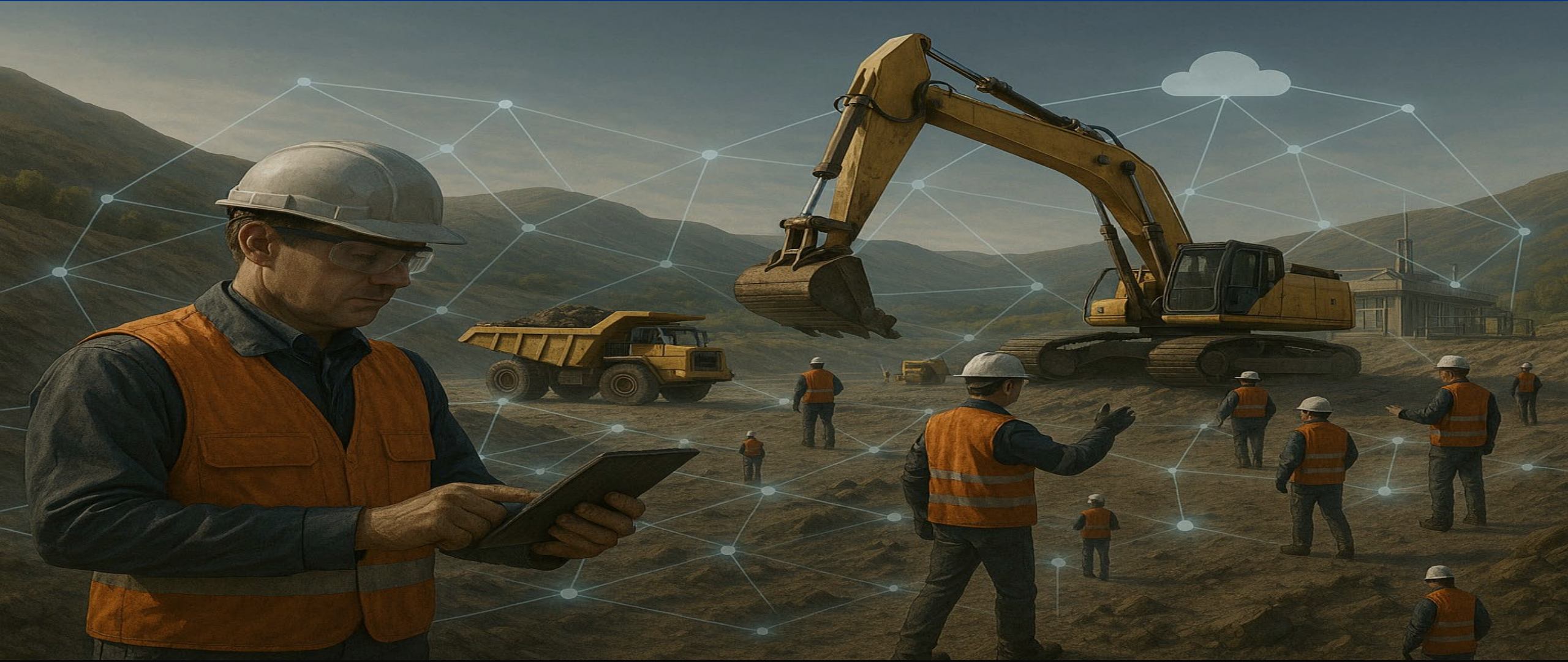




Natural Resources Industry Digital Transformation



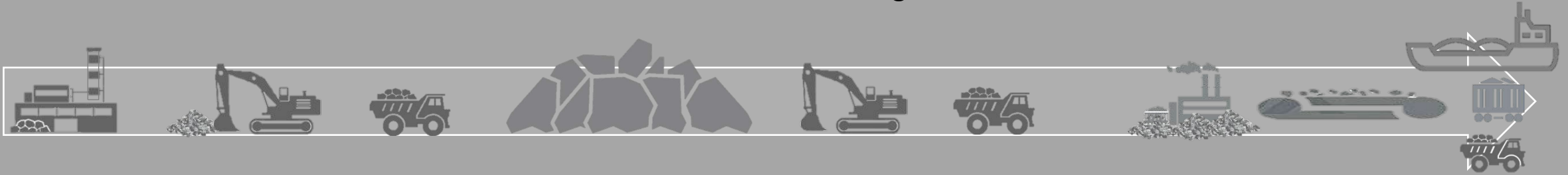
Solutions



PROBLEM DEFINITION

Overview of Mining Business Operations

Coal Haul Monitoring



ZERO ACCIDENT FOCUS

The mining industry's challenging terrain and vast areas make ensuring safety difficult. Performance pressures often outweigh safety needs with minimal traffic enforcement

ASSET UTILIZATION VISIBILITY

Assets tend to be high cost and therefore right ways to utilize the assets and ensure fleets follow SOP

OPERATIONAL ASSET TRACKING

Vast coverage makes it hard for mining managers to track assets and ensure fleets follow SOP

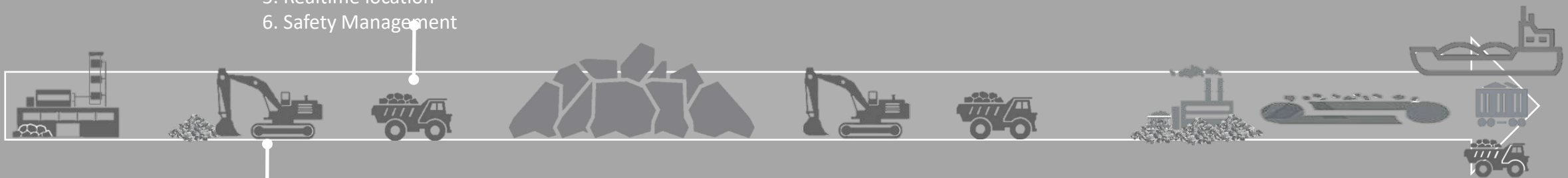
SAFETY & MANIFEST

The difficulty to monitoring the manifest, from the mining area to end point. To monitor the driver performance while operational

SOLUTION IN
Mining Business Operations

Coal Haul Monitoring

1. Perhitungan antrian unit,
2. Perhitungan utilisasi kendaraan,
3. Perhitungan Ritase kendaraan
4. Waktu kerja
5. Realtime location
6. Safety Management



