



■ VB ENGINEERING · A VB GROUP COMPANY

Industrial *Digital Engineering*
Partner since 2014.

■ ABOUT VB ENGINEERING

Digital engineering for *safer plants*.

Twelve years. Twenty-one countries. Twenty-five of the Fortune Global 500. VB Engineering walks into the plants the world cannot switch off • the live, ageing, high-consequence ones • and makes them safe, legible and ready for what is next. Every deliverable is built in-house, cross-checked against the code it cites, and signed by two Chartered Engineers. We do not engineer to file a report. We engineer to **change the state of your plant**. A VB Group company • ISO 9001 + 45001.



Dr. Maruthi Kasyap GNV

Founder, CEO & Managing Director
VB Group

1,000+

POWER STUDIES

3,000+ km

P&ID DELIVERED

50,000+

LIDAR SCANS

500+

AUDITS & ASSESSMENTS

■ TRUSTED BY 63 ENTERPRISE PLANT OPERATORS



■ WHAT WE DO

One partner, from the study to the *living twin*.

Six engineering disciplines and four platforms, working as one system across the life of your plant.

ENGINEERING DISCIPLINES



Power System Studies

15 studies



3D LiDAR Scanning

50,000+ scans



As-Built Engineering

3,000+ km P&ID



Discrete Event Simulation

FlexSim · AnyLogic · Simio



Risk, Safety & AMC

HAZOP to AMC



Detailed Engineering & Design

electrical · process · piping

THE VB GROUP PLATFORM FAMILY



ElecTwin / Arc360

compliance loop



WisTwin

digital-twin platform



Drona VR

immersive training



VijAI

AI vigilance



■ POWER SYSTEM STUDIES

We find every way your network can *fail.*

A short circuit no breaker clears. A motor that collapses the bus on start-up. A grid fault that leaves you islanded. Before any of it reaches your floor, we build a digital twin of your LV and HV network and run the full IEEE study suite on ETAP, DlgSILENT and PSCAD.

The output is never just a report · it is a code-referenced verdict on how your system behaves under stress, from load flow to arc flash, checked in-house and signed by two Chartered Engineers.

THE STUDIES

- ◆ Load Flow
- ◆ Protection Coordination
- ◆ DC Arc Flash
- ◆ Transient Stability
- ◆ Grid Islanding
- ◆ Reliability & Contingency
- ◆ Power Flow Optimisation
- ◆ Transformer Inrush
- ◆ Short Circuit
- ◆ AC Arc Flash · IEEE 1584
- ◆ Harmonics
- ◆ Motor Starting
- ◆ Insulation Coordination
- ◆ Energy Saving
- ◆ Cable Overloading

MODELLED ON · INDUSTRY TOOLCHAIN



1,000+ studies. Every report
Chartered.





■ BY THE NUMBERS

1,000+ power-system studies. Every one *Chartered.*

Two Chartered Engineers sign every report • one leads, one independently reviews.

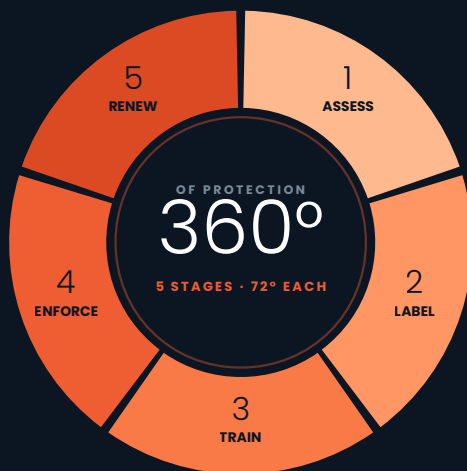


FLAGSHIP ARC-FLASH PROGRAMME

06

Beyond assessment. Toward *prevention*.

NFPA 70E does not stop at the study. It expects labelling, training, auditing and renewal to follow. VB Arc360 closes that loop · five engineered stages, 72 degrees each, that take a brownfield plant from assessed to permanently protected.



1

Assess

Photographic walkdown of every nameplate, relay setting and cable schedule, uploaded to ElecTwin. Your engineers approve the evidence before a single calculation runs · then ETAP, IEC 60909 and IEEE 1584.

2

Label

NFPA 70E labels engineered, printed and pasted at site by our own team, in English, Hindi, Arabic and Chinese. Arc-flash boundaries painted on the floor at the same visit.

