

ARMobile 2.0 (Beta) Product Catalogue and Roadmap Feb. 2026



ARMobile 2.0 is an advanced framework that enhances mine operations and safety through a data-driven approach for efficient decision-making, integration, and asset management.

It leverages cutting-edge mining and industry-standard technology to connect, analyse, and visualize essential operational data. This ensures safety, efficiency, compliance, and optimized performance.

Table of Contents

Abbreviations	2
1. ARMobile 2.0 - Standard Edition	3
1.1. LRMS Standard Reporting.....	3
1.1.1 Lamproom Management System Baseline Reporting	3
1.1.2 Tracking Manager Baseline Reporting	3
1.1.3 Standard Equipment Clearance.....	4
2. ARMobile - Advanced Edition	7
2.1 Personnel Management.....	7
2.1.1 Map - Personnel Tracking Tool.....	7
2.1.2 Infringement Dashboards	8
2.1.3 Workplace Analysis.....	10
2.1.4 Inactivity Dashboard & Report	14
2.1.5 Workplace Movement Analytics.....	15
2.2 Secondary Zone Clearance Tool	20
2.3 TMM Management.....	21
2.3.1 Map – TMM Tracking Tool.....	21
2.3.2 Zone Infringement Dashboard	22
2.3.3 Tipping Events Analysis.....	24
2.3.4 TMM Utilization Analysis.....	26
2.3.5 Vehicle Test Station Reports	32
2.4 Loco Management	34
2.4.1 Map – Loco Tracking Tool	34
2.4.2 Loco Utilisation Analysis	34
2.4.3 Loco detail data analysis tool.....	42
2.4.4 Offline Speed Beacon and Waypoint Monitoring.....	44
2.5 Asset Management	45
2.5.1 Map - Asset Tracking Tool.....	45
2.5.2 Asset Tag Configuration Tool	46
2.5.3 Material Car Inventory Control.....	49
2.6 Kiosk Module	53
2.6.1 Kiosk Per Display	53
2.6.2 Beacon Status Monitoring.....	53
2.7 Datawarehouse Module	54
2.8 Compliance and Investigation Module.....	55
2.9 Shift Capture	58
2.9.1 Shift Capture Form.....	58
2.9.2 Shift Capture Report	60
2.9.3 Shift Dashboard / KPI Dashboard for Shifts	61
3. Features in Development.....	62
3.1 Short Interval Control Lite via Microsoft Teams.....	62
3.2 Ask-FRICY	64
3.3 Winch Proximity System Dashboard	65
3.4 Diesel Rebate Tracking and Reporting.....	68
4. Custom Development Services	69
5. ARMobile 2.0 Feature Release Roadmap.....	70



Abbreviations

Table 1: List of abbreviations

Abbreviation	Definition
ARMobile	ARMobile framework also known as A&R Group Mobile or A&R Mobile
CMMS	Comprehensive Mine Management System
LRMS	Lamp Room Management System
TMM	Trackless Mobile Machinery
TBA	To be Announced (Feature or module still in development)
KPI	Key Performance Indicator
ETL	Extract, Transform and Load
ERP	Enterprise Resource Planning

1. ARMobile 2.0 - Standard Edition

A&R Group Mobile offers two core subscription tiers to cater to different operational needs.

Standard Edition provides foundational functionalities suitable for standard Lamproom operations, including:

- Standard reporting
- Core dashboard access

1.1. LRMS Standard Reporting

1.1.1 Lamproom Management System Baseline Reporting.

- LRMS107: Equipment Control Sheet
- LRMS119: Pedestrian Tag Test History
- LRMS166: Equipment Actions
- LRMS139: Access Terminal Events
- LRMS152: Equipment Replacement History
- LRMS129: Personnel Certificate Summary
- LRMS178: Overridden Equipment Or Personnel
- LRMS177: Equipment Tag Take On
- LRMS151: Equipment Allocation List
- LRMS504: Pedestrian Tags Lacking Communication
- LRMS505: Pedestrian Tags Exceeding Threshold
- LRMS503: Pedestrian Tag Sessions
- LRMS147: Personnel Minimum Equipment
- LRMS145: System Block Summary
- LRMS128: Personnel Audit Trail
- LRMS105: Equipment Audit Trail
- LRMS050: Non-Moving Equipment
- LRMS142: Verification Station Summary
- LRMS148: Personnel No Minimum Equipment
- LRMS133: Personnel Information Summary
- LRMS300: Booyco Cap Lamp Test
- LRMS301: Disposable Equipment Issued Register
- LRMS045: Equipment Requiring Service Or Repair
- LRMS118: Equipment Service Or Repair History
- LRMS005: Lamproom Report
- LRMS017: Equipment Allocation History

1.1.2 Tracking Manager Baseline Reporting

- TM015: Observed Movements
- TM012: Operable Equipment Proximity and Tracking History
- MPL001: Personnel Unaccounted For in Working Area



- TM021: Personnel Last Observed Location
- TM025: Verification And Observation

1.1.3 Standard Equipment Clearance

LRMS137: Equipment Clearance

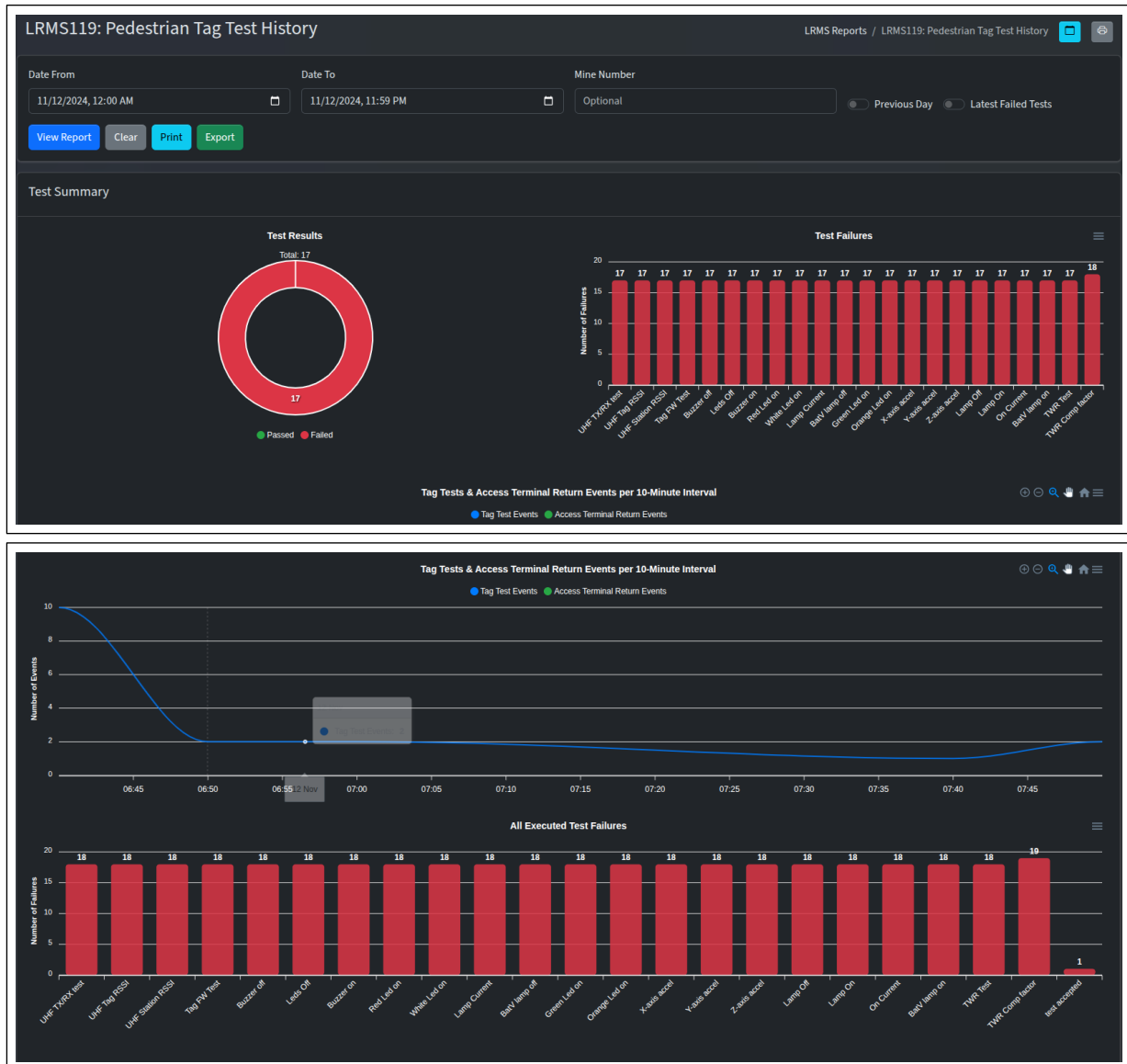


Figure 1. LRMS119: Pedestrian Tag Test History

Test Date	Prefix	Mine Number	Equipment Type	Model Name	Hardware Address	Designation	Allocated To	Executed Test	Test Criteria	Measured Value	Executed Test Result	Result	Test Input
11/12/2024, 7:05:29 AM	T	997	Cap Lamp	PTC Safe Light		Operational		UHF TX/RX test	Tag ID	3794900695.000	FAILED	FAILED	
								UHF Tag RSSI	> -70 dB	-45 (100.0:100.0)	FAILED		
								UHF Station RSSI	> -65 dB	-43 (100.0:100.0)	FAILED		
								Tag FW Test	Valid Tag Firmware	2083.000	FAILED		
								Buzzer off	< 73.019 dB SPL	48.020	FAILED		
								Leds Off	< 40.000 lux	0.000	FAILED		
								Buzzer on	> 30.000 dB SPL	112.373	FAILED		
								Red Led on	> 5 lux	61.339	FAILED		
								White Led on	> 5 lux	54.879	FAILED		
								Lamp Current	< 150mA	100.000	FAILED		
								BatV lamp off	> 3.200V	3.900	FAILED		
								Green Led on	> 5 lux	8.650	FAILED		
								Orange Led on	> 5 lux	44.340	FAILED		
								X-axis accel	> 0.60G	-1.019	FAILED		
								Y-axis accel	< 0.15G	-0.070	FAILED		
								Z-axis accel	< 0.15G	0.109	FAILED		
								Lamp Off	> 5 on/off diff	11120.320	FAILED		
								Lamp On	> 10 lux	11904.000	FAILED		
								On Current	> 100mA	380.000	FAILED		
								BatV lamp on	> 3.200V	3.700	FAILED		
								TWR Test	> 1, < 100 cm	42 (100.0:0.0:0.0:106.2:16)	FAILED		
								TWR Comp factor	_100ppm	-977.000	FAILED		

