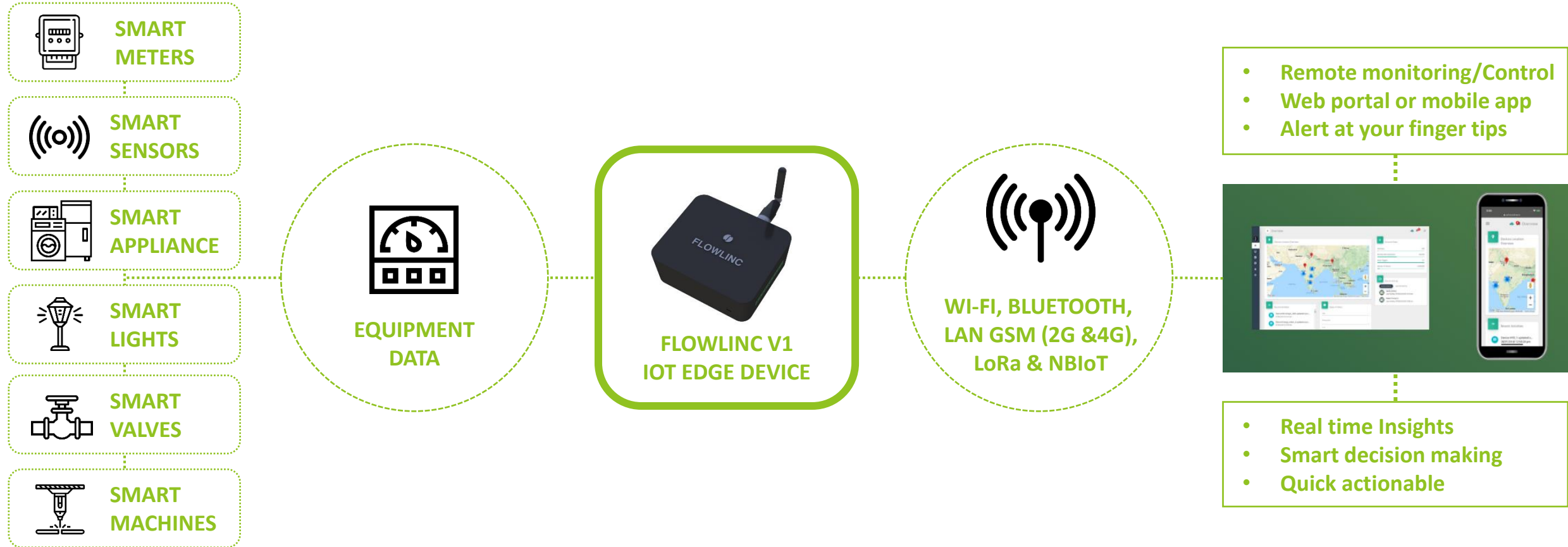
**DR. VIVEK AGRAWAL**
**Technical**
- Professor (Institute Chair Person) | Dept. of Electrical Engineering | IIT Bombay
- Work Experience – 30 Years

**DR. DINESH KABRA**
**Technical**
- Associate Professor | Dept. of Physics | IIT Bombay
- Work Experience – 10 Years

# FLOWLINC V1
## PRODUCT OVERVIEW

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A LOT OF RESOURCES ARE BEING WASTED DUE TO ABSENCE OR DELAYED INFORMATION AVAILABLE FROM EACH BUSINESS ASSET/INVENTORY. THIS SLOWS DOWN THE GROWTH & LEADS TO HUGE LOSSES/CURB IN EXPANSION. OUR PRODUCTS COMBINED WITH THE SOLUTION HELP IN PROVIDING REAL-TIME ACCESS & DATA SETS TO ENHANCE PROFITABILITY

SMART METERS

SMART SENSORS

SMART APPLIANCE

SMART LIGHTS

SMART VALVES

SMART MACHINES

EQUIPMENT DATA

FLOWLINC V1 IOT EDGE DEVICE

WI-FI, BLUETOOTH, LAN GSM (2G &4G), LoRa & NBIoT

- Remote monitoring/Control
- Web portal or mobile app
- Alert at your finger tips