3

Train

TeXeT QP portal to NFPA 70E 110.6, VR immersive drills with the headset included, and a branded 3D induction video your workforce sees every time.

4

Enforce



PPEAI reads your existing CCTV and verifies arc-rated PPE in real time · alerts the supervisor, logs every event for audit. 93% fewer PPE non-compliances.

5

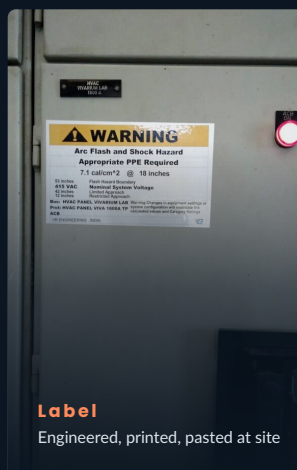
Renew

Annual label and data refresh, year-three QP refresher, year-five mandated re-study. Compliance kept alive, not rebuilt from zero.



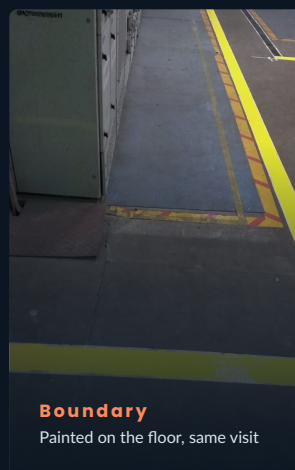
Assess

Every nameplate, photographed to ElecTwin



Label

Engineered, printed, pasted at site



Boundary

Painted on the floor, same visit



Train

Your crew, in VR, headset included

Safety is not a report.
It is a *responsibility*.

ENGINEERED TO

NFPA 70E · NEC · IEC 60909 · IEEE 1584



■ BY THE NUMBERS

500+ arc-flash studies. Zero compromise on *safety.*

Above 40 cal/cm², we do not recommend PPE. We prohibit the work.



DATA COLLECTION ·
ELECTWIN

Most brownfield studies fail before they *begin*.

Single-line diagrams drift. Settings change. Cable schedules vanish. The industry answer is to disclaim the bad data in an assumptions register and calculate anyway. We refuse to. ElecTwin is our electrical digital-twin platform · every nameplate, every relay setting, every cable schedule photographed on site, uploaded, and approved by your own engineers before a single calculation runs.

THE INPUT-LAYER PROBLEM

22–40%



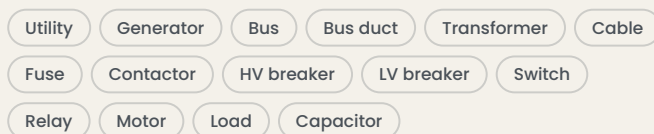
Typical gap between the legacy single-line diagram and what is actually installed in a brownfield plant.

<2%



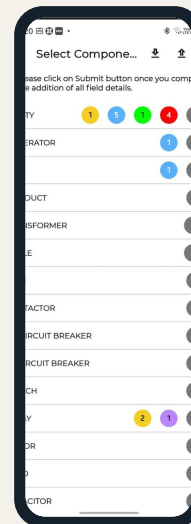
After an ElecTwin walkdown, verified and signed off by your engineers · before ETAP touches the model. Both bars to the same scale.

WHAT ELECTWIN CAPTURES

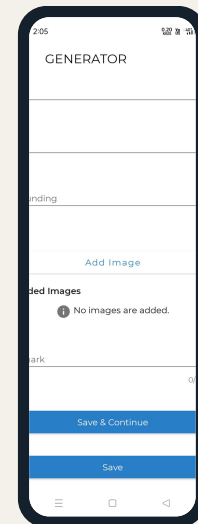


THE FIELD APP

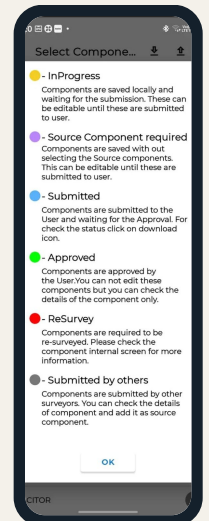
ElecTwin[®]