Figure 2. LRMS119: Pedestrian Tag Test History #2

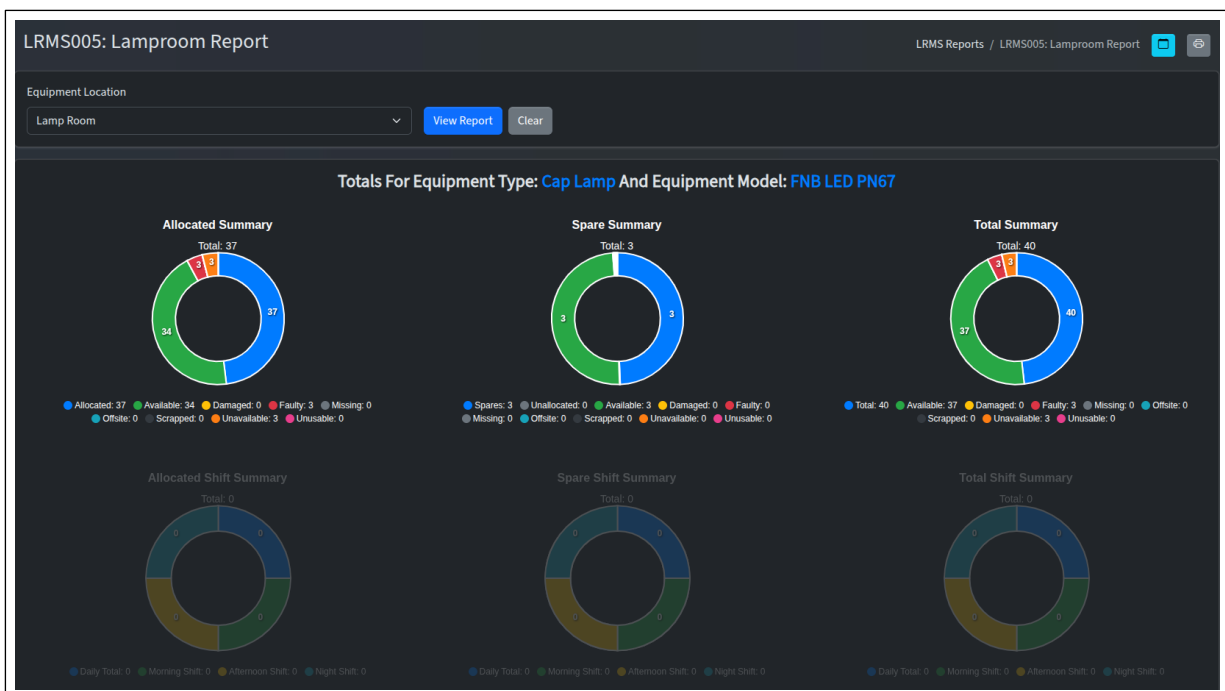


Figure 3. LRMS005: Lamproom Report



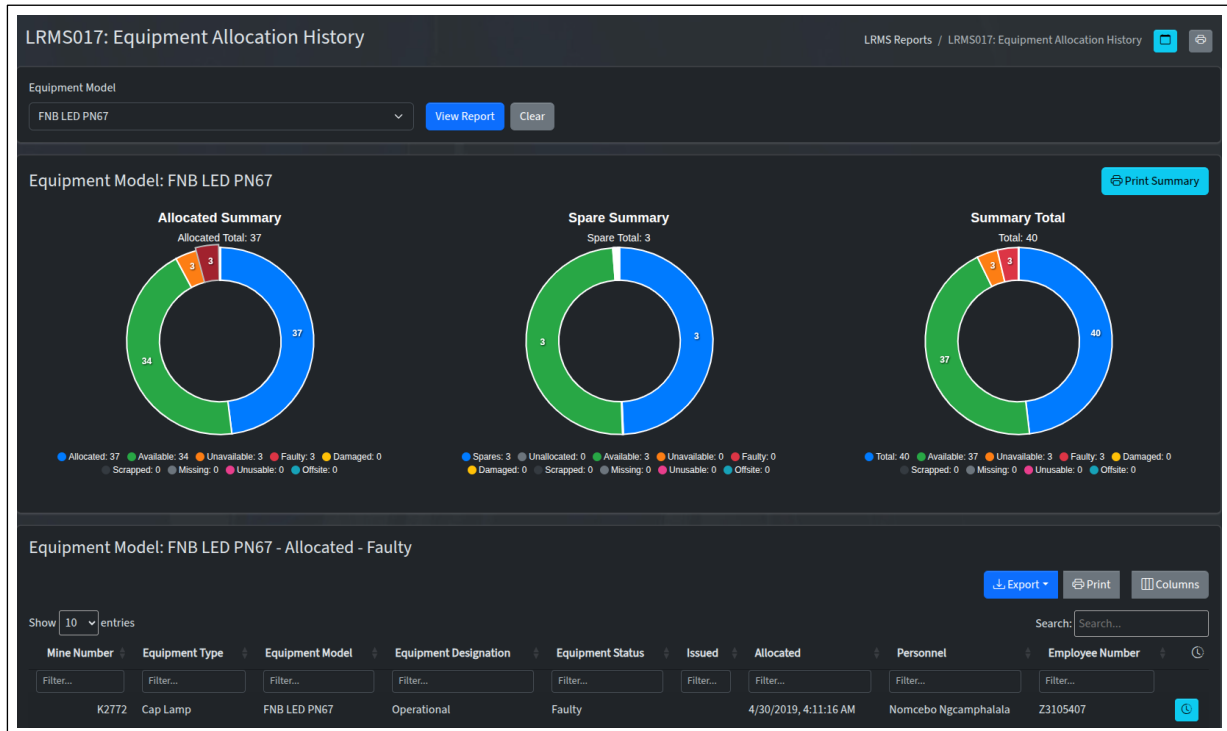


Figure 4. LRMS017: Equipment Allocation History

2. ARMobile - Advanced Edition

2.1 Personnel Management

2.1.1 Map - Personnel Tracking Tool

The Personnel Tracking Tool is a real-time tracking and monitoring solution designed to enhance worker safety, efficiency, and accountability in underground mining operations on a 3D map of the mine. This module provides live location tracking, visual aids, supports emergency response efforts, and helps analyse personnel movement for productivity insights.

Key Features:

- Map for Real-time tracking of personnel underground for improved safety and visibility
- Emergency response support for locating missing workers quickly
- Historical movement logs for audits and operational insights

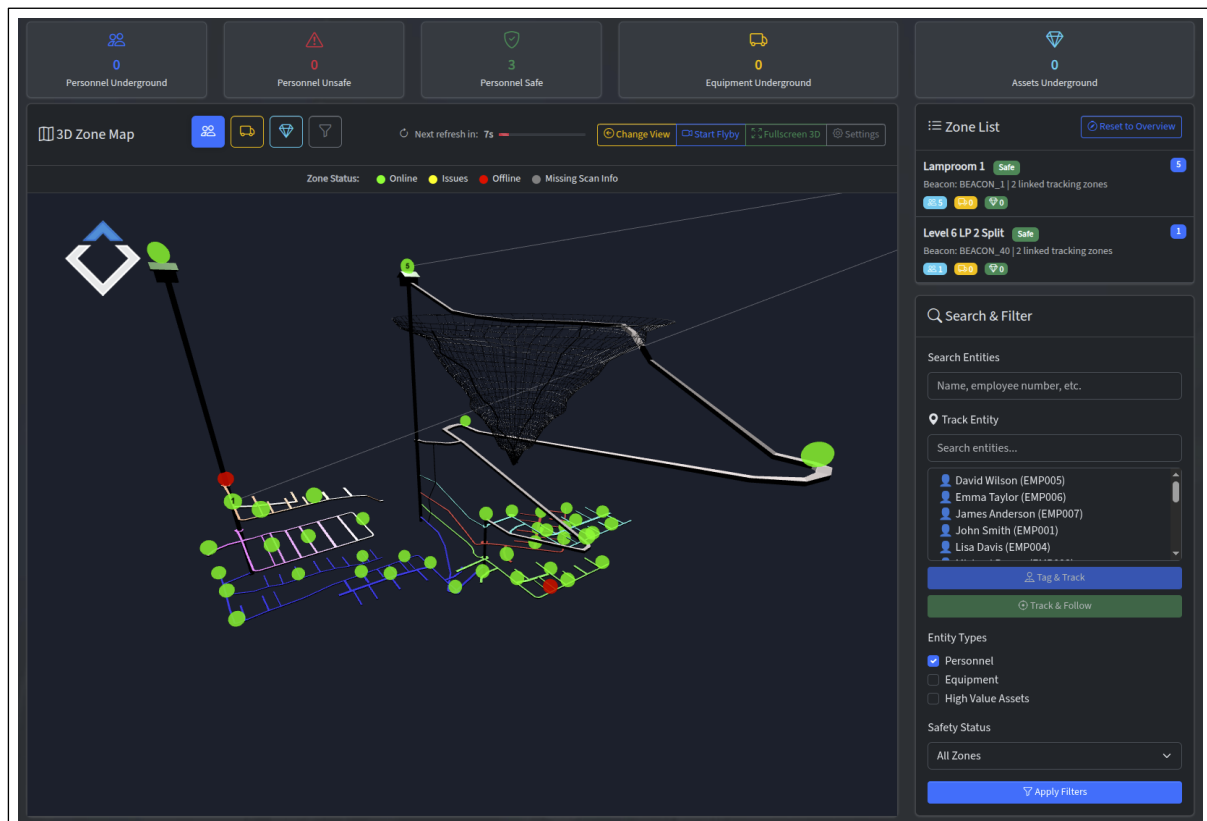


Figure 5: Main Map - Personnel Tracking

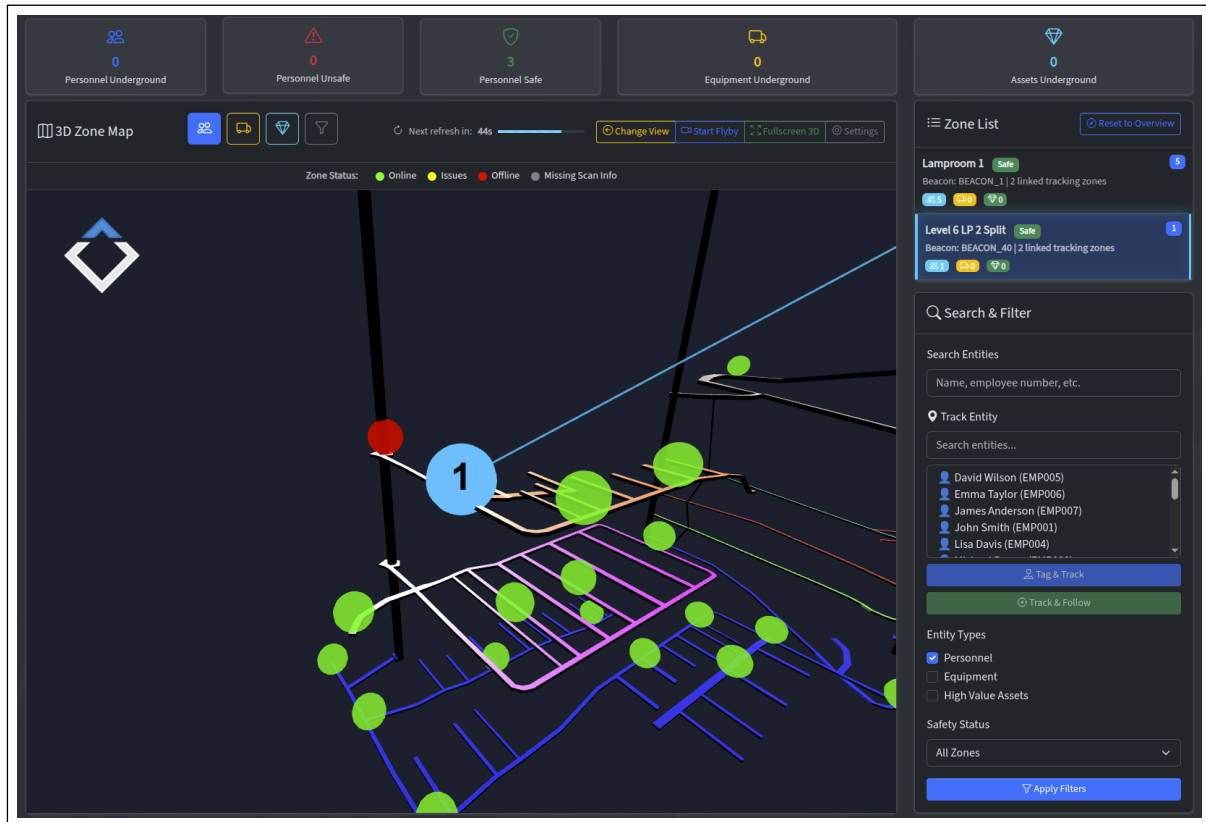


Figure 6: Section View on Map

2.1.2 Infringement Dashboards

The Infringement Dashboards module provides real-time and historical tracking of safety and operational violations within the mining environment.

Key Features:

- Daily & Monthly Infringement Dashboards to track trends and recurring violations
- Automated reporting for compliance tracking and audits
- Integration with personnel and vehicle tracking systems for accurate enforcement.

The personnel responsible for E-stops, equipment types, and E-stops locations are shown in

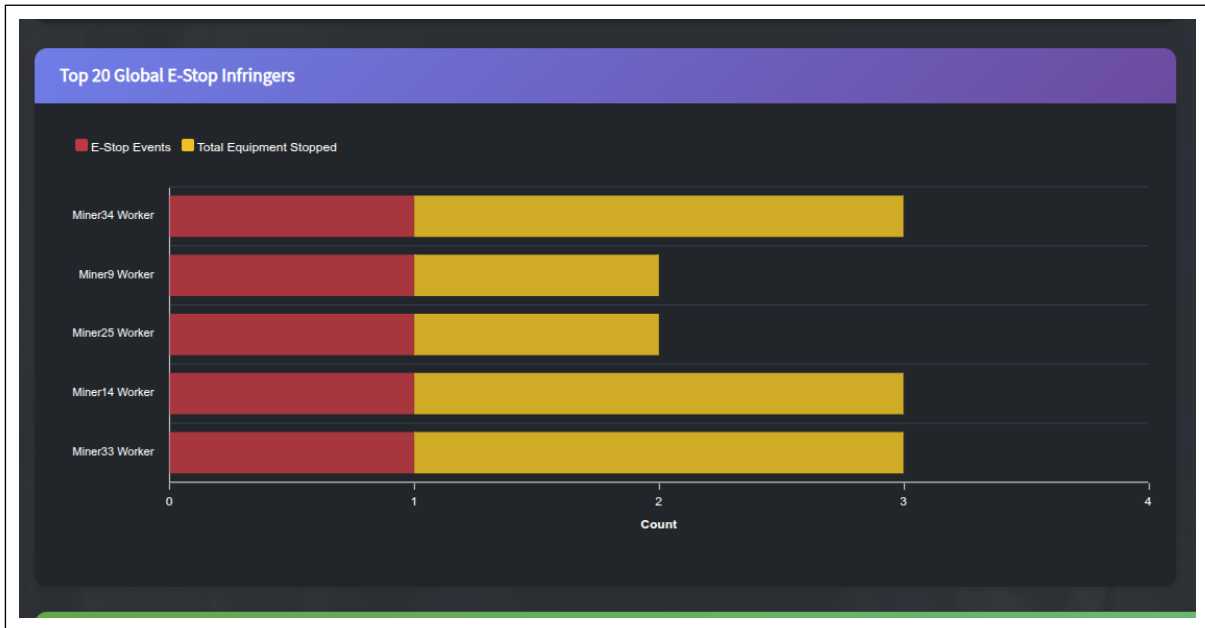


Figure 7: Global E-Stops per selected Date



Figure 8: Proximity Class per selected Date

2.1.3 Workplace Analysis

The Workplace Analysis module is designed to monitor and analyse personnel presence within designated work areas to ensure optimal workforce distribution, adherence to safety protocols, and operational efficiency. By tracking whether employees are present in their assigned workplaces.