- Real time Insights
- Smart decision making
- Quick actionable

TRANSFORM YOUR EXISTING MACHINERY/INFRASTRUCTURE WITH FLOWLINC AND TRANSIT INTO SMARTER SOLUTION TO AVAIL TO REAL TIME INSIGHTS RESULTING IN INCREASED PROFITABILITY

# FLOWLINC V1
## PRODUCT OVERVIEW

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FLOWLINC V1.0 IS A NEXT GENERATION INDUSTRY 4.0 IOT EDGE DEVICE / NODE USED FOR REMOTE DATA CONTROL EQUIPPED WITH DEVICE MANAGEMENT AND ANALYTICS.

### REAL-TIME MONITORING

- Real-time monitoring and control of application parameters from anywhere through our iOS, Android, and web apps.

### CUSTOMISABLE

Easily integrate with third party applications/servers as per user requirement

### SECURITY

Data Security management

### DASHBOARD

Insights on usage pattern to be informed, efficient and timely decision making

### AVOID DISASTER

Set custom notifications for your devices vice storage for mission critical data to ensure data continuity and integrity in the case of network outages

### INSIGHTS

Saves resources, time and money by providing insight into your device usage and activity.

**FLOWLINC V1
IOT EDGE DEVICE**

FLOWLINC

### OVER THE AIR

Over-the-air and remote upgrade capability for all network components

# FLOWLINC V1
## HIGHLIGHTS

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**BUILT IN ALL CONNECTIVITY**
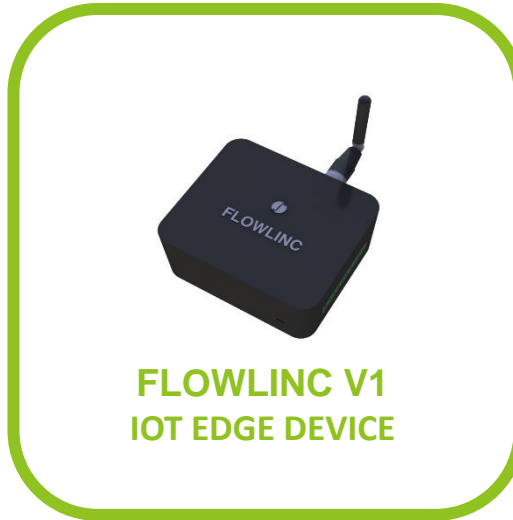
Gain visibility and control into hard to wire locations with built in GSM ( 2G ,4G & LTE), WiFi, Bluetooth, LoRa & NBIoT

**COMPACT DEVICE & LONG PROBE**

Dimensions of the device allows its use in limited space and difficult environmental conditions. The long probe length makes it easy to integrate with any refrigerator

**OPEN PLATFORM**

Easy to integrate with existing Device via any common industrial protocol: Modbus RTU, Serials, MQTT

**CLOUD**

It is a cloud/IoT platform agnostic device capable of communicating with all available cloud services

**FLOWLINC V1**
**IOT EDGE DEVICE**

**BUILT-IN I/O**

Analog and digital I/Os for direct monitoring and control

**STORAGE**

On-device storage for mission critical data to ensure data continuity and integrity in the case of network outages

**01**

### FASTER AND EASIER TO DEPLOY
An integrated platform means that whether you are monitoring critical equipment on the shop floor or hundreds of remote sites, it's easy to gain immediate visibility on your browser or mobile device. Simply connect your IOs–no servers to set up, no software to manage, no complexity.

**02**

### OPERATIONAL DATA AT YOUR FINGERTIPS
Flowlinc makes getting your data easy and lets you manipulate it to get the most out of it. With cloud dashboards that automatically resizes to fit any device, you can view critical data anywhere, anytime. It's also easy to export data to the analytics tool of your choice or to directly integrate with your existing historian through modern API functionality.