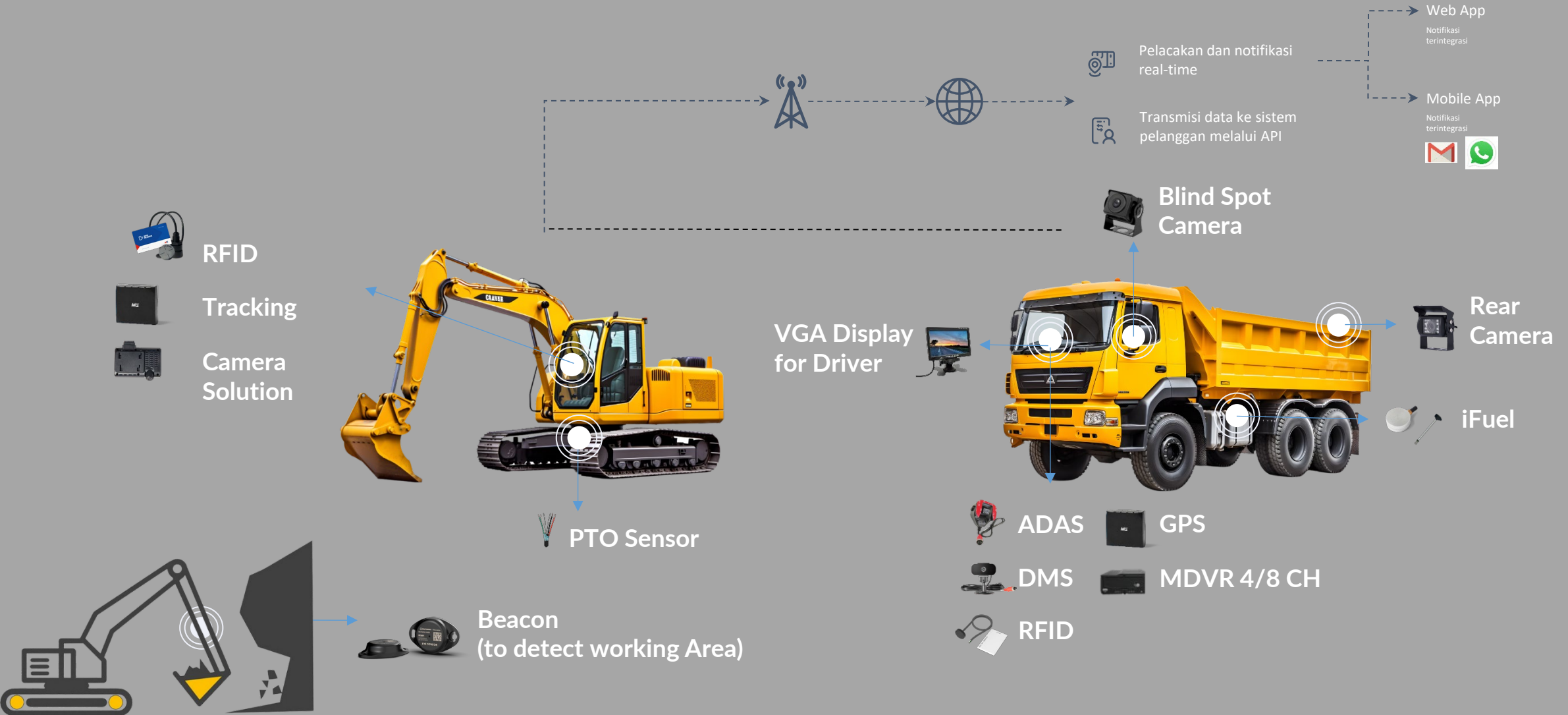
1. Perhitungan running hour,
2. Asset Monitoring,
3. Utility Unit,
4. Berapa unit dan waktu yang dilakukan Loading

- 1 Capture Working Hours of Asset to Define Productivity 🕒
- 2 Avoid Misuse of Fleet through real time monitoring on Trips and Fuel Usage 🚛

- 3 Monitor Driver Behavior and get notified when over speeding and other violation occurs 🔔
- 4 Capture loading and unloading time and avoid loss time due to unproductive activity 🕒

SOLUTION DEFINITION

A Set of Best in Class IoT Technologies



Hardware Options

Benefit :

1. Monitoring Safety dan SOP Perusahaan selama operasional
2. Camera System based AI
3. Monitoring Working hour
4. Fuel monitoring
5. Area Monitoring



VGA Display



MDVR



DMS Camea



ADAS Camera



Rear Camera



In Car Camera



Beacon



PTO



iFuel

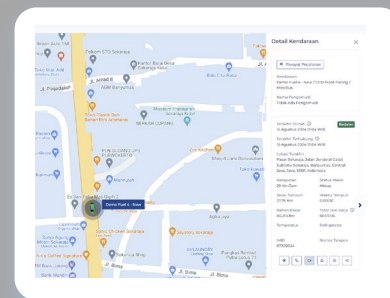


RFID

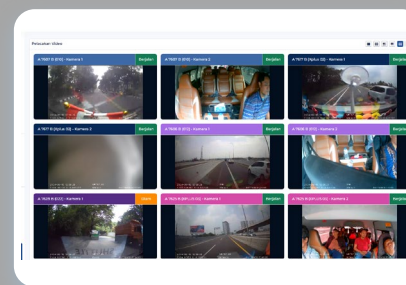
SOLUTION DEFINITION
Control Tower Overall Capabilities

Benefit :

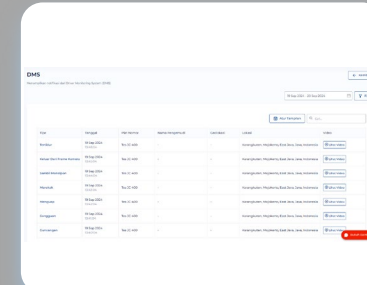
1. **Realtime position**
2. **Safety using Camera System based AI**
3. **Notification Management**
4. **Dashboard & Report Management**
5. **Integration System**