Key Features:

- Real-time tracking of personnel presence in designated work areas
- Historical reporting to evaluate attendance patterns and compliance
- Improved safety oversight to ensure adequate staffing in critical areas.

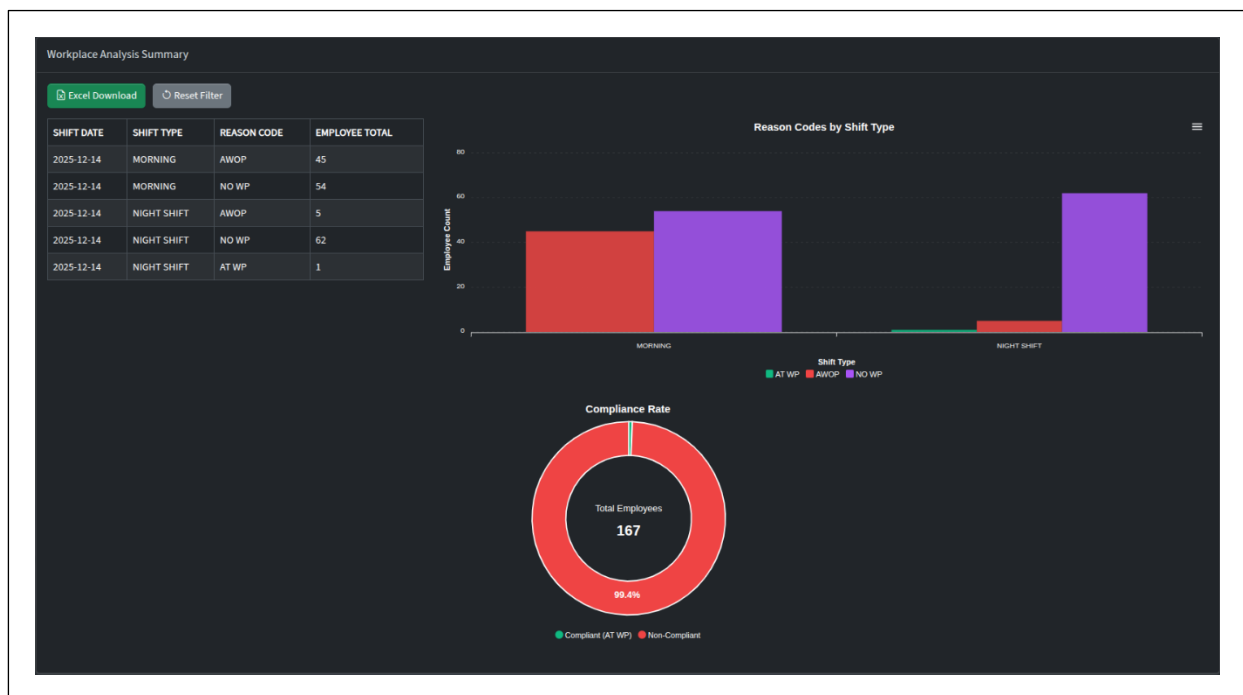


Figure 9. Workplace Analysis #1

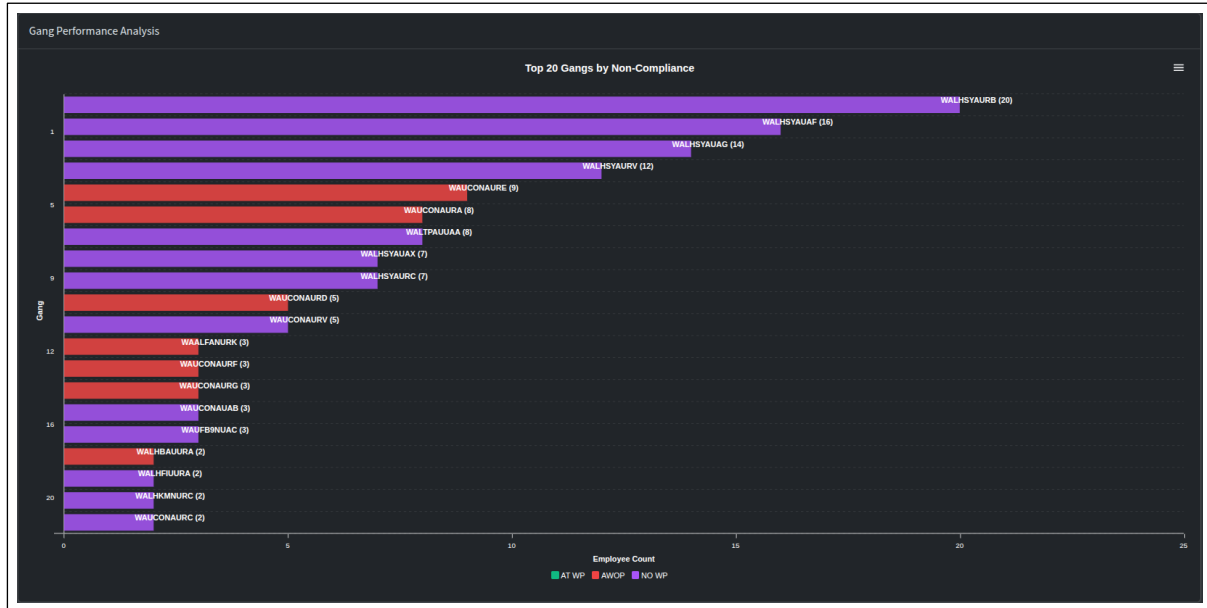


Figure 10. Workplace Analysis #2

Workplace Analysis Reconciliation

Excel Download

Search:

SHIFT DATE	SHIFT	GANG	EMP TYPE	EMP NUMBER	COMPANY	EVENT CODE	SHIFT CODE REVISED	START DATE	HAS CRUSH PERMISSION	REASON CODE	WA TIME	WP TIME	FIX
2025-12-14	NIGHT SHIFT	WAUTC9UUB	Employee	Z4886069	HARMONY	b	U	2025-12-14	NO	NO WP	09:42:04		YES
2025-12-14	NIGHT SHIFT	WAUTC9UUB	Employee	Z4541155	HARMONY	b	U	2025-12-14	NO	NO WP	08:40:04		YES
2025-12-14	NIGHT SHIFT	WAUTC9NUAR	Employee	Z7040298	HARMONY	b	A		NO	NO WP			YES
2025-12-14	NIGHT SHIFT	WAUTC9NUAR	Employee	C2288211	HARMONY	b	A		NO	NO WP			YES
2025-12-14	NIGHT SHIFT	WAUTC9NUAL	Employee	Z2017550	HARMONY	b	A		NO	NO WP			YES
2025-12-14	NIGHT SHIFT	WAUTC9NUAL	Employee	A3790019	HARMONY	b	A		NO	NO WP			YES
2025-12-14	NIGHT SHIFT	WAUTC9NUAK	Employee	A3790056	HARMONY	b	A		NO	NO WP			YES
2025-12-14	NIGHT SHIFT	WAUTC9NUAB	Employee	Z2024359	HARMONY	U	U	2025-12-14	NO	AT WP	10:37:51	08:31:58	OK
2025-12-14	NIGHT SHIFT	WAUTC9NUAB	Employee	Z0135872	HARMONY	b	u	2025-12-14	NO	AWOP	09:59:55		NO
2025-12-14	NIGHT SHIFT	WAUTANURB	Employee	Z0089175	HARMONY	b	z		NO	NO WP			YES
2025-12-14	NIGHT SHIFT	WAUF89UUA	Employee	Z3875497	HARMONY	b	b	2025-12-14	NO	NO WP	08:36:06		YES

Figure 11. Workplace Analysis #2



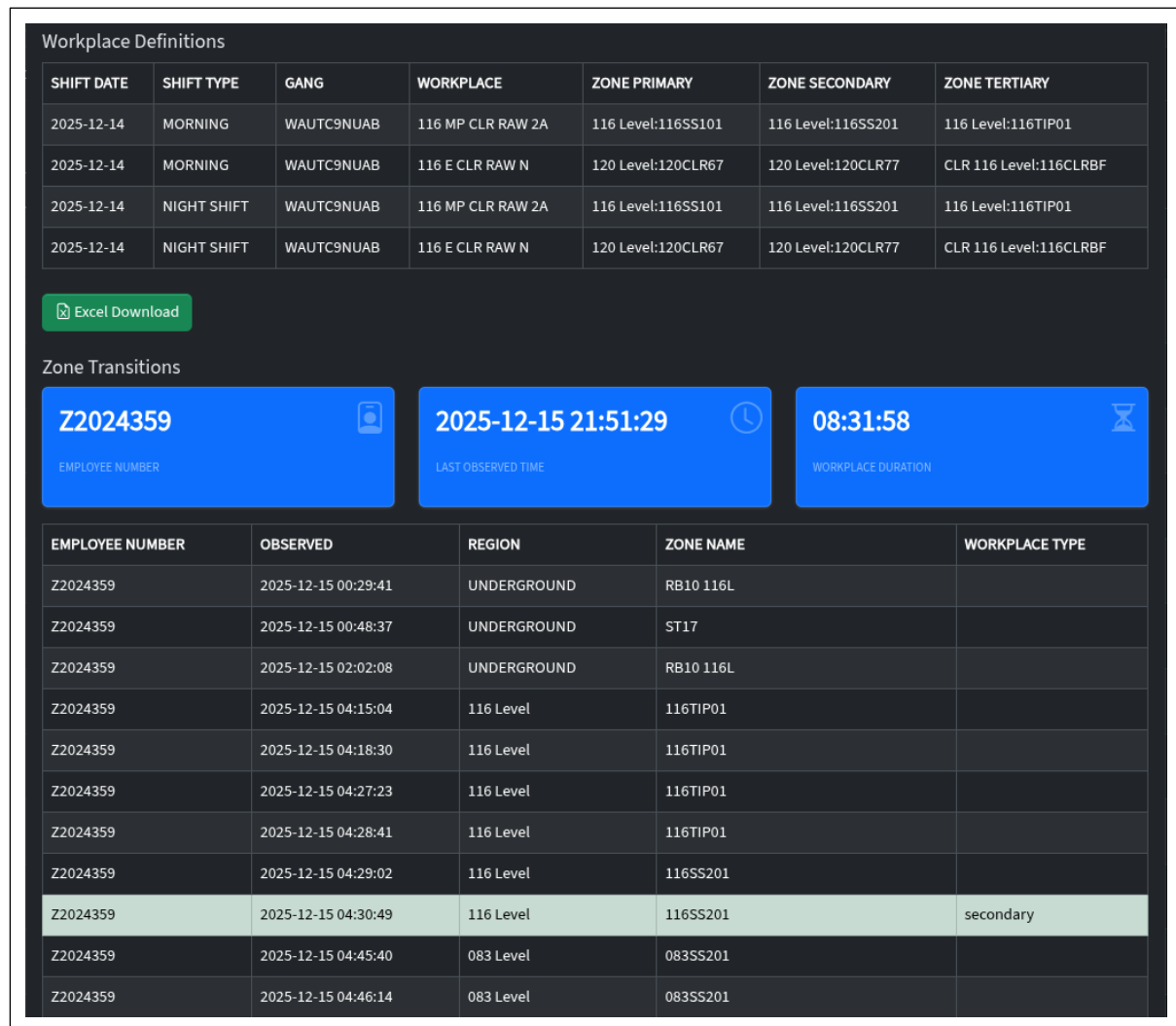


Figure 12. Workplace Analysis #4

Z2024359	2025-12-15 19:00:47	Lamp Room	Tag Test Station Area	
Z2024359	2025-12-15 19:04:05	Lamp Room	Equipment Issue Area	
Z2024359	2025-12-15 19:04:35	Lamp Room	Tag Test Station Area	
Z2024359	2025-12-15 19:04:44	Lamp Room	Verification Area	
Z2024359	2025-12-15 19:10:28	Lamp Room	Return	
Z2024359	2025-12-15 19:10:31	Surface	Working Area	
Z2024359	2025-12-15 19:11:05	001 Service Tunnel	SRVTNL1	
Z2024359	2025-12-15 19:25:23	083 Level	083MNS01	
Z2024359	2025-12-15 19:26:00	083 Level	083MNS01	
Z2024359	2025-12-15 19:27:57	083 Level	083SS203	
Z2024359	2025-12-15 19:43:16	083 Level	083SS203	
Z2024359	2025-12-15 19:43:34	083 Level	083SS201	
Z2024359	2025-12-15 19:44:27	083 Level	083SS201	
Z2024359	2025-12-15 19:59:57	116 Level	116SS201	secondary
Z2024359	2025-12-15 20:01:06	116 Level	116SS201	
Z2024359	2025-12-15 20:01:25	116 Level	116TIP01	
Z2024359	2025-12-15 20:12:17	116 Level	116TIP01	
Z2024359	2025-12-15 20:20:13	116 Level	116TIP01	
Z2024359	2025-12-15 20:26:29	116 Level	116TIP01	
Z2024359	2025-12-15 21:51:29	UNDERGROUND	ST17	