Every component class,
counted



Parameter depth, with
photo evidence attached



Submitted, approved or re-
survey · your call

THE EVIDENCE CHAIN

01

Capture

Onsite photo of every data point

02

Cloud

Uploaded to ElecTwin

03

Approve

You verify the evidence

04

Calculate

ETAP · IEC 60909 · IEEE 1584

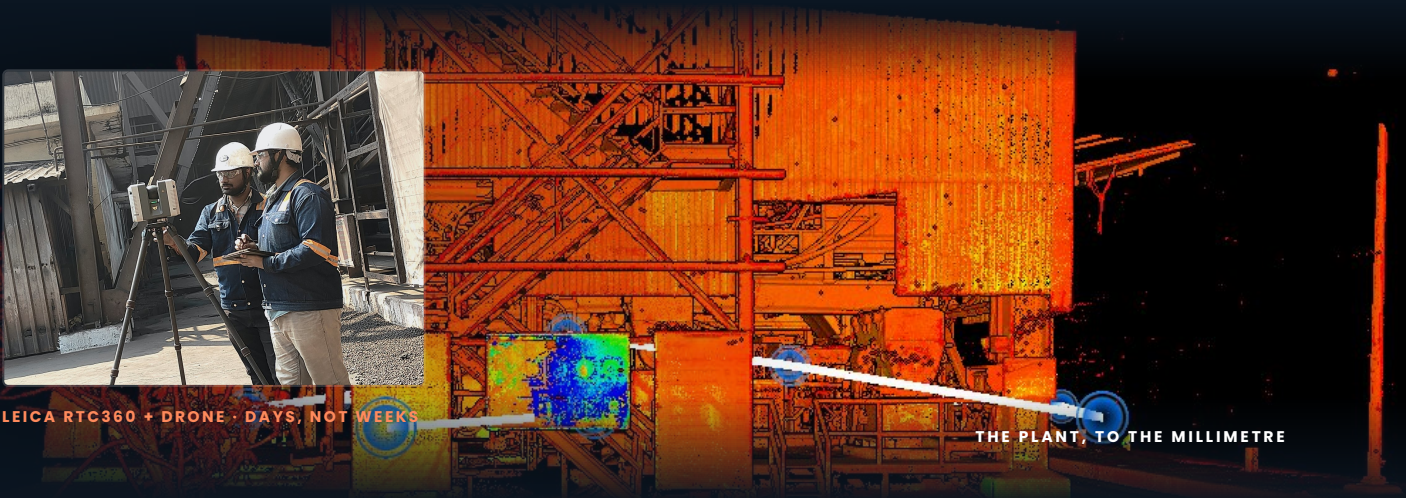
The audit trail *is the deliverable*.



3D LIDAR
SCANNING

You cannot modify what you cannot *measure*.

The drawings are twenty years old. The plant is not. Every tie-in, every new package, every relocation starts with an argument about what is actually there · and ends in rework when the drawing turns out to be wrong. A Leica RTC360 and drone survey settles it in days, to the millimetre.



EVERY SETUP REGISTERED INTO ONE CLOUD · NO PLANT SHUTDOWN

WITHOUT A SCAN

WITH VB

REWORK	Clashes surface on the crane, at two in the morning.	Clashes surface in the model, weeks before steel is cut.
SHUTDOWN	Weeks of measuring, burnt inside a turnaround you cannot extend.	Hours of capture, off the critical path.
SAFETY	Crews with tapes at height, beside live and hot equipment.	Nobody in the hazard. The scanner takes the risk.
LEGACY AREAS	Whole units with nothing on paper at all.	Rebuilt as SLDs, P&IDs, isometrics and GAs.
REPEAT SURVEYS	Civil, piping, electrical and safety each measure it again.	One capture. Every discipline. One truth.
THE TWIN	No foundation to build a twin on.	The ground truth every study and twin stands on.

Measure once. Everything
downstream *stops arguing*.

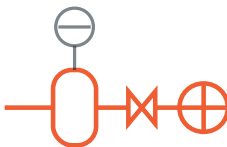
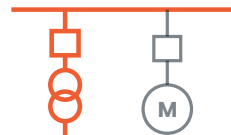
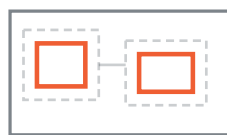
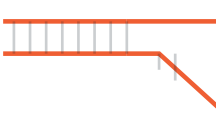
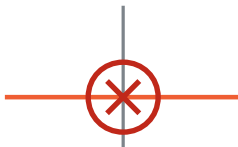
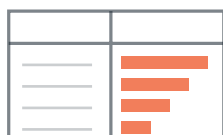
50,000+ scans
across 21 countries

A point cloud is not a *drawing*.