**03**

### DESIGNED FOR MODERN DATA SECURITY
Unlike legacy solutions that were designed in a different era and patched over time, Flowlinc v1.0  is purpose-built to aggregate and process sensor data securely. Cyber threats continuously evolve, and your industrial IoT architecture should as well. Flowlinc v1.0's architecture ensures always up-to-date cloud software and seamless over-the-air firmware patches for on premise devices

**04**

### ENABLE SMART DEVICES | BRING YOUR PRODUCT ONLINE
Get easy remote access into your white good products, operational metrics, monitor critical parameters, set alerts, and manage overall operational efficiency. This will help in reducing servicing cost along with better customer satisfaction and improved product design.

**05**

### EASE IN COLLECTING INSIGHTFUL DATA
Gain visibility and control of your energy usage, by installing Flowlinc to monitor real time data and get triggers/alerts based on the requirements. Enable smart metering.

**06**

### IMPLEMENT EDGE COMPUTING WITH ONLINE / OFFLINE DATA PROCESSING & STORAGE
Flowlinc has a powerful onboard controller paired with on-board storage and compatibility with multiple communication protocols. This helps refine the data and send only the critical insights for faster automated actions based on real-time insights along with making it useful in data critical scenarios.

**07**

### GET OPERATIONAL VIEW OF YOUR ASSETS
Manage your solar PV plants using robust and customizable Flowlinc device. This shall help you increase your runtime and decrease customer grievances along with clear visibility of all your assets.

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⊘ Added On
Aug 8, 2017

▥ Device Code
ZIGOR_3

↑ Device Type
solar

E-Today
**43.57** KWh

E-Total
**10.67** MWh

Today's Income
₹**436**

Total Income
₹**106700**

● Power

**20** ℃

Broken Clouds

N
**1.41** m/s

Wind from **EAST**
Gusts 1.41m/s

| Parmeter | Current | Voltage | Power |
|----------|---------|---------|-------|
| String 1 | 2.7 A | 639.9 V | 1.721 kW |
| String 2 | 1.2 A | 626.4 V | 0.662 kW |
| String 3 | 1.1 A | 641.8 V | 0.641 kW |

Map | Satellite

Nashik
नाशिक

| Grid Frequency | Daily Peak Power | Partial Energy |
|----------------|------------------|----------------|
| 50.05 Hz | 5.789 kW | -21950 Wh |

**Access to the real time smart machine data.**
**At-a-glance views of key performance indicators relevant to the set Output parameters**

# FLOWLINC V1
## REAL TIME DASHBOARD AND COMMAND CENTRE

**Access to the real time smart machine data.**

**At-a-glance views of key performance indicators relevant to the set Output parameters**

# FLOWLINC V1
## TECHNOLOGY SPECIFICATIONS

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| Variants | |
|---|---|
| **U02200101** | Wi-Fi, Bluetooth v4.2 BR/EDR, Bluetooth Low Energy (BLE)<br>1xRS-232/485, 2xAnalog Inputs, 2xDigital Input & 1xDigital Output |
| **U02200102** | LoRa + Wi-Fi, Bluetooth v4.2 BR/EDR, Bluetooth Low Energy (BLE)<br>1xRS-232/485, 2xAnalog Inputs, 2xDigital Input & 1xDigital Output |
| **U02200103** | Cellular Connectivity (2G, 4G & LTE) + Wi-Fi, Bluetooth v4.2 BR/EDR, Bluetooth Low Energy (BLE)<br>1xRS-232/485, 2xAnalog Inputs, 2xDigital Input & 1xDigital Output |
| **U02200104** | NBIoT + Wi-Fi, Bluetooth v4.2 BR/EDR, Bluetooth Low Energy (BLE)<br>1xRS-232/485, 2xAnalog Inputs, 2xDigital Input & 1xDigital Output |

| Communications | |
|---|---|
| **Serial Port** | RS-485: 2-wire, half -duplex RS-232: 2-wire, full or half-duplex (ESD protected) |
| **Supported Protocols** | Modbus RTU, Serial, UART, SPI, BACNet, M-Bus, LonMark |