[Excel Download](#)

Close

Figure 13. Workplace Analysis #5

2.1.4 Inactivity Dashboard & Report

The Inactivity Dashboard & Report module focuses on tracking personnel movement within the mining environment to identify periods of inactivity. By monitoring real-time worker movements, this module ensures optimized workforce efficiency, improved safety compliance, and proactive management of idle personnel.

Key Features:

- Real-time tracking of personnel movement within work zones
- Automated alerts for extended inactivity or non-movement in designated areas
- Movement analysis to detect low-activity zones (see Figure 14)
- Customizable inactivity thresholds based on role and location
- Historical reporting to analyse workforce efficiency trends over time

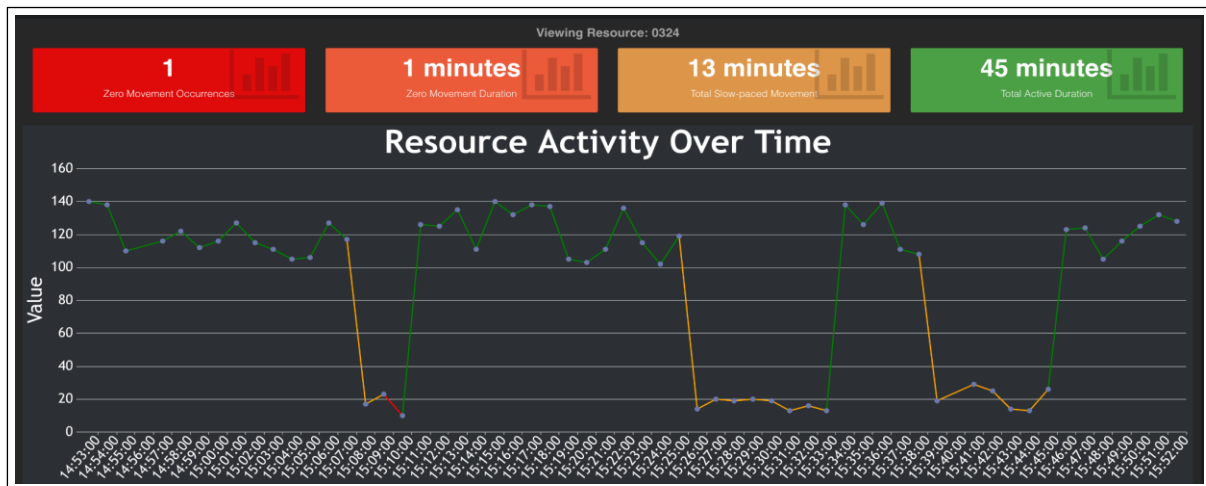


Figure 14. Selected Resource activity for a day

The dashboard can also show the Top Inactive Employee, Top Inactive Times and the Top Active Employees.



Figure 15. Inactivity Dashboard

2.1.5 Workplace Movement Analytics

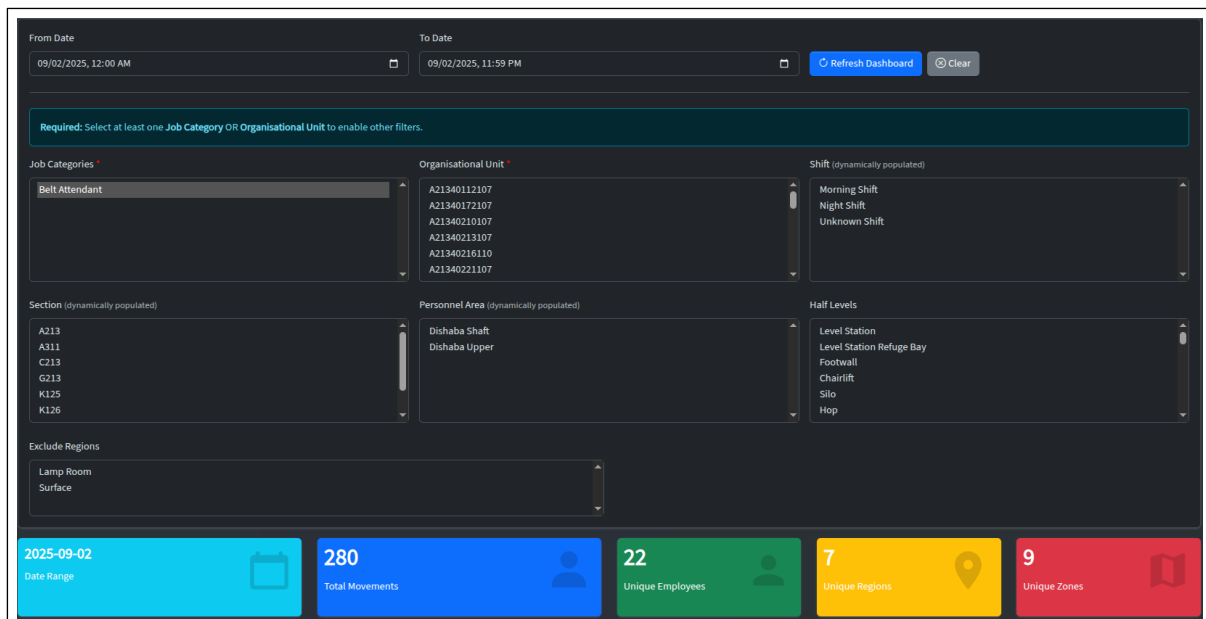


Figure 16. Workplace Movement Analytics #1

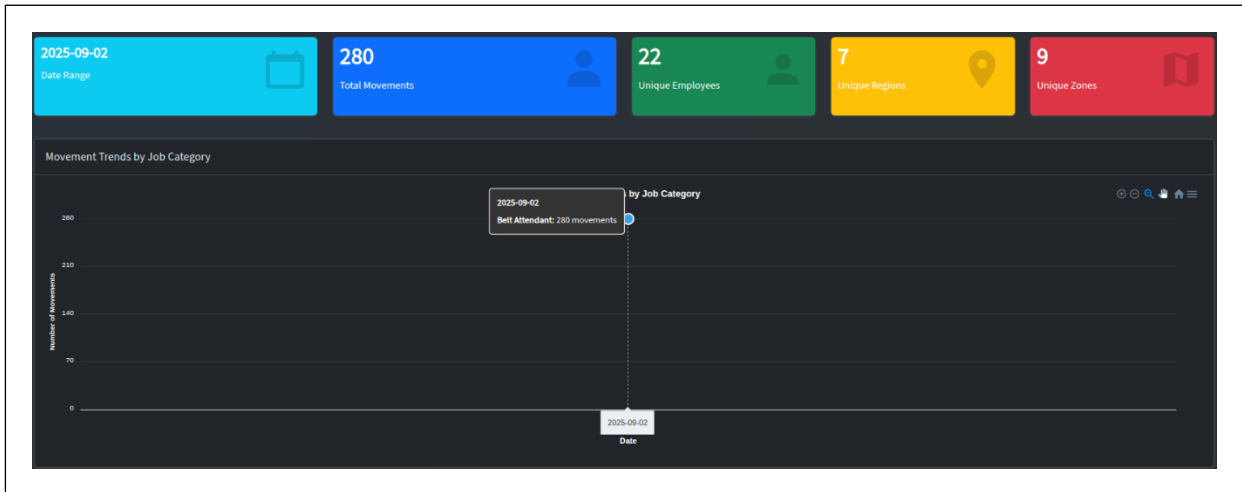


Figure 17. Workplace Movement Analytics #2

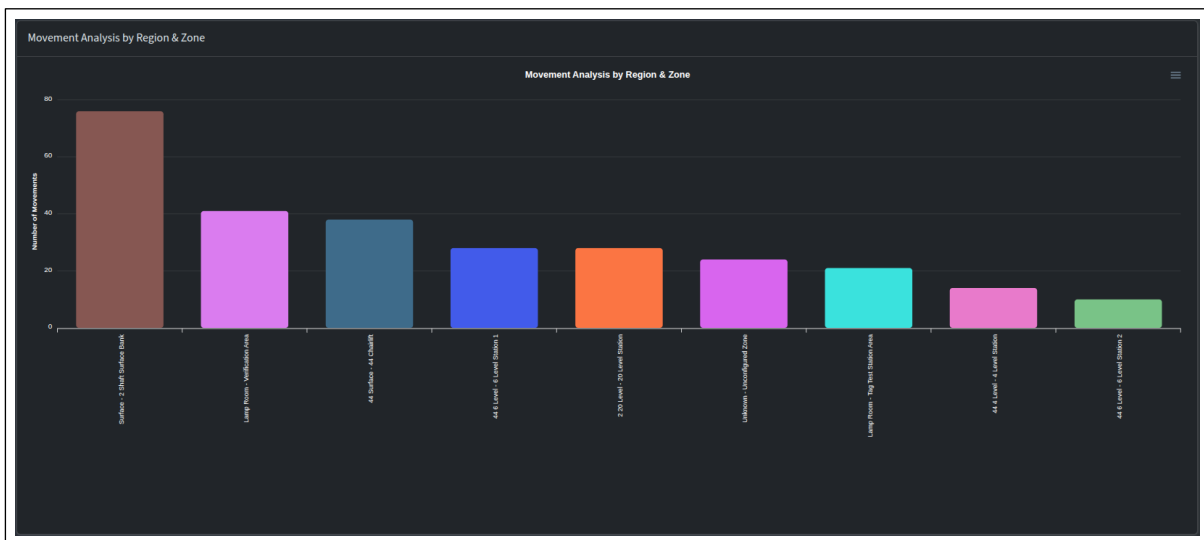


Figure 18. Workplace Movement Analytics #3

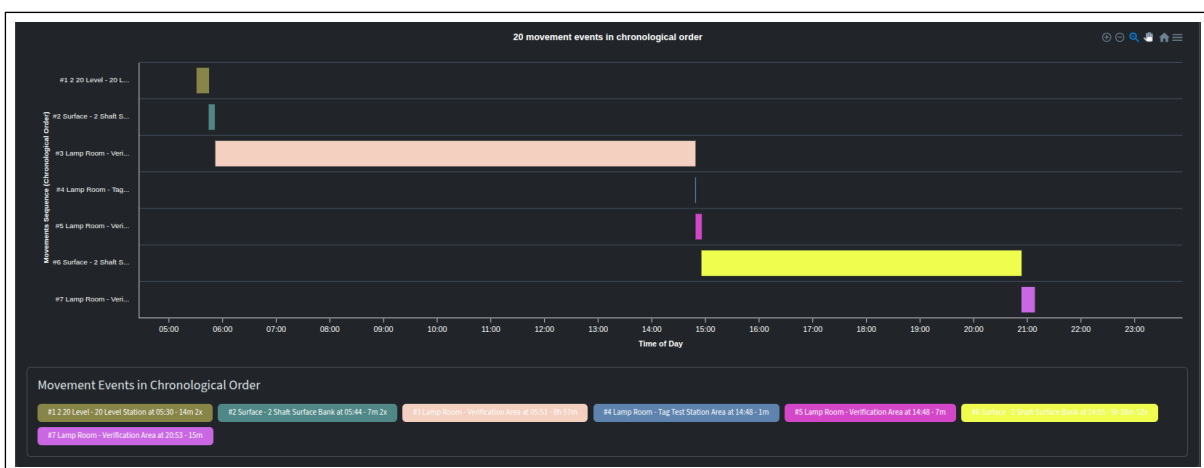


Figure 19. Workplace Movement Analytics #4

Employee Movement Details: Detailed listing of all movements with zone duration bars, ordered by datetime per employee. Date selector adapts based on selected employee shift.