A registered cloud is accurate, unarguable · and cannot be issued for construction, priced, or handed to a contractor. As-Built Engineering is the discipline that turns it into documents your team can actually work from, redrawn against what is installed and signed by two Chartered Engineers.

DRAWING REGISTER · WHAT WE HAND OVER

8 SHEET TYPES · ISSUED FOR CONSTRUCTION

 01 AS-BUILT	 02 AS-BUILT	 03 AS-BUILT	 04 AS-BUILT
P&ID as-built reconciled to the pipe	Isometrics spool-ready, dimensioned	General arrangement as installed, not as drawn	Single-line diagrams what every study runs on
 05 AS-BUILT	 06 AS-BUILT	 07 AS-BUILT	 08 AS-BUILT
Equipment layout footprints + maintenance envelopes	Cable tray & routing measured, not assumed	Clash & interference found before steel is cut	BOQ from the model quantities off the asset

TITLE

The drawing your team can
build from.

SCALE

1:1 to the steel

REV

0 · AS-BUILT

SIGNED

2 × CEng MIE

One leads.
One reviews.

DELIVERED

3,000+ km

of P&ID, reconciled

A photograph of three men in an industrial setting. The man on the left wears a white hard hat, safety glasses, and an orange high-visibility vest over a dark shirt. The man in the middle wears a white hard hat and safety glasses. The man on the right wears a white hard hat and a grey blazer over a white shirt. They are gathered around a LiDAR scanner mounted on a tripod. The background shows a complex industrial structure with metal beams and pipes.

■ BY THE NUMBERS

50,000+ LiDAR scans.
3,000+ km of P&ID,
reconciled.

Brownfield-native capture across live refineries, mills and substations in 21 countries.

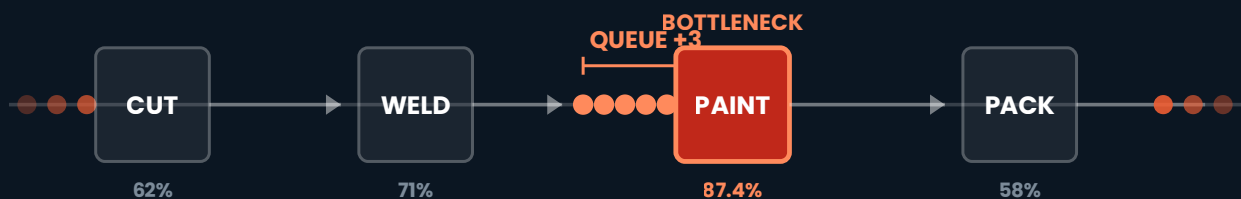


■ DISCRETE EVENT
SIMULATION

Model the plant. Find the bottleneck. *Move the money.*

A capital decision on a spreadsheet is a guess. We turn it into an experiment · a validated model of your operation, run against SCADA and historian data, so the bottleneck shows up on a screen instead of on the floor. 200+ simulations shipped across six sectors · manufacturing, warehousing, ports, airports, mining and healthcare.

T + 04:12 · MODEL RUNNING · VALIDATED TO VV&A



THROUGHPUT

4,872 u/hr

▲ 12% vs baseline

WORK IN PROGRESS

147 units

▲ 8 above target

UTILISATION

87.4%

▲ 3.1% headroom

FIVE QUESTIONS A MODEL ANSWERS

BPMN 2.0 · ISA-95 · VV&A · OPC UA · MONTE CARLO · DOE

01 Throughput

How much more volume can we handle?

Steady-state and dynamic evaluation. The capacity ceiling, quantified.

02 Bottleneck

Where is throughput choking?

Utilisation, queue and wait-time decomposition. Quick wins, with ROI.

03 Layout & flow

Will the new layout work before we build it?

Pre-construction evaluation. Greenfield or brownfield retrofit.

04 Capex / ROI

Is the investment defensible?

Monte Carlo sensitivity. A business case the capex committee can interrogate.

05 Operations

How do we run leaner?

Grounded in SCADA and historian data, not in a workshop opinion.