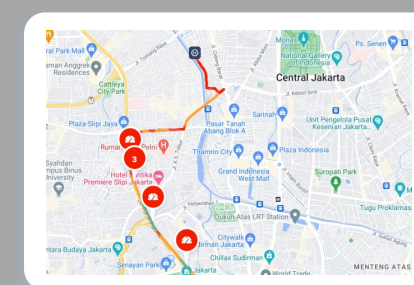
Live Monitoring



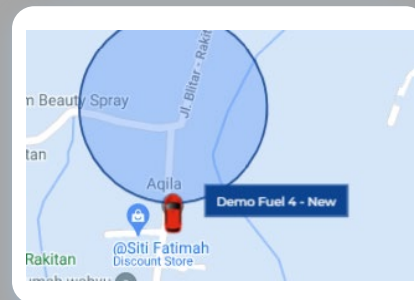
Video Monitoring



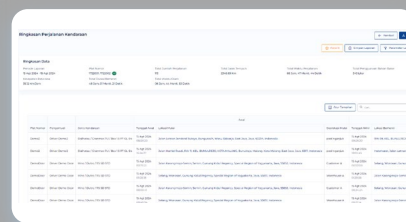
Alerting Functions



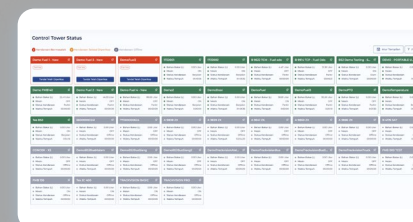
Trip History Alerts



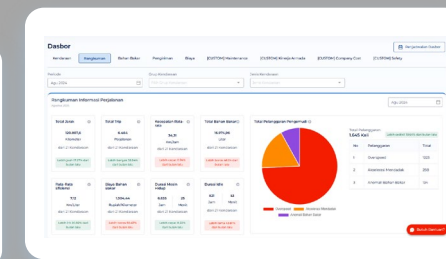
Geofencing



Reports



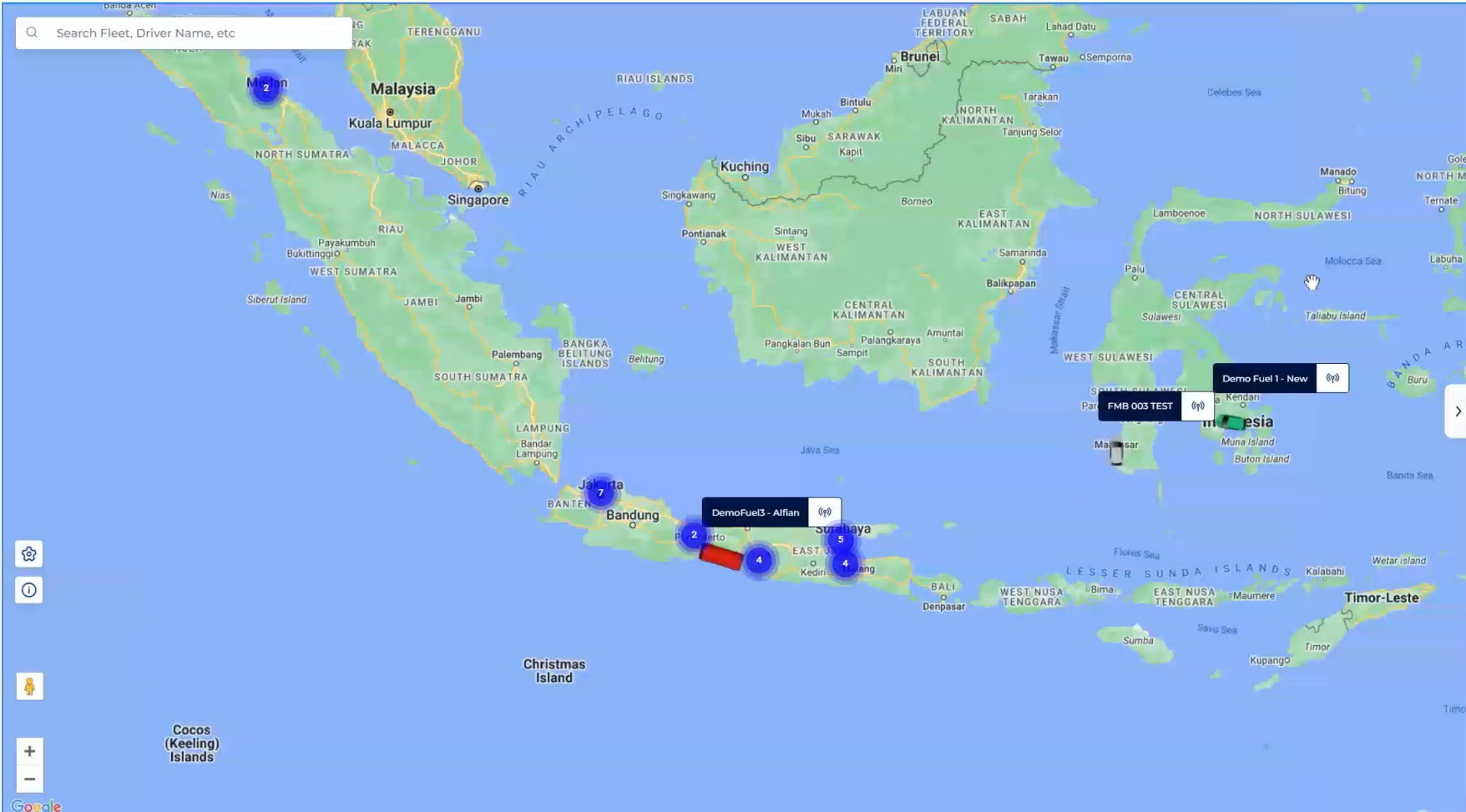
Notification Center



Dashboard Analytics

SOLUTION DEFINITION

Demo: Enterprise Control Tower



Fleet Notification
















Own Vehicle Vendor Owned

Show 37 vehicle data. 6 Moving, 6 Parking, 25 Offline.

1722001	Moving
1722002	Moving
66009000241	Offline
77000000624	Offline
A 9808 ZX	Offline
A 9839 ZX	Offline
A 9841 ZX	Offline
A 9860 ZX	Offline
A 9886 ZX	Offline
B 9522 TCM - Fuel odo	Parking
B 9914 TCP - Fuel Odo	Parking
BSJ Demo Testing - 66000000241	Offline
CONCOX - X3	Offline
DEMO - GPS PORTABLE UBETH	Moving
Demo FMB140	Parking
Demo Fuel 1 - New	Moving
Demo Fuel 2 - New	Offline
Demo Fuel 3 - New	Offline


SOLUTION DEFINITION

Demo: Integrated Video Monitoring as Safety Solution


















Video Tracking


DemoBSJBusMalam - Camera 1 Moving




DemoBSJBusMalam - Camera 2 Moving




DemoBSJBusMalam - Camera 3 Moving




DemoBSJBusMalam - Camera 4 Moving




DemoTrackvisionAlatBerat - Camera 1 Moving




DemoTrackvisionAlatBerat - Camera 2 Moving




DemoTrackvisionBus - Camera 1 Moving



DemoTrackvisionBus - Camera 2 Moving




No Video

All Moving Idle Parking Offline

Search...

Show 14 vehicle data. 7 Moving 7 Offline

DemoBSJBusSiang2 Moving

Large Bus No Driver

Camera: 1 2 3 4

DemoTrackvisionAlat Berat Moving

Derek / Crane No Driver

Camera: 1 2

DemoTrackvisionBus Moving

Large Bus No Driver

Camera: 1 2

DemoTrackvisionBus Siang Moving

Large Bus No Driver

Camera: 1 2

DemoTrackvisionBus Moving

Large Bus No Driver

Camera: 1 2

DemoTrackvisionTruck Moving

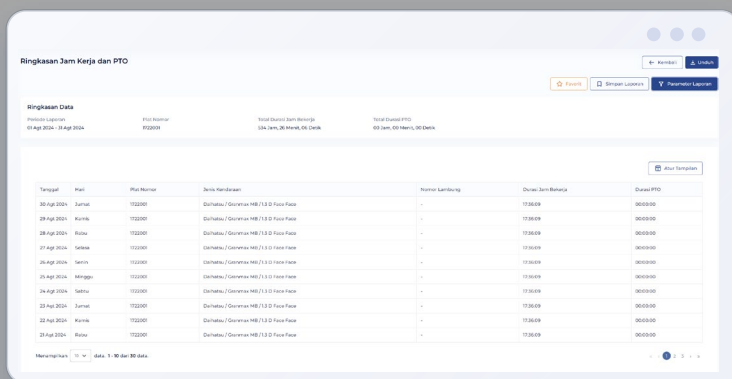
Cargo Truck No Driver

History Video Download

Need Help?

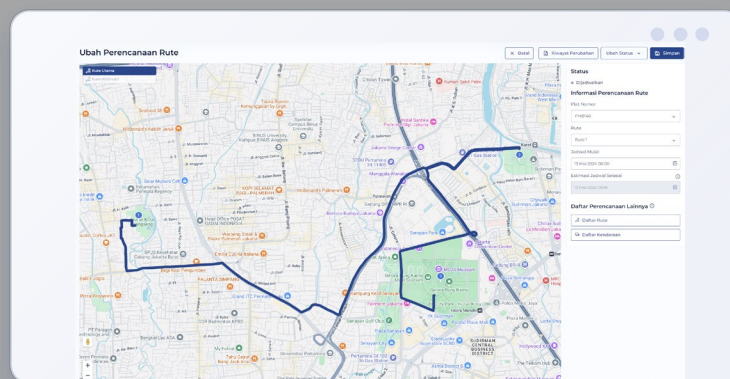
SOLUTION DEFINITION

1. Capture asset productivity



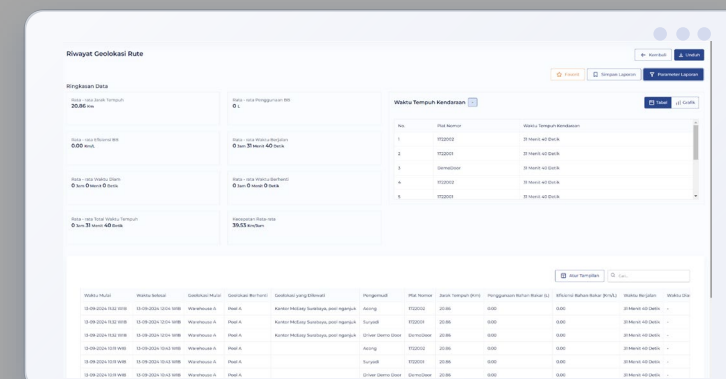
Working hours and PTO

Analyze usage for stationary assets (excavators) including in/out PTO state and ensure assets are in maintenance at the right time