Search Employee: Employee: Date:

Personnel Area: 22 employees available

Show entries

Search in table:

	EMPLOYEE NUMBER	OBSERVED DATETIME	JOB CATEGORY	PERSONNEL AREA	PERSONNEL SHIFT	SECTION	REGION	ZONE	DEPARTMENT	ORGANISATIONAL UNIT	ZONE DURATION
	80052939	02 Sep 2025 18:14:04	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Lamp Room	Verification Area	A-EAST-SRF & # FOREM	C21340140110	30m (2 events)
	80052939	02 Sep 2025 17:52:16	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Surface	2 Shaft Surface Bank	A-EAST-SRF & # FOREM	C21340140110	20m (3 events)
	80052939	02 Sep 2025 13:36:02	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	2 20 Level	20 Level Station	A-EAST-SRF & # FOREM	C21340140110	4h 13m (7 events)
	80052939	02 Sep 2025 13:01:45	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Surface	2 Shaft Surface Bank	A-EAST-SRF & # FOREM	C21340140110	32m (7 events)
	80052939	02 Sep 2025 12:53:09	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Lamp Room	Verification Area	A-EAST-SRF & # FOREM	C21340140110	8m (2 events)
	80052939	02 Sep 2025 12:52:34	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Lamp Room	Tag Test Station Area	A-EAST-SRF & # FOREM	C21340140110	0m (2 events)
	80061256	02 Sep 2025 13:53:02	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Lamp Room	Verification Area	A-EAST-SRF & # FOREM	C21340410110	30m (2 events)
	80061256	02 Sep 2025 13:45:27	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	Surface	2 Shaft Surface Bank	A-EAST-SRF & # FOREM	C21340410110	7m (3 events)
	80061256	02 Sep 2025 05:33:52	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	2 20 Level	20 Level Station	A-EAST-SRF & # FOREM	C21340410110	8h 10m (5 events)

Figure 20. Workplace Movement Analytics #5

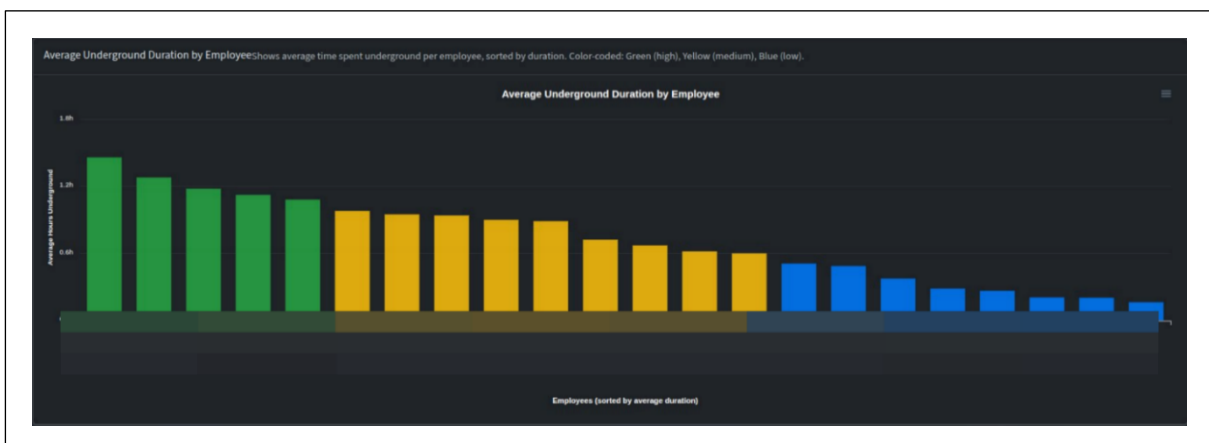


Figure 21. Workplace Movement Analytics #6

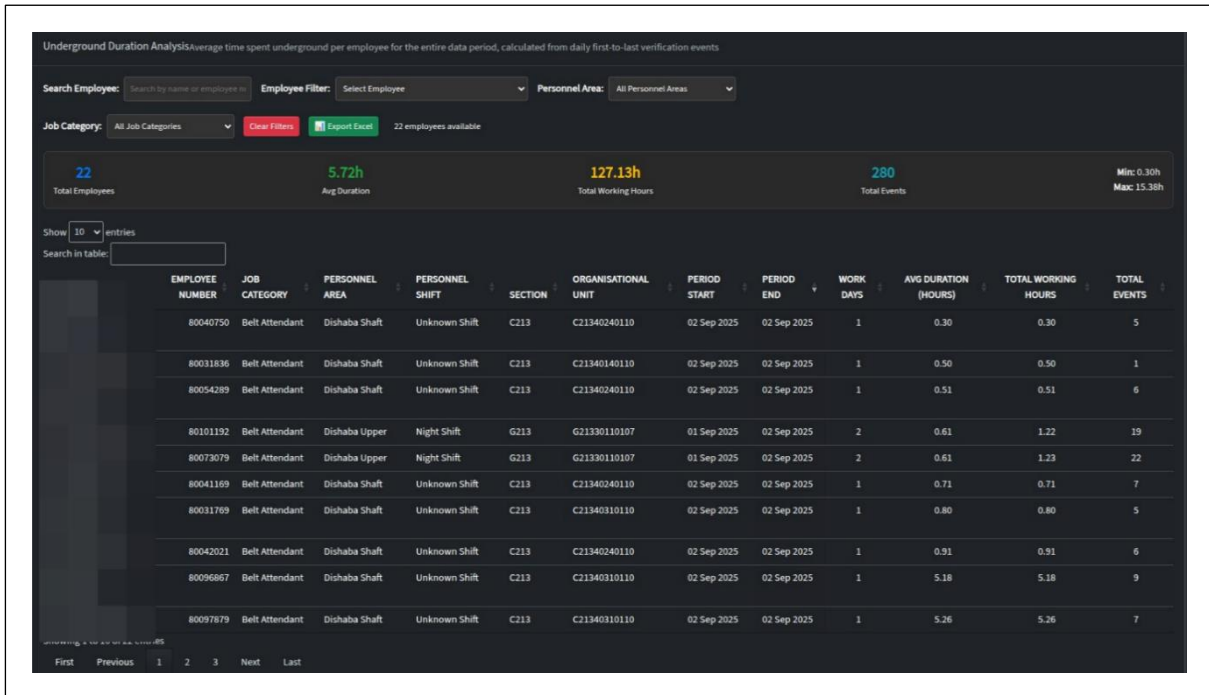


Figure 22. Workplace Movement Analytics #7

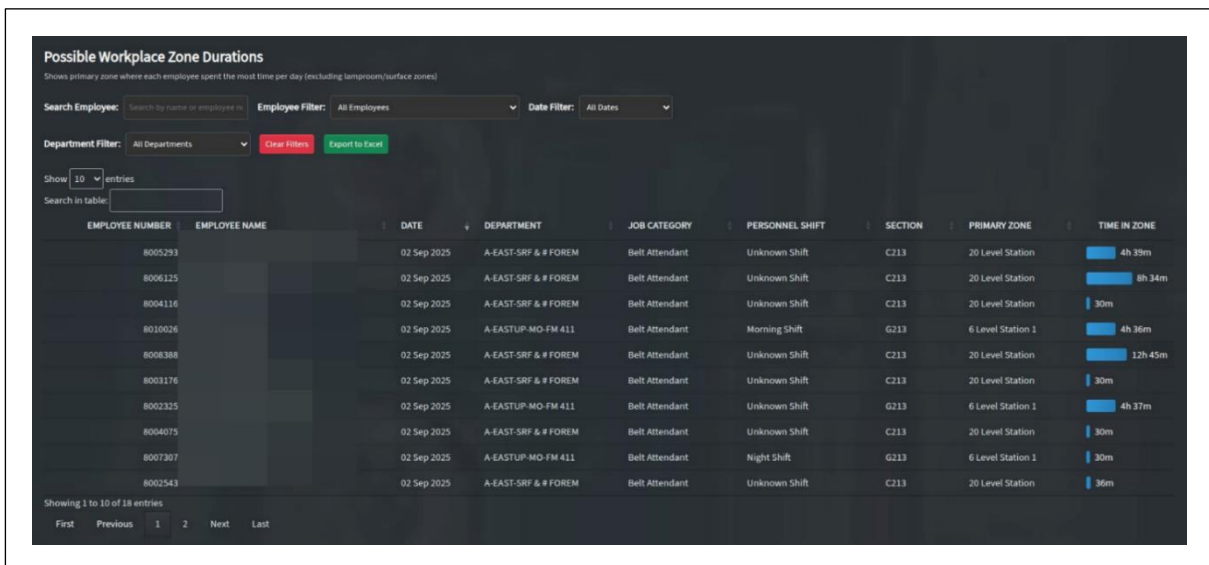


Figure 23. Workplace Movement Analytics #8

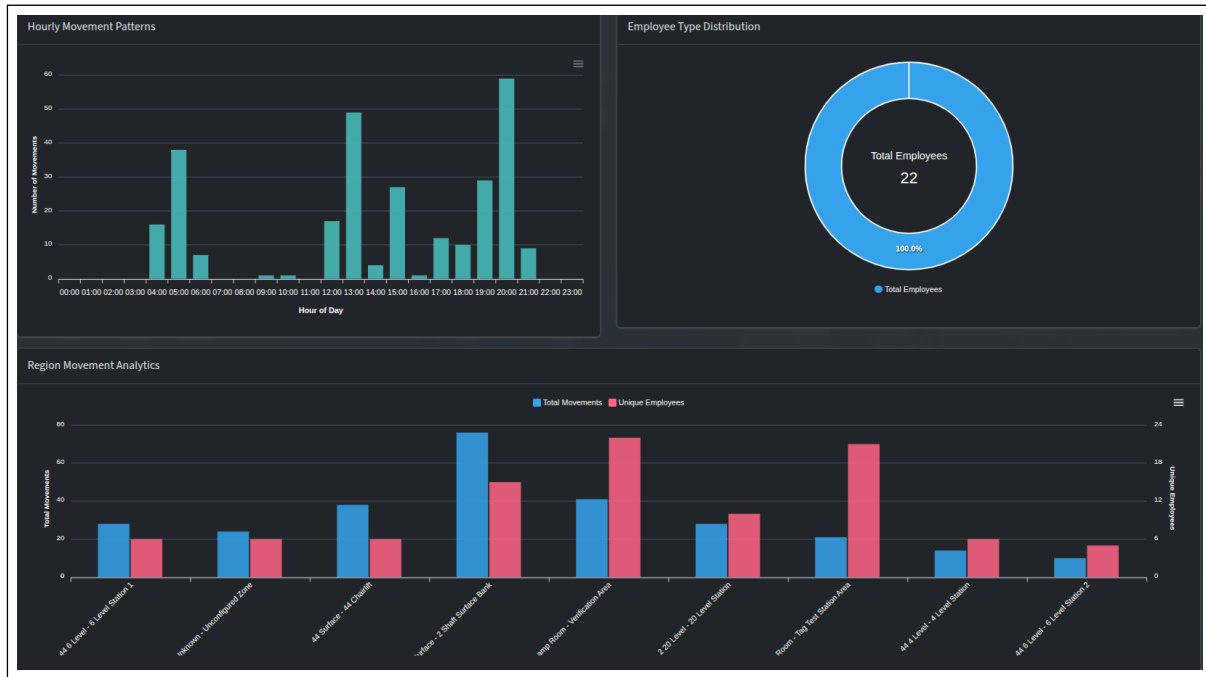


Figure 24. Workplace Movement Analytics #9

Top 20 Most Active Employees
Employees ranked by total movements with unique zones and regions visited

Search Employee: Employee Filter: Job Category:

Personnel Area: 20 employees

Show entries

Search in table:

EMPLOYEE #	JOB CATEGORY	PERSONNEL AREA	PERSONNEL SHIFT	SECTION	ORGANISATIONAL UNIT	DEPARTMENT	TOTAL MOVEMENTS	UNIQUE ZONES	UNIQUE REGIONS
80100268	Belt Attendant	Dishaba Upper	Morning Shift	G213	G21330110107	A-EASTUP-MO-FM 411	26	7	5
80094968	Belt Attendant	Dishaba Upper	Morning Shift	G213	G21330110107	A-EASTUP-MO-FM 411	24	7	5
80073077	Belt Attendant	Dishaba Upper	Night Shift	G213	G21330110107	A-EASTUP-MO-FM 411	22	7	5
80099899	Belt Attendant	Dishaba Upper	Unknown Shift	G213	G21330110107	A-EASTUP-MO-FM 411	21	7	5
80025435	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340140110	A-EAST-SRF & # FOREM	20	4	3
80023255	Belt Attendant	Dishaba Upper	Unknown Shift	G213	G21330110107	A-EASTUP-MO-FM 411	20	7	5
80101135	Belt Attendant	Dishaba Upper	Night Shift	G213	G21330110107	A-EASTUP-MO-FM 411	19	6	5
80083882	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340310110	A-EAST-SRF & # FOREM	17	4	3
80052938	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340140110	A-EAST-SRF & # FOREM	17	4	3
80029111	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340140110	A-EAST-SRF & # FOREM	14	4	3
80061254	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340410110	A-EAST-SRF & # FOREM	11	4	3
80096865	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340310110	A-EAST-SRF & # FOREM	9	4	3
80082611	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340410110	A-EAST-SRF & # FOREM	9	4	3
80097871	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340310110	A-EAST-SRF & # FOREM	7	3	2
80094708	Belt Attendant	Dishaba Shaft	Unknown Shift	C213	C21340410110	A-EAST-SRF & # FOREM	7	3	2

Figure 25. Workplace Movement Analytics #10

2.2 Secondary Zone Clearance Tool

The Secondary Zone Clearance module provides an additional layer of safety and verification for personnel and vehicle access within restricted or high-risk areas in a mining environment.