WHERE A MODEL PAYS FOR ITSELF

IF IT QUEUES, WE CAN MODEL IT



Manufacturing

cycle time, changeover, WIP



Warehouses & DCs

pick paths, AGVs, dock doors



Ports & terminals

yard moves, crane and gate cycles



Airports

passenger flow, security, baggage



Mining

haul cycles, crusher and tip queues



Healthcare

patient flow, theatre and bed capacity

FlexSim

manufacturing, warehouse and general discrete event

AnyLogic

hybrid agent-based, discrete event and system dynamics

Simio

risk-based scheduling and capex-decision support

Test the change.
Then *spend the money.*

200+

simulations shipped

20+

digital-twin handovers

6

sectors modelled

100%

CEng-signed models

■ ALSO FROM VB ENGINEERING

Sixteen more services. The same *signature*.

The work that surrounds the six disciplines. Same Chartered sign-off, same code-referenced discipline, same team • whether it is an earthing grid, a thermography sweep or the BOQ that prices the job.



Lightning Protection

IEC 62305 • NFPA 780



Earthing & Grounding

IEEE-80



Cable Sizing & Overloading

IEC 60364



Detailed Electrical Design

with certification



Infrared Thermography

ASTM E1934



Energy Audit & Saving

ISO 50002



Equipment Evaluation

due diligence



Accident Investigation

OSHA



Process Engineering

FEED



Piping & Stress Analysis

ASME B31



HVAC Design

ASHRAE 90.1



Plant Layout Design

clearance + access



Reverse Engineering

ASME • 3D scan to CAD



Structural Forensic

failure investigation



BOQ Preparation

quantities + rates



Fire-Escape Drawings

emergency egress

One partner. One signature.
One accountable engineer.

EVERY DELIVERABLE

Signed by two Chartered Engineers • CEng MIE



RISK, SAFETY &
AMC

14

Find the hazard before it finds your *people*.

Safety is a state you maintain, not a document you file. Five studies answer the questions an incident investigation will ask - each led by a certified facilitator, each signed by two Chartered Engineers.

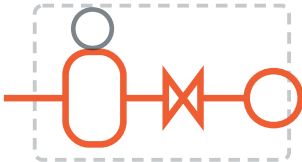
ON THE GROUND, NOT ON PAPER

Our facilitators walk the isolators, lift the trench covers and open the panels. The register is written where the hazard lives.

THE FIVE STUDIES

FACILITATED • RANKED • CLOSED OUT

NO • MORE • LESS • REVERSE NODE 04



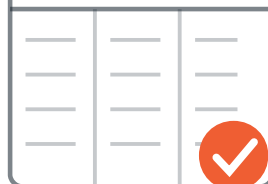
01

IEC 61882

HAZOP

Node by node, guideword by guideword, with a certified facilitator in the chair.

eHAZOP



02

VB platform

eHAZOP

The same rigour, software-facilitated. The register is live, searchable and auditable from day one.

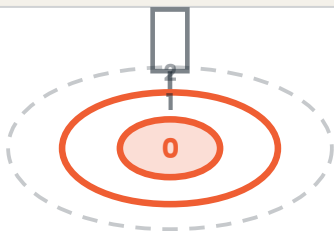


03

NFPA 70E • IS 3043

Electrical Safety Audit

The installation audited against the code it cites - findings ranked, owned and closed.

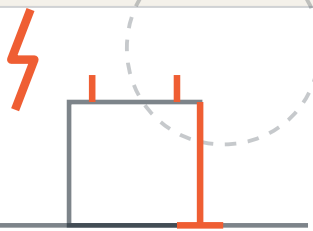


04

IEC 60079 • NFPA 497

Hazardous Area Classification

Zone 0, 1 and 2 mapped from every source of release, so the Ex rating on the kit matches the air around it.



05

IEC 62305 • NFPA 780

Lightning Audit

Rolling sphere, air terminations, down conductors and earth electrodes, verified against the risk assessment.



06

AND THEN WE STAY

The five-year AMC

Annual re-verification, a year-three facilitator refresher, and the mandated re-study at year five.

Findings closed,
not listed.