Route Planning

Receive notification when vehicle is out of route (tracking plan vs actual)

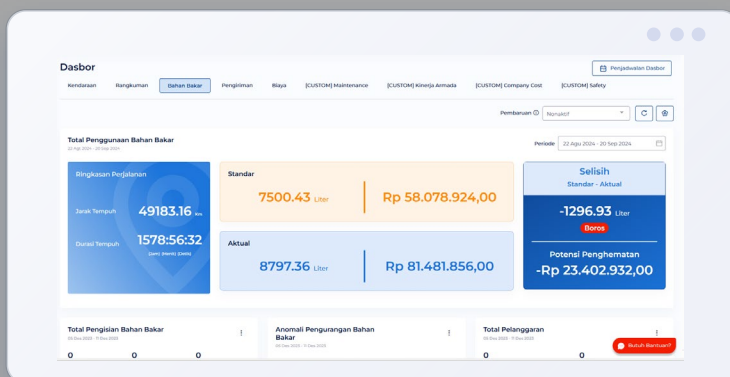


Geolocation-to-geolocation Report

Analyze anomaly across trips (excessive fuel spending, longer KM travelled, and long travel time)

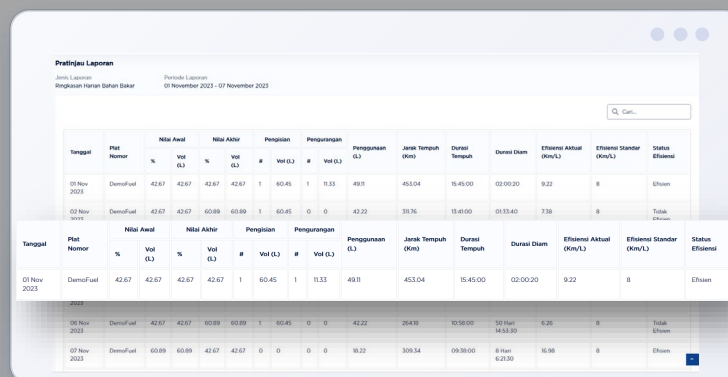
SOLUTION DEFINITION

2. Fuel Optimization



Fuel dashboard

The summary of overall fuel usage along with the analysis whether fuel is cost-efficient

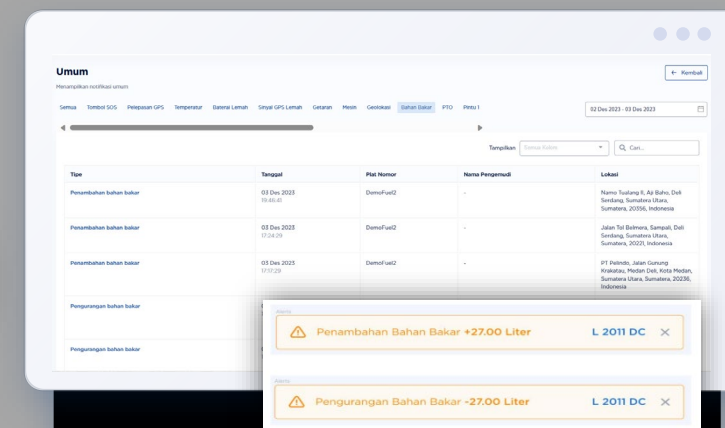


The table provides a detailed daily history of fuel consumption, refueling, and fuel reduction anomalies. It includes columns for date, fuel type, initial and final volume, refueling and reduction amounts, distance, and efficiency status.

Tanggal	Plat Nomor	Nilai Awal Vol (L)	Nilai Akhir Vol (L)	Pengisian Vol (L)	Pengurangan Vol (L)	Penggunaan (L)	Jarak Tempuh (Km)	Durasi Tempuh	Durasi Diam	Efisiensi Aktual (Km/L)	Efisiensi Standar (Km/L)	Status Efisiensi				
01 Nov 2023	DemoFuel	42.67	42.67	42.67	1	60.45	1	11.33	49.11	453.04	15.45.00	02:00:20	9.22	8	Efisien	
02 Nov 2023	DemoFuel	42.67	42.67	60.89	60.89	1	60.45	0	0	42.22	311.76	15:40:00	03:33:40	7.38	8	Tidak Efisien
01 Nov 2023	DemoFuel	42.67	42.67	42.67	1	60.45	1	11.33	49.11	453.04	15.45.00	02:00:20	9.22	8	Efisien	

Daily fuel analysis

Daily history of fuel consumption, refueling, and fuel reduction anomalies along with the efficiency status of each vehicle



The notification section displays real-time alerts for fuel events. Two notifications are shown: 'Penambahan Bahan Bakar +27.00 Liter' and 'Pengurangan Bahan Bakar -27.00 Liter', both associated with vehicle 'L 2011 DC'.

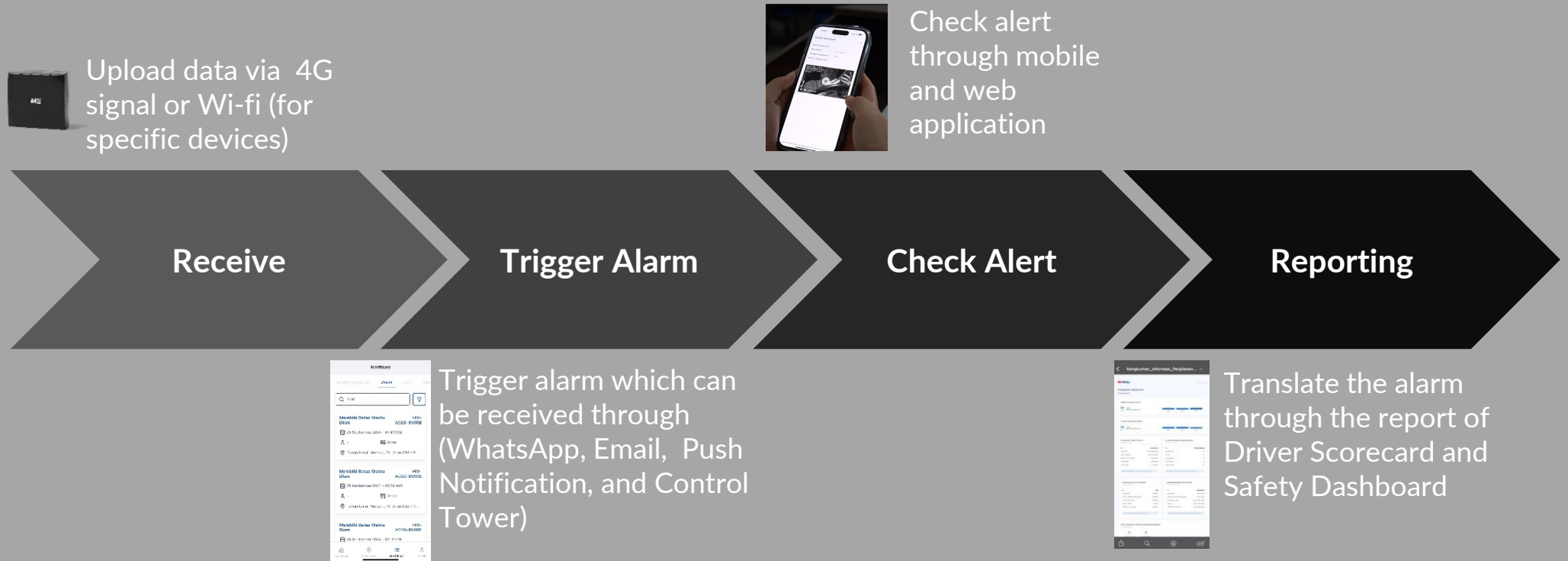
Tipe	Tanggal	Plat Nomor	Nama Pengemudi	Lokasi
Penambahan bahan bakar	01 Dec 2023 12:41:47	DemoFuel2	-	Nama: Ismail P. Al Bahi, Dik. Sumbing, Sumatera Utara, Sumatera, 20196, Indonesia
Penambahan bahan bakar	01 Dec 2023 12:41:29	DemoFuel2	-	Jalan Tu Bahera, Sempu, Deli Seroing, Sumatera Utara, Sumatera, 20201, Indonesia
Penambahan bahan bakar	05 Dec 2023 17:32:29	DemoFuel2	-	P1 Palindo, Jalan Gunung Harau, Weler Deli, Negeri Medan, Sumatera Utara, Sumatera, 20236, Indonesia