| Digital and Analog Inputs/Outputs | |
|---|---|
| **Digital Input**<br><br>**Digital Output** | 2x User configurable as inputs, ESD/EFT/Surge protected, 3.3-24 volt tolerant, over-voltage protection<br><br>1xAs Output: Sinking MOSFET output, rated 24V, 0.5A |
| **Analog Input** | 2 channels with voltage range 0-10V or 4-20mA, Resolution: 12-bit, ESD/EFT/Surge protected, |

| Wired & Wireless Connectivity | |
|---|---|
| **Cellular** | 2G/4G/LTE cellular connectivity, Frequency range 850/900/1800/1900,<br>Protocol support: TCP/UDP/PPP/HTTP/FTP/SSL/PING/NTP/NITZ/SMS/MQTT |
| **Wi-Fi** | 802.11b/g/n 16mbps |
| **Bluetooth** | Bluetooth v4.2 BR/EDR and Bluetooth Low Energy (BLE) |
| **GNSS** | GPS/GLONASS/Galileo/QZSS |

# FLOWLINC V1
## TECHNOLOGY SPECIFICATIONS

### Storage, Processing, Security & RTC

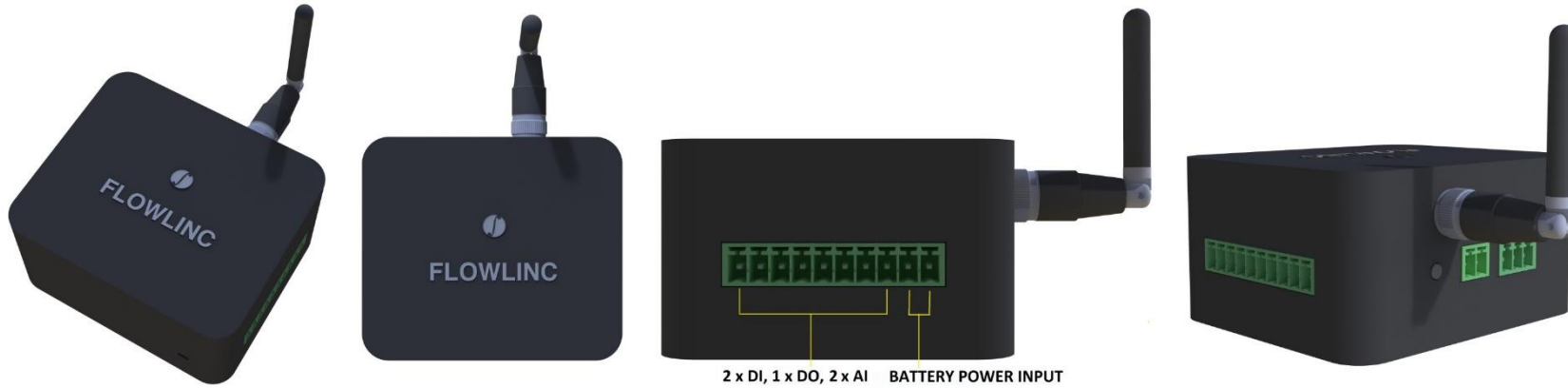| | |
|---|---|
| Inbuilt Storage | 16 GB (Expandable up to 256 GB) |
| Data Security | Data secured via SSL (256-bit, military-grade encryption) |
| Edge Processing | Powerful edge processor for low-latency local control |
| RTC | Precise Real time clock |

### Power

| | |
|---|---|
| Voltage | 5Vdc -24Vdc |
| Power consumption | 10 watts (Max) |
| Battery Powered | 3.7Vdc - 4.2Vdc |
| Battery Life | Up to 10 Years for LoRa & Up to 5 Years for WiFi |