Key Features:

- Real-time monitoring of personnel and vehicle movement in restricted zones (see Figure 26)
- Historical View of Zone Clearance for selected date
- Customizable clearance rules
- Historical reports for compliance tracking

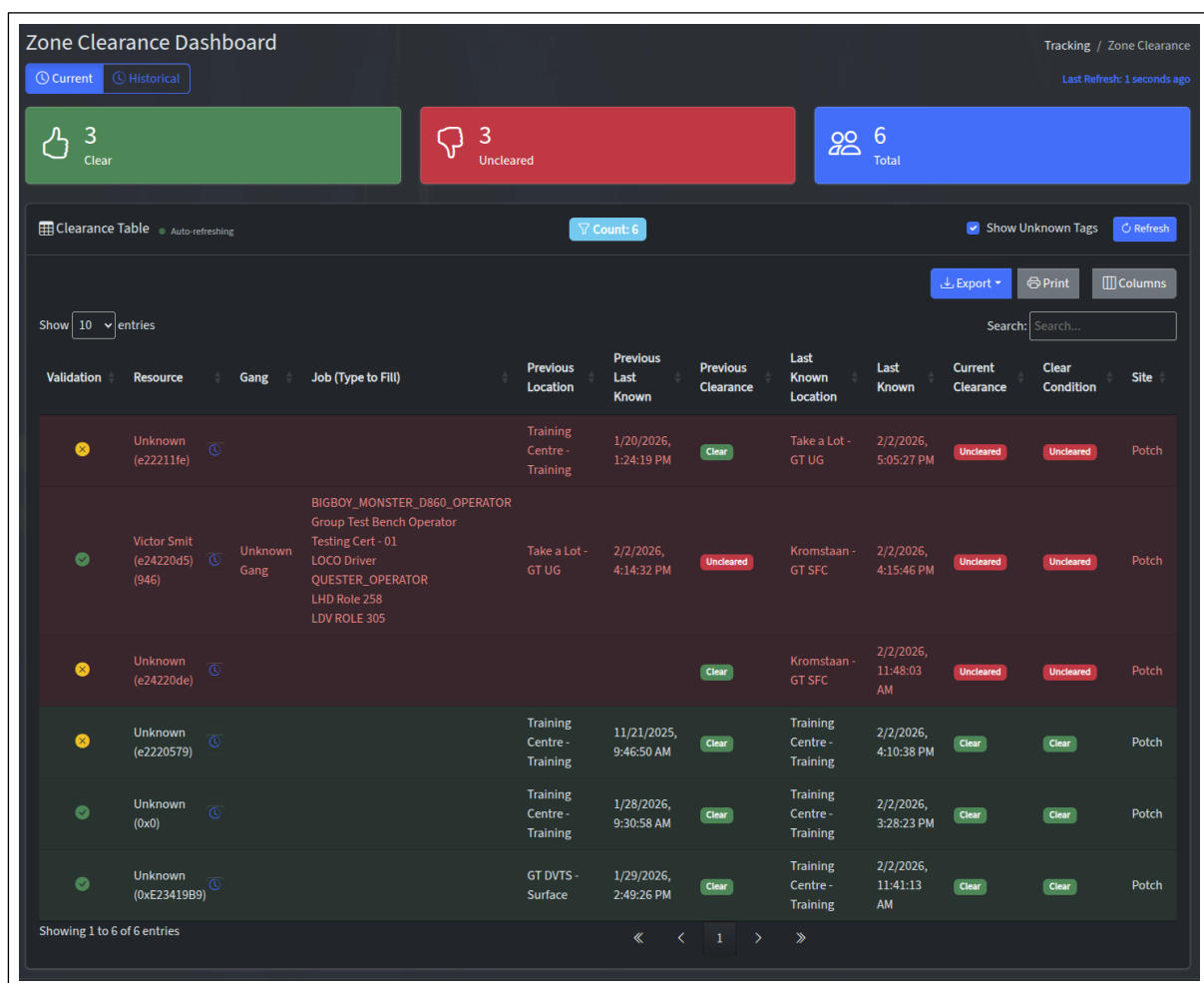


Figure 26: Zone Clearance Realtime Dashboard

2.3 TMM Management

2.3.1 Map – TMM Tracking Tool

The TMM Tracking Tool is a comprehensive tracking and analytics module designed to optimize fleet utilization, enhance operational efficiency, and ensure compliance with safety regulations in underground and surface mining operations. This module provides real-time monitoring, usage analytics, and maintenance insights to reduce downtime and maximize productivity.

This module helps mining operations streamline fleet performance, improve safety, and ensure regulatory compliance, ultimately reducing costs and improving productivity.

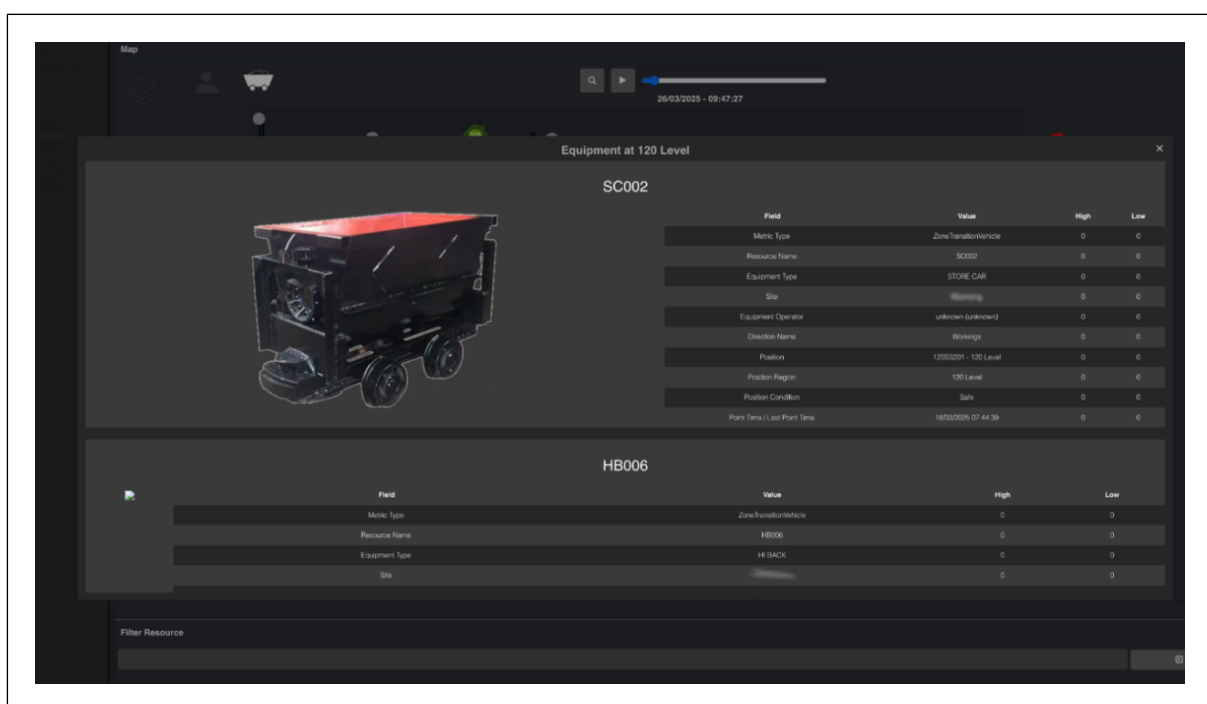
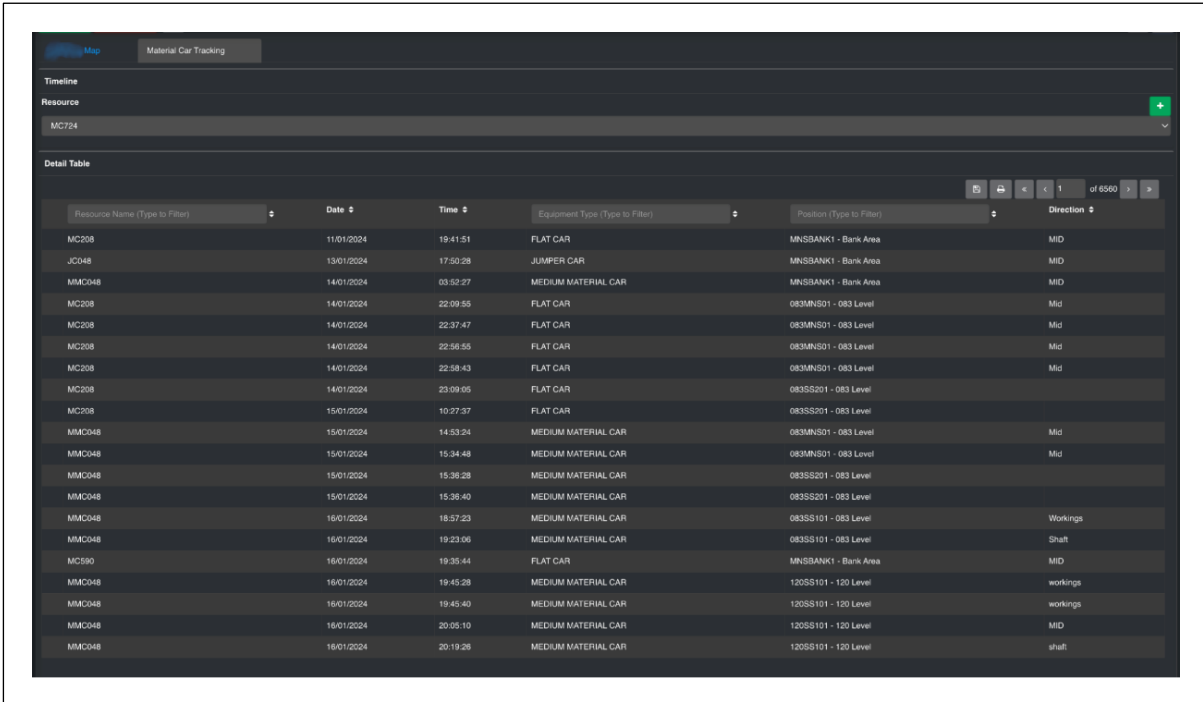


Figure 27: Equipment location and details



The screenshot displays a web application for 'Material Car Tracking'. It features a 'Map' button and a 'Timeline' section. Below the timeline, there is a 'Resource' dropdown menu currently set to 'MC724'. The main section is a 'Detail Table' with columns for Resource Name, Date, Time, Equipment Type, Position, and Direction. The table contains 20 rows of data, showing various equipment types like 'FLAT CAR', 'JUMPER CAR', and 'MEDIUM MATERIAL CAR' at different locations such as 'MNSBANK1 - Bank Area' and '083MNS01 - 083 Level'.