Real-time notification

Refueling and fuel reduction notification with time and address

SOLUTION DEFINITION

3. Receive Alert in Real Time to Ensure Zero Accident Initiative



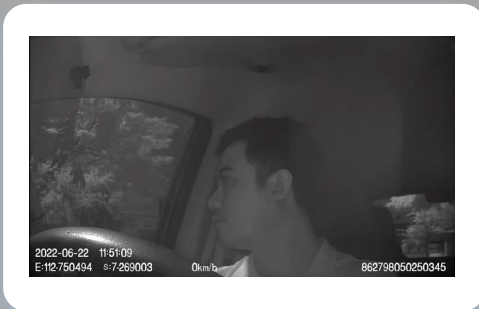
Data Transmitter

Omnichannel Capability

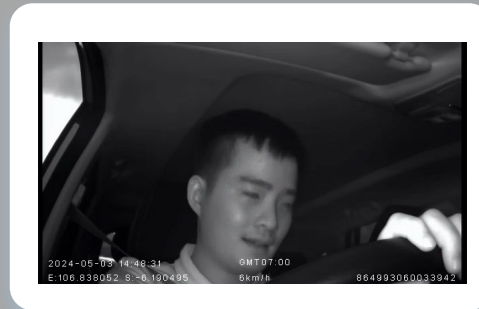
Insight & Analytics

SOLUTION DEFINITION

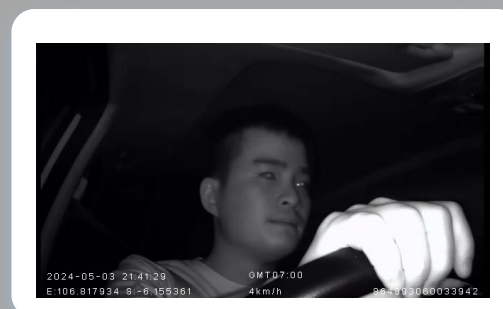
3a. Driver Safety Notification



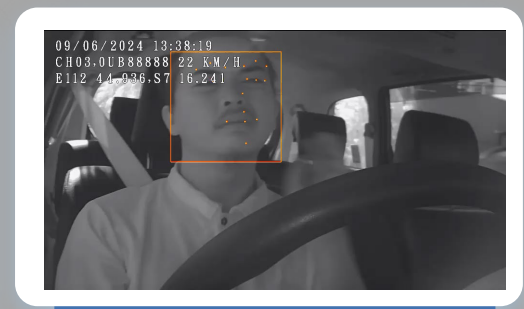
Distraction



Phone Usage



Tired / Yawning



No Seatbelt



Smoking



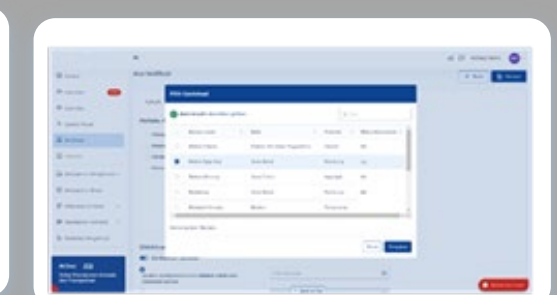
Indonesia

Kecepatan 40 Km/Jam	Status Mesin Hidup
Jarak Tempuh 100.15 Km	Waktu Tempuh 2:29:36
Bahan Bakar -	Total Jam Kerja 4091:21:47
Temperatur -	Refrigerator -
IMEI 555	Nomor Telepon

**Excessive Driving Time Alert*
(> 4 Hours)**

Tipe	Tanggal	Plat Nomor	Nama Pengemudi
Kecepatan Melebihi Batas Aman	18 Agt 2024 08:46:00	Demo2	Driver Demo2
Kecepatan Melebihi Batas Aman	18 Agt 2024 08:40:50	Demo2	Driver Demo2
Kecepatan Melebihi Batas Aman	18 Agt 2024 08:35:30	Demo2	Driver Demo2
Kecepatan Melebihi Batas Aman	18 Agt 2024 08:30:20	Demo2	Driver Demo2

Overspeed



**Overspeed in defined
geofence**

SOLUTION DEFINITION

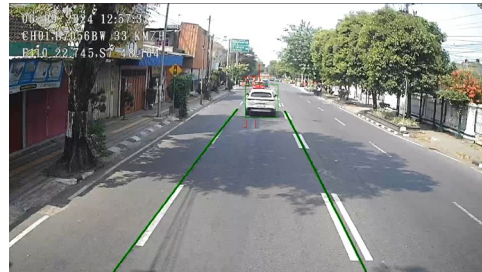
3b. ADAS Notification



Blind Spot Monitoring



Forward Collision Warning



Headway Monitoring
Warning



Pedestrian Warning
(Up and Coming)

SOLUTION DEFINITION

4. Manage Loading Queue and Unload Time at Port with Beacon Technology

Beacon Connection Report
Periode: 20 - 21 September 2024

License Plate	Beacon	Fleet	Time Start	Time Ends
Dumptruck 1	Beacon A	Excavator 1	11:00 AM	12:00 PM
Dumptruck 2	Beacon A	Excavator 1	12:00 PM	1:00 PM
Dumptruck 3	Beacon B	Excavator 2	1:00 PM	2:00 PM
Dumptruck 4	Beacon B	Excavator 2	2:00 PM	3:00 PM
Dumptruck 5	Beacon C	Excavator 3	3:00 PM	4:00 PM
Dumptruck 6	Beacon C	Excavator 3	4:00 PM	5:00 PM

- Find out when and how long excavator / non-motorized assets are in use
- Find out length of dump truck stop in each specific port unloading points