### Enclosure

| | |
|---|---|
| Dimensions | 70mm (L) x 60mm (W) x 35mm (H) |
| Weight | 0.22 lbs. (0.1 kg) |
| Mounting | Tool less DIN rail mounting / panel mounting / tabletop placement (optional) |
| Operating Conditions | -30°C ~ +80°C (-22°F ~ +176°F), Less than 90% RH, Startup should be done at above -30°C |

### Guarantee

| | |
|---|---|
| Warranty | |

### Protection

| | |
|---|---|
| | Over Voltage Protection, Reverse Voltage Protection, Short Circuit Protection |
| Electrostatic Discharge | +/-4kV - EN 6100-4-2 |
| Electromagnetic RF fields | 10 V/m 80 MHz - 1 GHz \| 3 V/m 1.4 GHz – 2.0 GHz \| 1 V/m 2,0 GHz - 2,7 GHz -  EN 61000-4-3 |
| Fast Transients | +/- 1 kV - EN 61000-4-4 |
| Surge protection | +/- 1 kV - EN 61000-4-5 |
| RF conducted interference | 10 V/rms - EN 61000-4-6 |

The details presented in this document are based on our research so far, our experience and knowledge. In case of changes in operating conditions and methods of application, any information given in this document cannot be considered as guarantees and preliminary tests are recommended. For more information, connect with our technical team, they will provide support services.

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**RENDERED SHOTS**

2 x DI, 1 x DO, 2 x AI    BATTERY POWER INPUT

**REAL WORLD SHOTS**

# BENEFITS AND OFFERINGS

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## KEY BENEFITS

**EFFICIENCY MONITORING**

**REAL-TIME MONITORING**

**SENDING OF ALERTS VIA WHATSAPP, SMS & EMAIL**

**SAFETY AND PRECAUTION**

**STOCKS ORGANIZATION**

**EFFICIENTLY SAVES MANUAL LABOR EFFORTS**

## WHY US?

**01**

**Real-time Remote Access**
Monitoring of relevant information without depending on manual measurement or secondary sources

**02**

**Precise Information from sensors**
Cold storage enables data-driven smart decision making about optimal usage of labour/other resources.
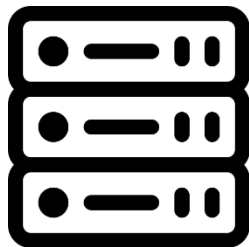
**03**

**Affordable and User-friendly**
IoT solutions ensures seamless connectivity with the remotest locations.

**04**

**User-friendly Dashboard**
Through help of monitor collected data, analyze trends, act on results are happening for Dashboards.
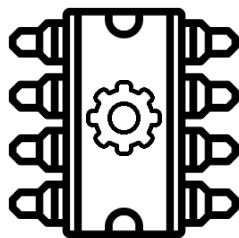
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**01**