AUDITED TO

IEC 61882 • IEC 60079 • NFPA 497 • IEC 62305 • NFPA 780 • NFPA 70E • IS 3043

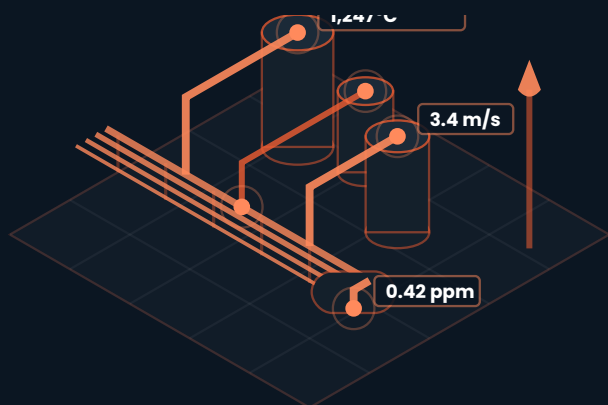


WISTWIN · DIGITAL-TWIN
PLATFORM

Wistwin®

Where the plant comes *alive*.

WisTwin mirrors the plant · every asset, every sensor, every shift · into a living 3D model your team can see, simulate and act on. Ten modules across five layers. Every layer reads from the layer below.



2.4M

sensor events
ingested per day

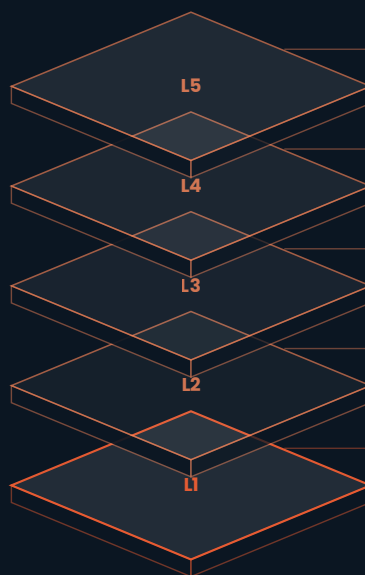
99.97%

twin uptime,
last 90 days

3 sec

telemetry
refresh

THE WISTWIN STACK · 10 MODULES, 5 LAYERS



Regulatory & ESG

- **ImpactTwin** BRSR · GHG
- **TrustTwin** Schedule M · IATF · PESO
- **AviraTwin** CO / gas leak watch

Operational intelligence

- **VolTwin** kWh/MT · ISO 50001
 - **PredictTwin** MTBF · MTTR
 - **InsightTwin** why-it-happened
 - **InspectTwin** IIM · QR · audit
- Spatial / 3D twin**
- **PlanTwin** 3D model · planning · simulation

Telemetry / IIoT

- **SmartTwin** live OEE · downtime · scrap

Foundation · source of truth

- **AssetTwin** register · hierarchy · ISO 14224

FLAGSHIP DEPLOYMENT

A CO gas pipeline twin, watching integrated gas networks at three Tier-1 steel plants.

PlanTwin maps every pipeline, valve and sensor in 3D. AviraTwin watches CO ppm continuously. PredictTwin signals before the leak. Reactive shutdowns, replaced.

2,847

assets
twinned

11×

incidents
prevented

0

shutdown
days lost

Asset › telemetry › spatial › intelligence › compliance.
Five layers, *one platform*.

"Where every Twin is a Win."



VIJAI · AI
VIGILANCE

vijAI

Nine ways to watch the floor. One camera you already *own*.

Prescribing the PPE is half the duty · verifying it is worn completes it. VijAI turns the CCTV already hanging in your plant into a vigilance layer that never blinks: PPE, fire, unsafe acts, vehicles, zones, intrusion and machine guarding. No new cameras. No new wiring.

PPEAI · THE DECISION, LIVE



Sits on the network you already have. The footage never has to leave the plant.

LIVE · CAM 04 · MCC ROOM

PPEAI

WORKER · 0.98

OCR-SUIT TAG

LABEL ON THE PANEL

25 cal/cm² · CAT 4

boundary 1.2 m

SUIT TAG, READ BY OCR

ATPV 40 cal/cm²

hood + shield detected

VERDICT

40 ≥ 25 · compliant

PPE VERIFIED · ENTRY PERMITTED

EVENT LOGGED · 12:04:31

NINE MODULES, ONE FEED

EHS · MAINTENANCE · SECURITY · QUALITY · PRODUCTION

01	PPEAI helmets, vests, gloves · violations flagged instantly	02	FIREAI fire and smoke, the moment it starts	03	GESTEAI unsafe behaviour · phone-in-hand while walking
04	DRIVEAI reversing, speeding, rash driving on site	05	ZONEAI restricted, hazardous and safe zones	06	PULSEAI people, vehicles and objects, counted
07	SAFEAI barriers jumped, handrails skipped, bad lifts	08	SECUREAI intrusion, unauthorised access, 24/7	09	GUARDAI missing machine guards and unsafe access

The study says what to wear.
VijAI proves it *was worn*.