Resource Name (Type to Filter)	Date	Time	Equipment Type (Type to Filter)	Position (Type to Filter)	Direction
MC208	11/01/2024	19:41:51	FLAT CAR	MNSBANK1 - Bank Area	MID
JC048	13/01/2024	17:50:28	JUMPER CAR	MNSBANK1 - Bank Area	MID
MMCD48	14/01/2024	03:52:27	MEDIUM MATERIAL CAR	MNSBANK1 - Bank Area	MID
MC208	14/01/2024	22:09:55	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	22:37:47	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	22:58:58	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	22:58:43	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	23:09:05	FLAT CAR	083SS201 - 083 Level	
MC208	15/01/2024	10:27:37	FLAT CAR	083SS201 - 083 Level	
MMCD48	15/01/2024	14:53:24	MEDIUM MATERIAL CAR	083MNS01 - 083 Level	Mid
MMCD48	15/01/2024	15:34:48	MEDIUM MATERIAL CAR	083MNS01 - 083 Level	Mid
MMCD48	15/01/2024	15:36:28	MEDIUM MATERIAL CAR	083SS201 - 083 Level	
MMCD48	15/01/2024	15:36:40	MEDIUM MATERIAL CAR	083SS201 - 083 Level	
MMCD48	16/01/2024	16:57:23	MEDIUM MATERIAL CAR	083SS101 - 083 Level	Workings
MMCD48	16/01/2024	19:23:06	MEDIUM MATERIAL CAR	083SS101 - 083 Level	Shift
MC590	16/01/2024	19:35:44	FLAT CAR	MNSBANK1 - Bank Area	MID
MMCD48	16/01/2024	19:45:28	MEDIUM MATERIAL CAR	120SS101 - 120 Level	workings
MMCD48	16/01/2024	19:45:40	MEDIUM MATERIAL CAR	120SS101 - 120 Level	workings
MMCD48	16/01/2024	20:05:10	MEDIUM MATERIAL CAR	120SS101 - 120 Level	MID
MMCD48	16/01/2024	20:19:26	MEDIUM MATERIAL CAR	120SS101 - 120 Level	shift

Figure 28: List of Equipment and locations

2.3.2 Zone Infringement Dashboard

The Zone Infringement Dashboard provides real-time monitoring and reporting of personnel and vehicle movements within restricted or hazardous areas in a mining operation. It helps improve incident response times, reduce operational risks, and ensure compliance with mine safety regulations.

Key Features:

- Live tracking of personnel and vehicles in restricted zones
- Historical reports for incident analysis and compliance audits
- Customizable zone configurations

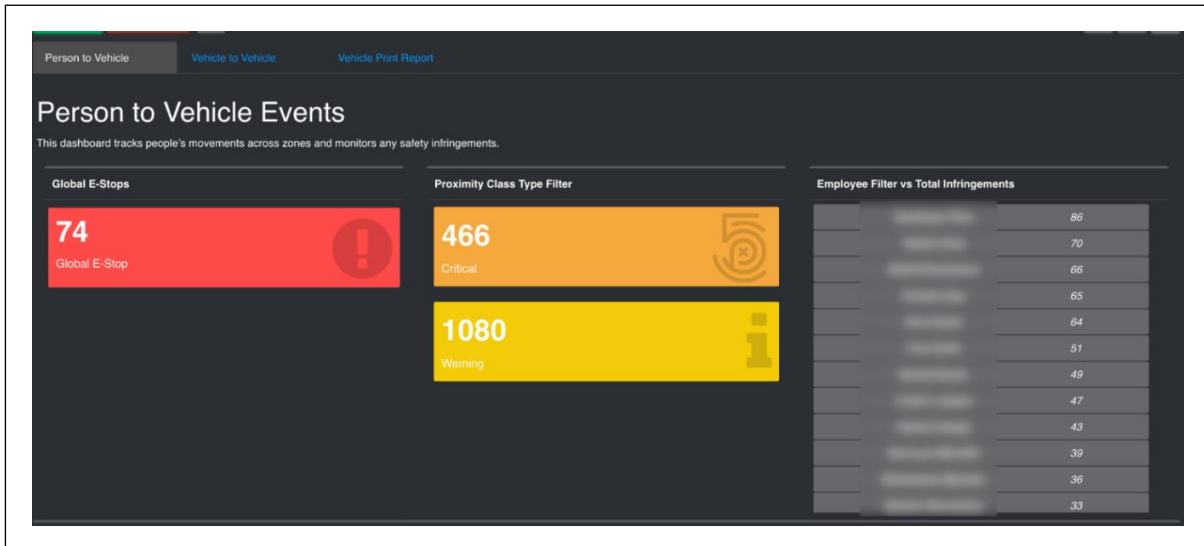


Figure 29: Zone Infringement Dashboard

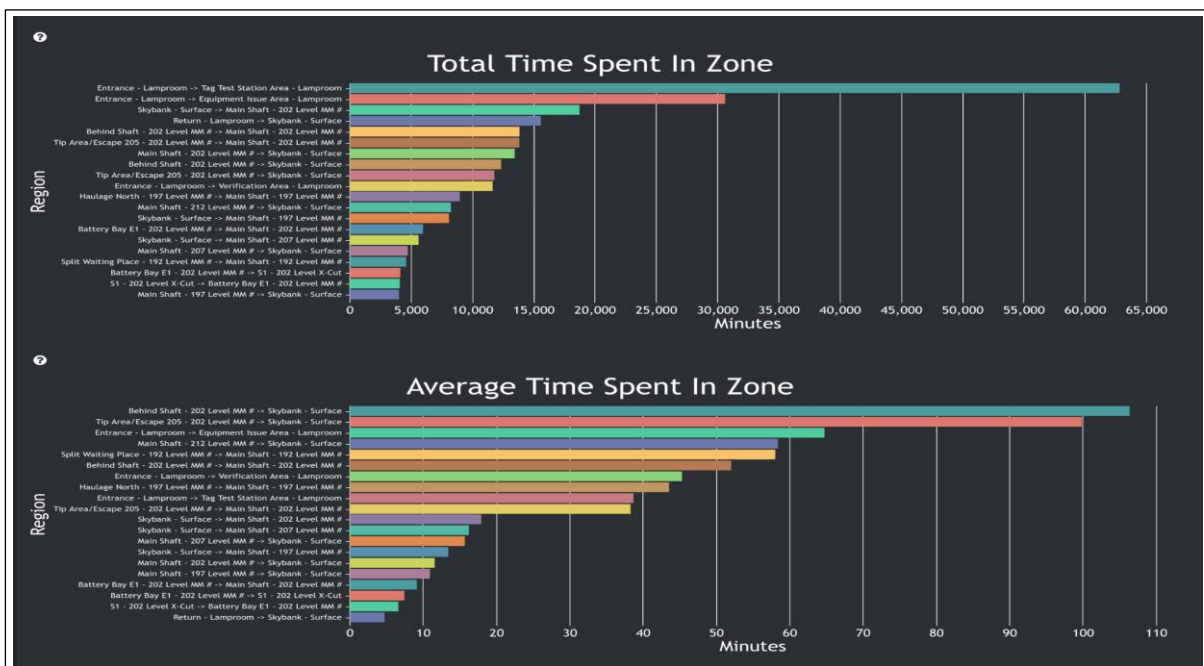


Figure 30: Total and Average time spent in different Zones by Personnel

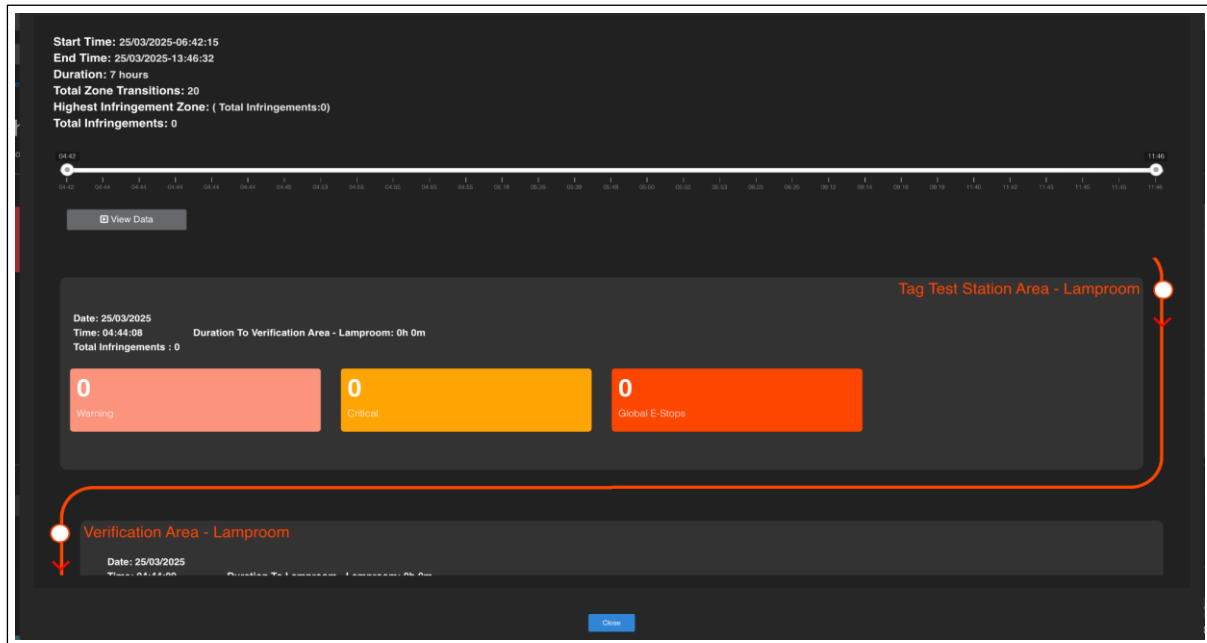


Figure 31: Selected Person traveling vs infringements path

2.3.3 Tipping Events Analysis

The Tipping & Production Analysis module provides real-time tracking and reporting on material movement within mining operations. By monitoring tipping events, load counts, and production flow, this module enhances operational efficiency, optimizes resource allocation, and ensures accurate production reporting.

Key Features:

- Real-time tipping event tracking for accurate production monitoring
- Load count analysis to measure hauling efficiency and productivity
- Customizable dashboards for site-specific performance insights