Installed in Port Site

Trip Report
Periode: 20 - 21 September 2024

License Plate: Dumptruck 1

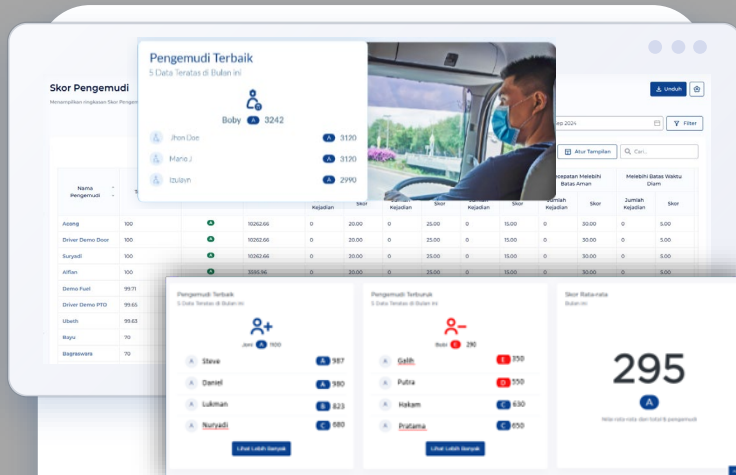
Geofence Keluar	Geofence Masuk	Waktu Keluar	Lama Perjalanan	Idle	Travel	Stop	Waktu Masuk	Lama di Geofence	Beacon (Sesuai Geofence Masuk)
Loading Site	Port Site	12:00 PM	02:00:00	-	-	-	2:00 PM	01:00:00	Beacon B (Port 2)
Port Site	Loading Site	3:00 AM	02:00:00	-	-	-	5:00 PM	01:00:00	Beacon A (Excavator 1)

Find out dump truck trips and activity on each loading points in a site



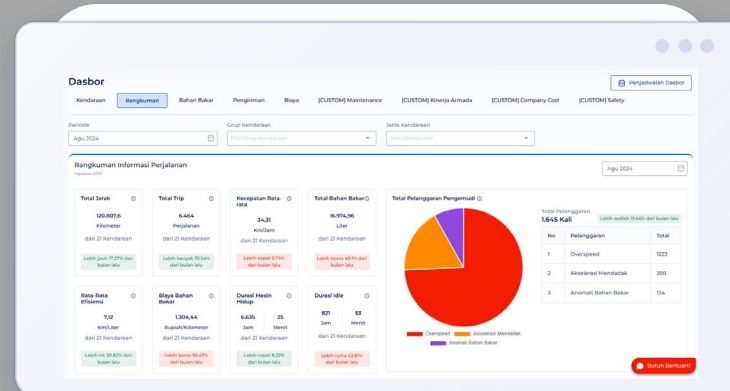
SOLUTION DEFINITION

Analyze Driver Performance, Assets Usage and Fuel Efficiency via Single Dashboard



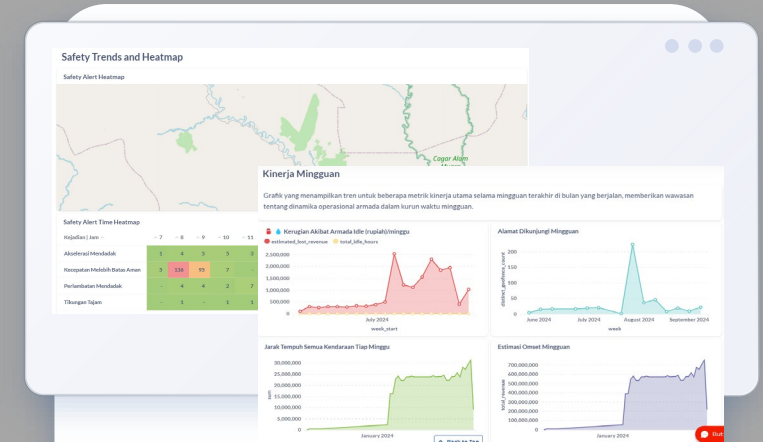
Driver Behavior Scorecard

Driver performance assessment to promote safety driving through overspeeding, harsh braking and acceleration parameters



Summary Dashboard

Compare month-on-month performance of fleets

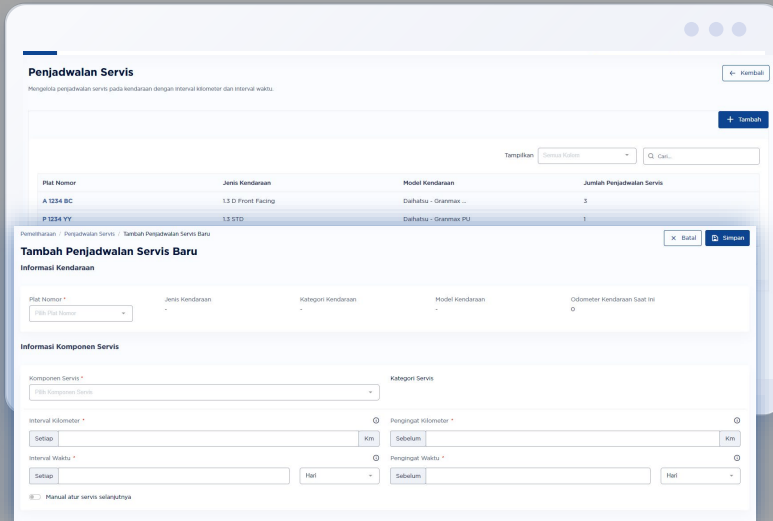


Customized Dashboard

Customizeable dashboard and report for easy analysis to business needs

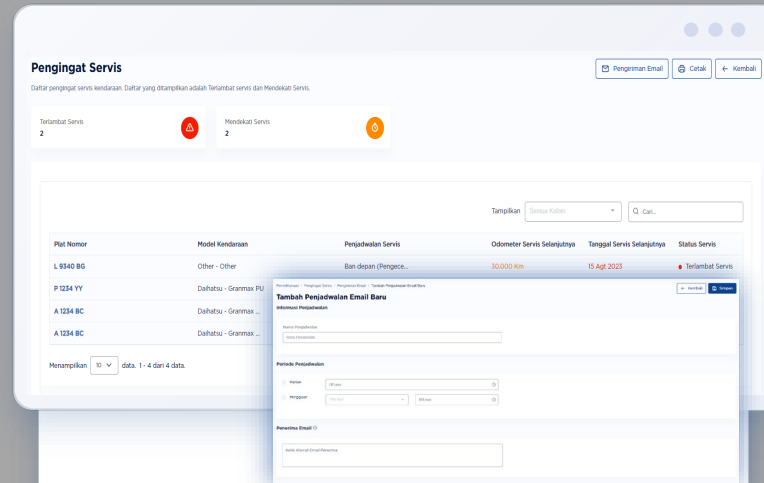
SOLUTION DEFINITION

Ease of Maintenance Order, Scheduler, and Reminder



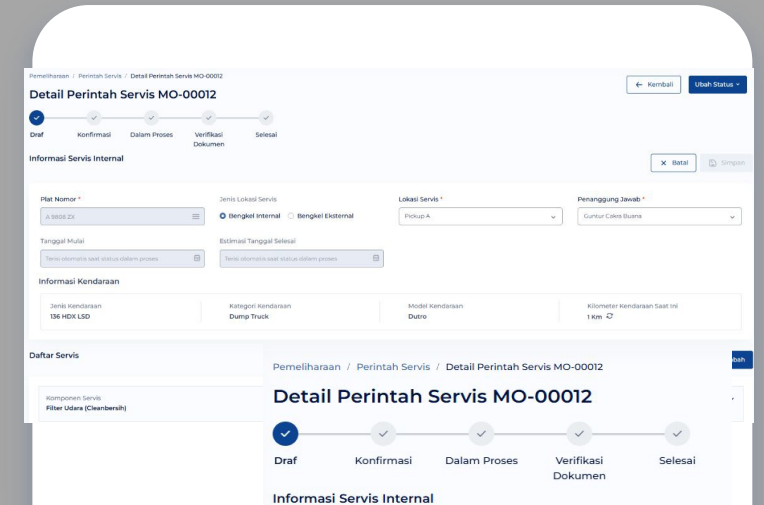
Service Scheduler

Schedule service based on mileage intervals and time



Service Reminder

Providing a comprehensive list of upcoming service schedules that can be sent through email