95.8%

prediction accuracy

18,200+

unsafe acts detected

100+

sites deployed

42%

incident reduction



■ DRONA VR · IMMERSIVE
TRAINING

DRONA

Let them make the mistake *here*.

Inside the headset, a wrong move is a lesson. On the floor, it is an incident. Drona rehearses the work where mistakes are not optional · your procedure, your plant, your signage, step for step · until the right move is reflex and not recall.



EVERY STEP PERFORMED. NONE WATCHED.

An operator leaves a Drona session having done the job, not having sat through a slide about it.

Offline-first

FOR IT & PLANT OPS

Runs on the headset itself. No Wi-Fi, no LAN, no edge server. Train at the unit, in the mine face, in the cleanroom · it syncs when it comes back.

No PC. No capex.

FOR CFO & PROCUREMENT

Standalone Meta Quest, HTC Vive Focus and Pico run Drona natively. No tower, no graphics workstation, no server room.

Trainer cast view

FOR EHS & L&D

The learner's in-headset view streams live to any monitor or tablet. Your EHS lead sees every step and every mistake, as it happens.

MODULE LIBRARY · 18 PRODUCTION-READY

DGMS · OISD · SCHEDULE M · OSHA PSM · ISO 45001 · NFPA 70E

Electrical Safety

Pharma · Steel · Refining

Cleanroom Operations

Pharma

Lockout-Tagout

All industries

Permit-to-Work

Refining · Chemicals

Confined Space

Refining · Mining · Chemicals

Work at Height

Construction · Steel

Fire Safety

All industries

Emergency Evacuation

All industries

Coke Oven SOP

Integrated steel

We did not start with VR and learn safety.
We started with safety and *built VR for it*.

100+

plants trained

18

production modules

11

industries

5

languages

■ INDUSTRIES SERVED

Trusted where failure is *not an option*.

Eight verticals, one discipline. The plants that cannot be switched off, cannot be guessed at, and cannot absorb a bad assumption • across 21 countries and 25 of the Fortune Global 500.

18



Oil & Gas

Refining, petrochem, LNG

Arc flash to shutdown-window
LiDAR



Power Generation

Thermal, renewables, T&D

Grid islanding, protection, stability



Pharmaceutical

GMP-critical safety

Cleanroom SOPs, Schedule M,
validation



Heavy Manufacturing

Steel, cement, chemicals

Coke oven, ladle, hot-work
exposure



Mining & Metals

Surface & underground

Haul-cycle models, DGMS
alignment



Ports & Logistics

Terminals & corridors

Yard moves, crane and gate cycles



Automobile & Process

High-volume manufacturing

Line balancing, robot cells,
changeover



Data Centres

Emerging hero vertical

Selective coordination, uptime,
DC arc flash

EMERGING

If it cannot be switched off,
it is our kind of plant.

25 of the Fortune 500

across 21 countries

■ GLOBAL FOOTPRINT

21 countries.
One *delivery core*.

A Hyderabad delivery core on India's cost advantage, with hubs in Houston, Dubai, Perth, Singapore, London and Shanghai.



DELIVERY HUBS · HYDERABAD +
HOUSTON



COUNTRIES DELIVERED
INTO

■ ARC FLASH, KEYED TO YOUR REGULATOR'S STANDARD

UAE

ADNOC SAES-E-005

Saudi

Aramco SAES-P-114

Qatar

QatarEnergy ELE 4-2

Oman

PDO SP-1080



■ THE TEAM BEHIND EVERY REPORT

Talk to the engineer who will *sign your report.*

Tell us the plant, the country and the deadline. A named Chartered Engineer replies within 24 hours · not a sales desk, not an account manager. The person accountable for the deliverable is the person you speak to first.

Since 2014

twelve years

1,000+

power studies

50,000+

LiDAR scans

3,000+ km

P&ID reconciled

21

countries

*Twelve years inside the plants that cannot stop · **and**
they are still running.*



VB ENGINEERING

Every report Chartered.

PREPARED BY

VB Engineering

A VB Group company · since 2014

OFFICES

Hyderabad · Houston

Dubai · 21 countries

CONTACT

connect@groupvb.com

vbengg.com

SIGNED

2 × CEng MIE

ISO 9001:2015 · ISO 45001