**02**

**03**

**04**

## HARDWARE

- Industry Grade Built
- Compact Shape and Size
- Industry Grade Security

## FIRMWARE

- Precise functioning
- Robust code
- Dynamic
- Industry Grade Security

## CLOUD APPLICATION

- Real time Insights
- Smart decision making
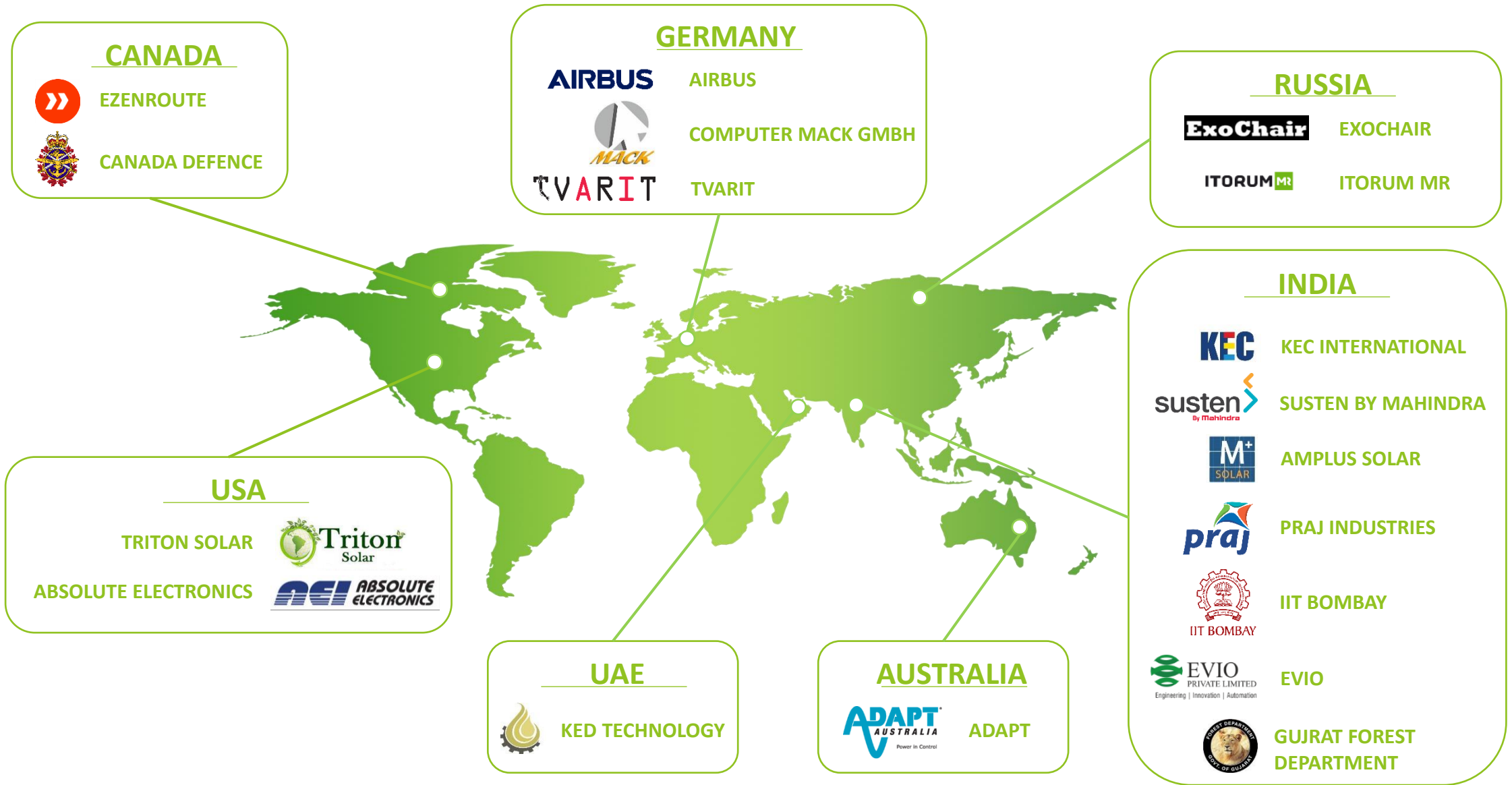- Quick Actionable
- Location Tracking
- Industry Grade Security

## TURN-KEY SOLUTION

- End-to-end solution
- Implementation Support & servicing

**END TO END SOLUTION**

# CUSTOMERS AND PARTNERS
## INDUSTRIES

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- AGRICULTURE
- ENERGY AUDITING
- SMART CITY
- SUPPLY CHAIN & LOGISTICS
- SOLAR PV PLANT MANAGEMENT
- SMART METERING
- WATER MANAGEMENT
- SMART INFRASTRUCTURE
- SHIPPING AND MARINE

- MINING
- POWER TRANSMISSION & DISTRIBUTION MANAGEMENT
- SMART APPLIANCES
- OIL AND GAS
- ASSET TRACKING
- CONSUMER DURABLES
- SMART FACTORY
- AUTOMOTIVE
- CLEAN ENERGY

# THANK YOU FOR INVESTING YOUR TIME

Contact :
visat@ushva.com
ashutosh@ushva.com

Visat Patel: +91-7738986783
Ashutosh Kumar: +91-9969800285