Maintenance Order

Digitalization of vehicle maintenance Work Order enabling seamless coordination and efficient status tracking

How We Help Our Clients Through IoT Technology

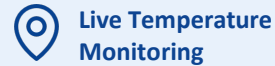
PROBLEM

SOLUTION

IMPACT

DEFECT ON DELIVERED GOODS

- Up to **10%** of fresh produce delivery rejected due to in-transport defect
- **Limited evidence** of in-transit temperature



Increased end-customer loyalty as rejected goods are reduced by up to **63%**

CARGO OWNER COMPLAINTS

- Driver take **unplanned routes**
- Driver's excuses for the delayed shipment are not credible
- Limited Visibility on Customer's End



Transporters' **fleet utilization increased by 30%** thanks to enhanced accountability from real-time reporting.

FUEL INEFFICIENCY

- Inefficient Shipment Process
- Fraud Potential



Reduced fuel spending **by 10%** due to prevented fraud and generate estimated **ROI of 4.3x**.

HIGH RISK OF ACCIDENT

- Driver conduct **unsafe** driving behaviour
- Driver is **distracted** during long drive (operate smartphone, smoke, fatigue)



Up to **40%** of unsafe driving event reduced after 6 months of solution implementation.

CASE STUDY

Enhancing fleet safety and efficiency

Mining Service Contractor

Located in East Kalimantan as a mining service contractor, they face couple challenges:

- Lack of visibility in fuel monitoring and avoiding anomaly issues
- Driver behavior not adhering to SOP



Approach



Live View



Geofence



Fuel Sensor



Unsafe driving
alert



Video
Monitoring

Benefits

**Give visibility of
fuel monitoring**

Real-time fuel reports and notifications to operational to prevent fuel anomalies

**Improve driver
performance**

Controlled driver behavior of over-speeding and smoking to protect the transported coal due to AI DMS Detection and live streaming

IMPLEMENTATION PLAN

Supports Every Steps of Collaboration

1. Peraturan Menteri ESDM No. 26 Tahun 2018
Mengatur tentang tata cara pelaksanaan kaidah-kaidah
pertambangan yang aman, termasuk pelatihan keselamatan pekerja
dan pengawasan peralatan.

Trial and Evaluation
Demonstrate the
feasibility of solution
and whether the
solution meets
business needs



Deal
Agreed to use Arta
Paragon Bestari
Solution



**Implementation &
Installation**
Hardware
installation,
software set-up
and training



Post-Go Live
Continuously monitor
and assess the
solution's performance
to meet business goals



Ongoing Support
Provide support to
resolve concerns



MINING SITE
Potential Challenges

No	Challenges	Descriptions
1	Signal Connectivity Solutions	<p>1. Device will store data locally and automatically upload the data when a stable connection is restored</p> <p>2. Using MDVR with capability to use Wi-Fi networks to upload data when cellular or GPS signals are weak. The method ensures data can still be transmitted efficiently</p>
2	Road Condition Adaptions	<p>Equip vehicle with ruggedized Arta Paragon IoT devices, MDVRs (IP65, IP67), fuel sensors (stick sensor IP67, OBD) that can withstand harsh conditions such as rough roads and extreme weather</p>



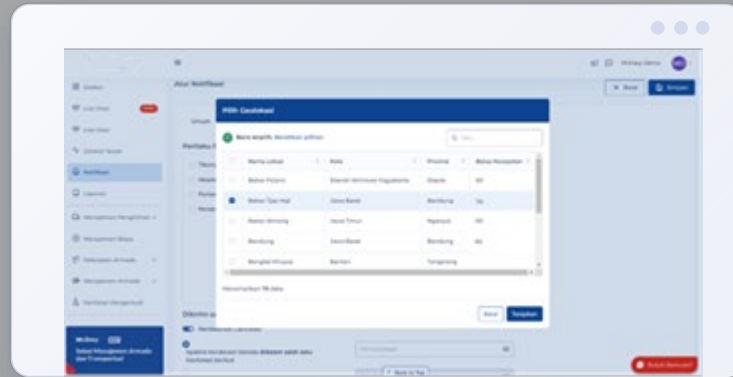
Appendix



**ARTA
PARAGON
BESTARI**
artaparagon.com

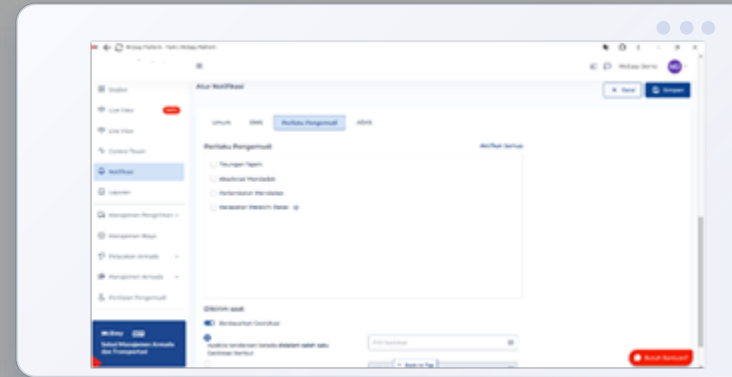
SOLUTION DEFINITION

Geofence Speed Limit



Set speed limit

Enforcing speed limits within specific zones helps prevent accidents



Speed limit Notif

Receive instant alert once vehicles violates the defined speed through Mobile, Software, and WhatsApp

S E R V I C E P L A N

Implementation and After Sales

No	Services	Description
1	Customer Services	<p>1. Software issues will be directly assisted technical team with the following SLA:</p> <ul style="list-style-type: none"> • First Time Response <30minutes (working hours 8am-10pm) • First Time Response max. within 8 hours (non-working hours) • SLA 1 x 12 hours (for Server & Network) • SLA 3 x 24 hours (for Software Bug) <p>2. Hardware issues will be checked by technical team with the following SLA:</p> <ul style="list-style-type: none"> • SLA 2 x 24 hours (Java region) • SLA 3 x 24 hours (Diluar Wilayah Jawa) <p>Customer Service Hotline can be reached at di 0819-9320-9999</p>
2	Software Training	<p>1. Available for online and offsite training with dedicated implementor</p> <p>2. Master Data set up</p> <p>3. 3 & 6 months check-in</p> <p>4. Additional software training can be requested if the team requires assistance</p>
3	Software update	Platform is always updated regularly and customers are free to enjoy the update
4	Accessories	<p>1. Replacement due to damaged will be carried out by technical team (T&C applies for subscription only)</p> <p>2. 1-year hardware purchase guarantee</p>

S E R V I C E P L A N

MDVR Specification



MDVR 4 Channel

- Support 4 Channels 720P (1280*720) or 1 080P (1920*1080) real-time storage and upload
- Support 1 channel VGA video output
- Double SD cards (Maximum of Single Card is 256GB)
- 12V OUT/MIC/TTS/RS232 interface
- Support 5 Digital input, 1 Digital output



MDVR 8 Channel

- Support 8 channels 720P (1280*720) or 1 080P (1920*1080) real-time storage and upload
- Support 1 channel VGA video output
- Support remote intercom
- Support 1 hard drive, the capacity can be expanded up to 2 TB
- Support single SD card, maximum support 256 GB and HDD/SSD up to 2TB
- 12V OUT/MIC/TTS/RS232 interface/RS232 interface

SERVICE PLAN
MDVR Specification



DMS 720P



ADAS 720P



Waterproof Camera 720P



Cab/Box Camera 720P



Blind Spot Detection 720P

S P E C I F I C A T I O N
MDVR - CAMERA



360 Camera

- 1080P AHD
- WDR
- Lens 6mm
- Color image
- Low power consumption
- FoV: D=63° H=54° V=29°
- VCC12V power supply
- Airline length: 2m



DMS Camera

- 1/2.7" CMOS Sensor
- 720P AHD
- 0.1 Low illumination
- Black and white image
- Low power consumption
- FoV: D=65° H=56° V=31°
- VCC12V power supply
- Airline length:2m



Dual Lens Camera

- 720P/1080P AHD
- Mini size
- 0.1 Low illumination
- 4PIN aviation cable
- 3M sticker
- 5 Infrared LEDs
- Audio & Built-in mic
- DC12V power supply



Minidome

Dapat dipasang pada sudut bus

- 1/2.9" CMOS Sensor
- 720P/1080P AHD
- 0.1 Low illumination
- Day/night mode
- Audio Optional
- 4PIN aviation cable
- Lens 3.6mm
- (2.8/2.1mm for option)
- 12 Infrared LEDs
- Viewing angle: 3.6mm: 90°,
- 2.8mm: 100°, 2.1mm :120°
- DC12V power supply

S P E C I F I C A T I O N
MDVR –CAMERA AI



ADAS Camera

- 1080P AHD
- WDR
- Lens 6mm
- Color image
- Low power consumption
- FoV: D=63° H=54° V=29°
- VCC12V power supply
- Airline length:2m



BSD Camera

- 720P/1080P
- 1 / 2.9, CMOS
- Video resolution: 1280(H)*720(V) / 1920(H)*1080(V)
- Video frame rate: 25 fps
- Lens 2.0 mm
- 4pin Aviation interface
- HFOV:1500;VFOV: 900; DFOV: 1660
- 12 V, 80 mA
- Working temperature -300C to +7000C
- Storage temperature: -400C to +800C
- IP69K
- 130g



Wide Angle Camera

- 1/2.9" CMOS Sensor
- 720P/1080P AHD
- 0.1 Low illumination
- 4PIN Aviation connector
- IP67/IP68
- 8 Infrared LEDs
- 1.6mm lens
- Viewing angle: 175°
- 4PIN aviation c
- DC12V power supply



Side Camera

- 1/2.9" CMOS Sensor
- 720P/1080P AHD
- 0.1 Low illumination
- Without audio
- IP67 waterproof
- DC12V power supply
- Day/Night mode
- 12 Infrared LEDs
- Lens 3.6mm (2.1/2.8 optional)
- Viewing angle: 3.6mm: 90°, 2.8mm: 100°, 2.1mm :120°
- 4PIN aviation Connector

S P E C I F I C A T I O N
MDVR - CAMERA



Front View Camera

- 720P/1080P AHD
- Low power consumption
- 0.1 Low illumination
- 4PIN aviation cable
- Built-in mic
- Tilt Adjusting Available
- Lens 3.6mm (2.1 optional)
- DC12V power supply



Rear Camera (Outdoor)

- 1/2.9" CMOS Sensor
- 720P/960/1080P AHD
- 0.1 Low illumination
- Metal case
- IP67/IP68
- 4PIN aviation cable
- Lens 3.6mm (2.8/2.1 optional)
- Viewing angle: 3.6mm: 90°, 8mm: 100°, 2.1mm :120°
- Pan/Tilt adjustment
- Highlight Compensation
- DC12V power supply



Front View Camera

- 720P / 1080P AHD
- Audio (built-in Mic)
- Pan/Tilt adjustment
- Highlight Compensation
- Weatherproof to IP65
- Lens 3.6mm (2.5/2.8mm optional)
- Viewing angle: 3.6mm: 90°, 2.8mm: 100°, 2.5mm :110°
- Low power consumption
- DC12V power supply

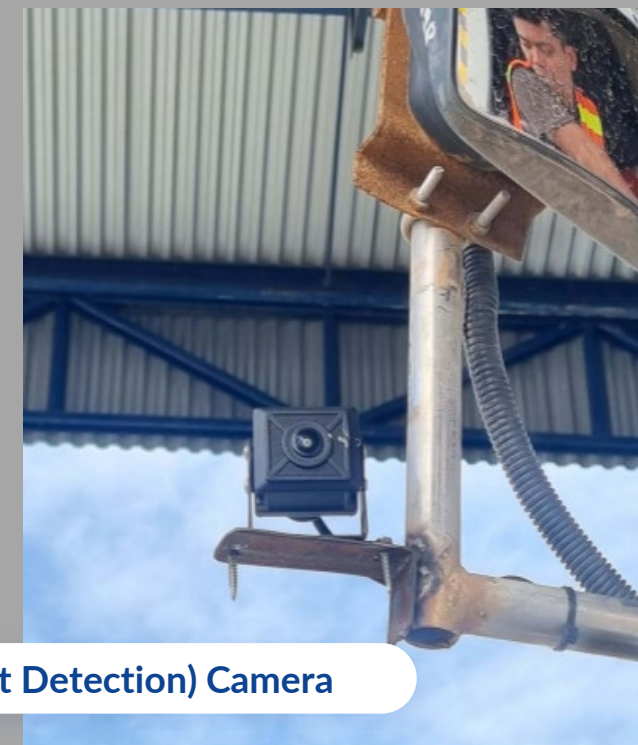


Passenger Counter

- 0.5-3m height; 3m width
- Settable in GUI
- Light suppression can reach 130Klux
- For low light / outdoor environments
- Recognition time is within 25s
- Passenger counting flow accuracy is >99%
- Ethernet and RS485 ports are available



Dokumentasi Pemasangan MDVR B



Dokumentasi Pemasangan MDVR B



Cab Camera (di dalam kabin)



MDVR 8B



VGA Screen untuk pengemudi melihat semua titik





Dokumentasi Pemasangan MDVR



S P E C I F I C A T I O N

Fuel Sensor

Deskripsi	iFuel Stick	OBD
Sensors Type		
How sensor works	A stick level installed in the fuel tank to detect fuel volume level	A fleet and fuel monitoring solution that reads data from Electronic Control Unit (ECU)
Specification	<ul style="list-style-type: none"> • Power Voltage, VDC: 10 - 60 • Reverse Polarity Protection: Yes • Measuring Accuracy: +- 1% • Temperature Range, C: -40^o to 85^o • Outout Interface: CAN, RS-232, RS485, Analog • Configuration Interface: K-Line • Protection Rating: IP67 	<ul style="list-style-type: none"> • Technology: GSM • Input Voltage Range: 10 – 30 V DC with overvoltage protection • Back-up battery: 170mAh Li-Ion battery 3.7 V (0.63 Wh) • Bluetooth Specification: 4.0 + LE • Physical Specification: Dimensions 65 x 56.6 x 20.6 mm (L x W x H) and weight 55 g • Operating Temperature: -40^oC to +85^oC • Operating Humidity: 5% to 95% non-condensing • Ingress Protection Rating: IP41

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