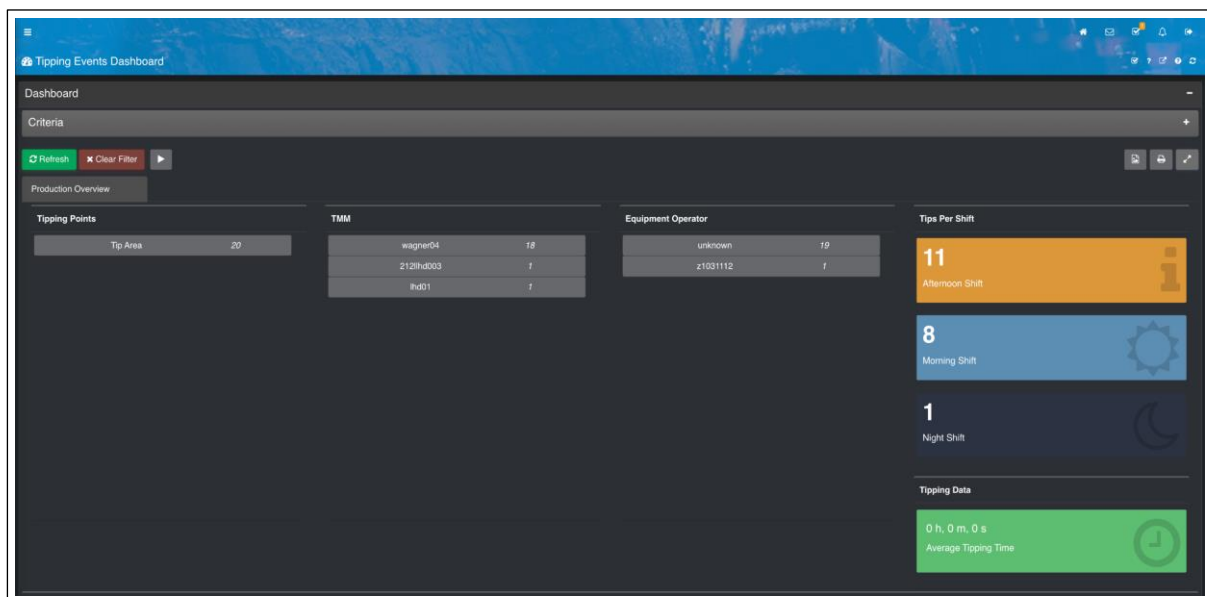


Figure 32: Tipping Dashboard - Total tips and tips per shift

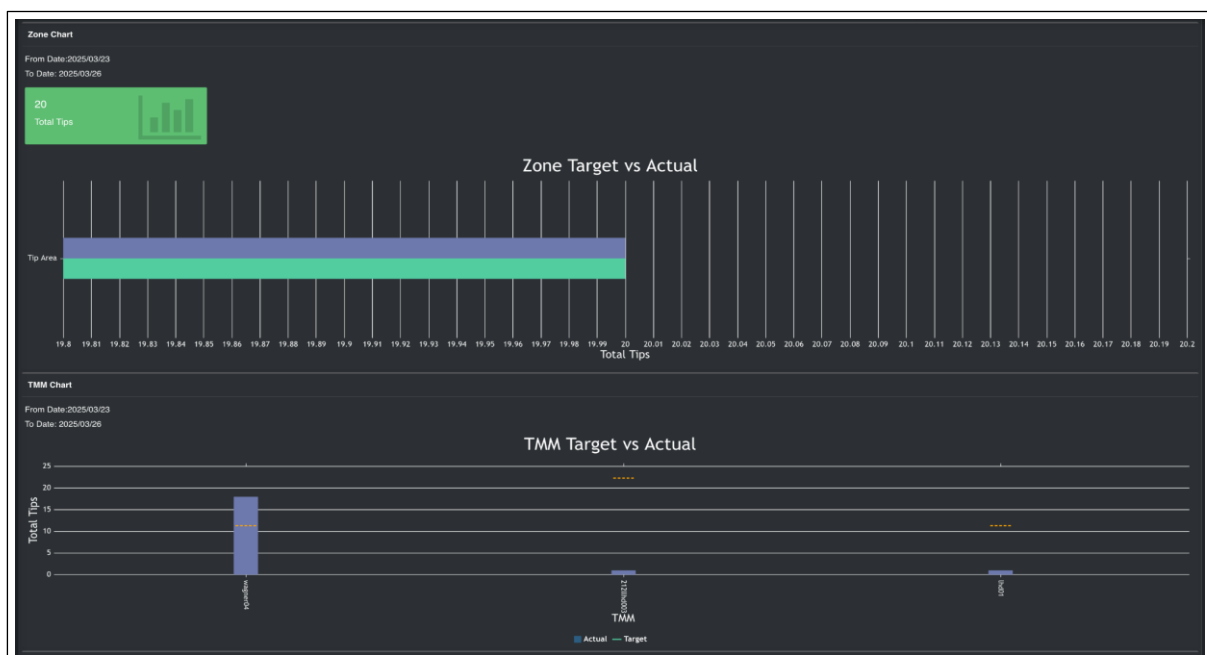


Figure 33: Actual Tips vs Target per Zone

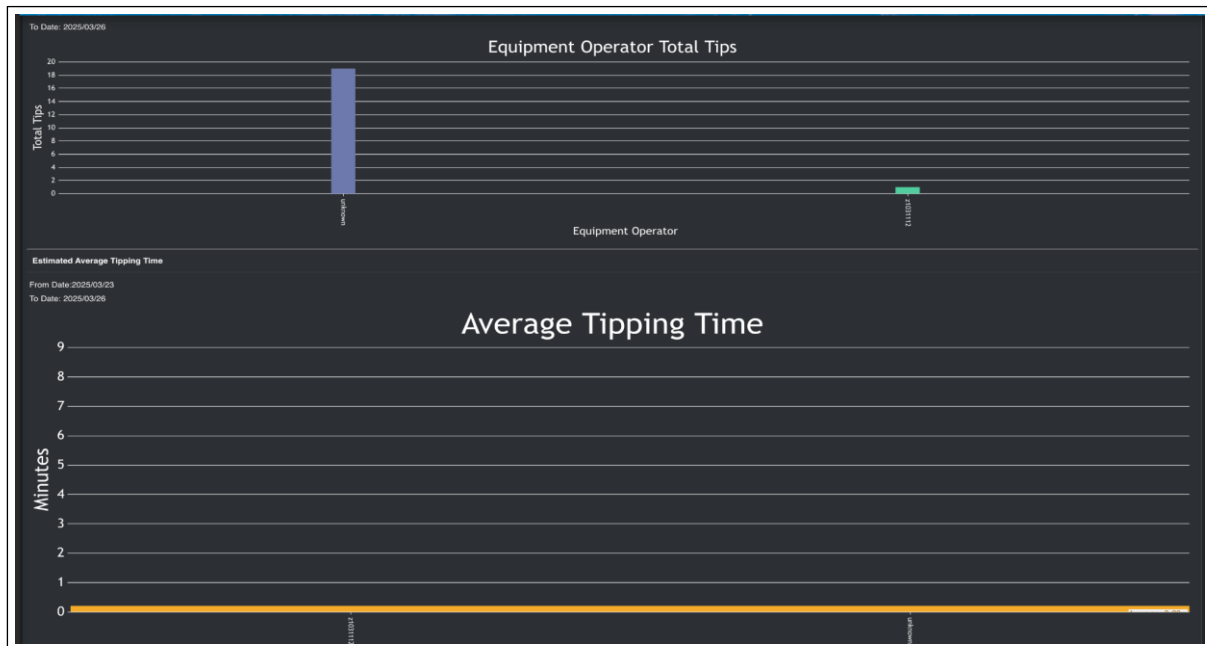


Figure 34: Total tips per Operator and average Time to Completion

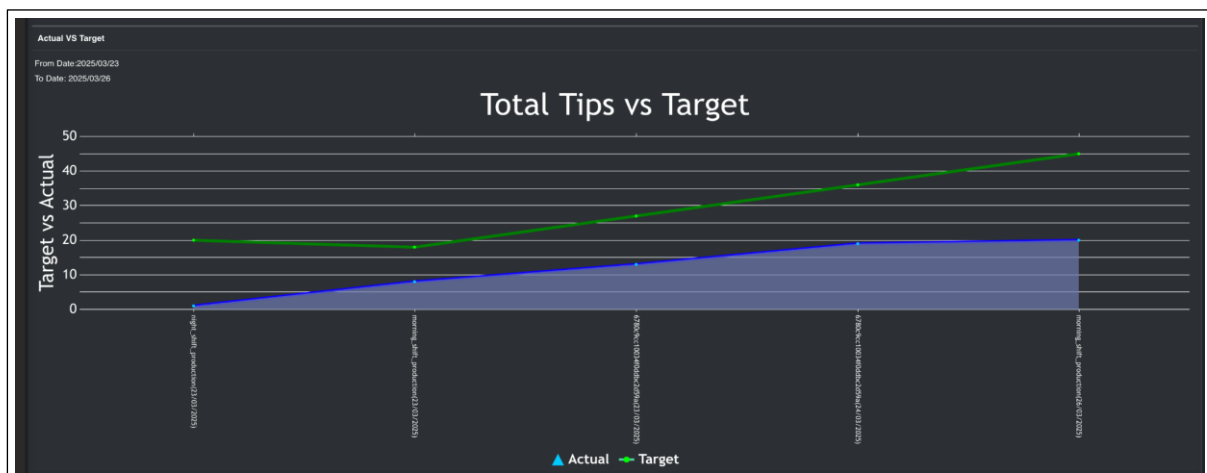


Figure 35: Accumulative tips vs target

2.3.4 TMM Utilization Analysis

The TMM Utilization module provides comprehensive tracking and analysis of Trackless Mobile Machinery (TMM) usage within mining operations. This module offers real-time monitoring of equipment utilisation, identifying idle time, operating hours, and productivity metrics. By leveraging detailed reports and analytics, mine operators can optimize fleet efficiency, reduce unnecessary wear and tear, and ensure compliance with operational standards.

Key features:

- Real-time tracking of active and idle machinery
- Efficiency analysis

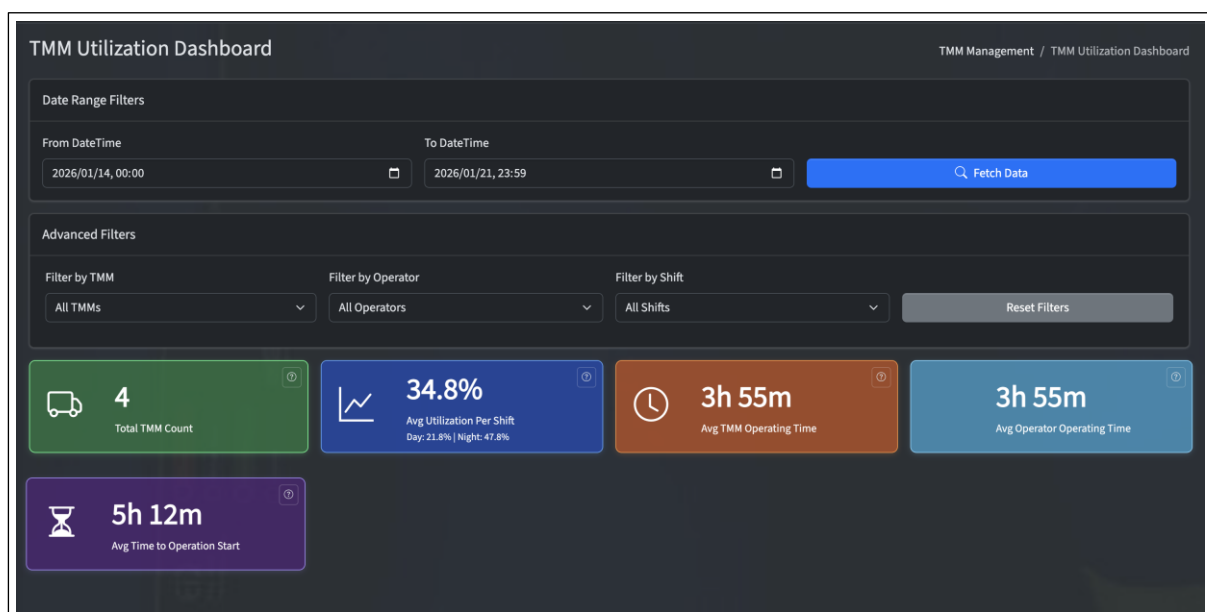


Figure 36: TMM Activity Timeline

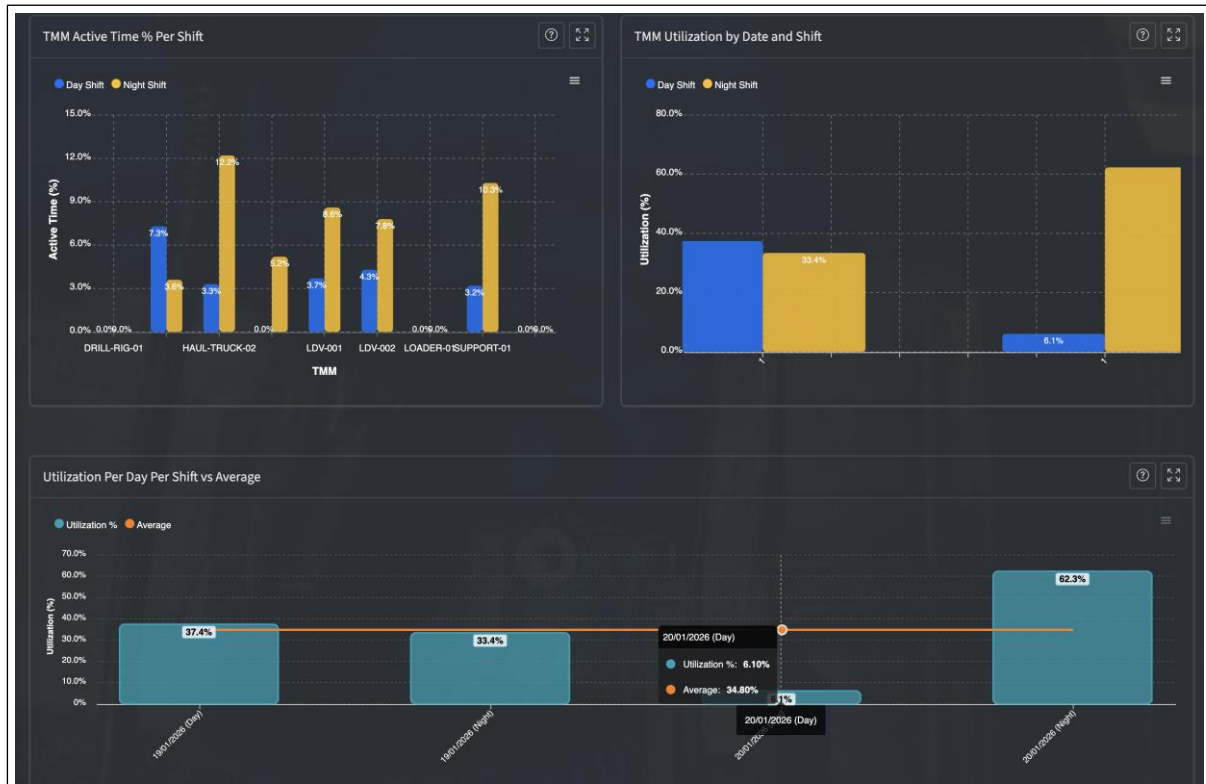


Figure 37: Detail of the selected TMM

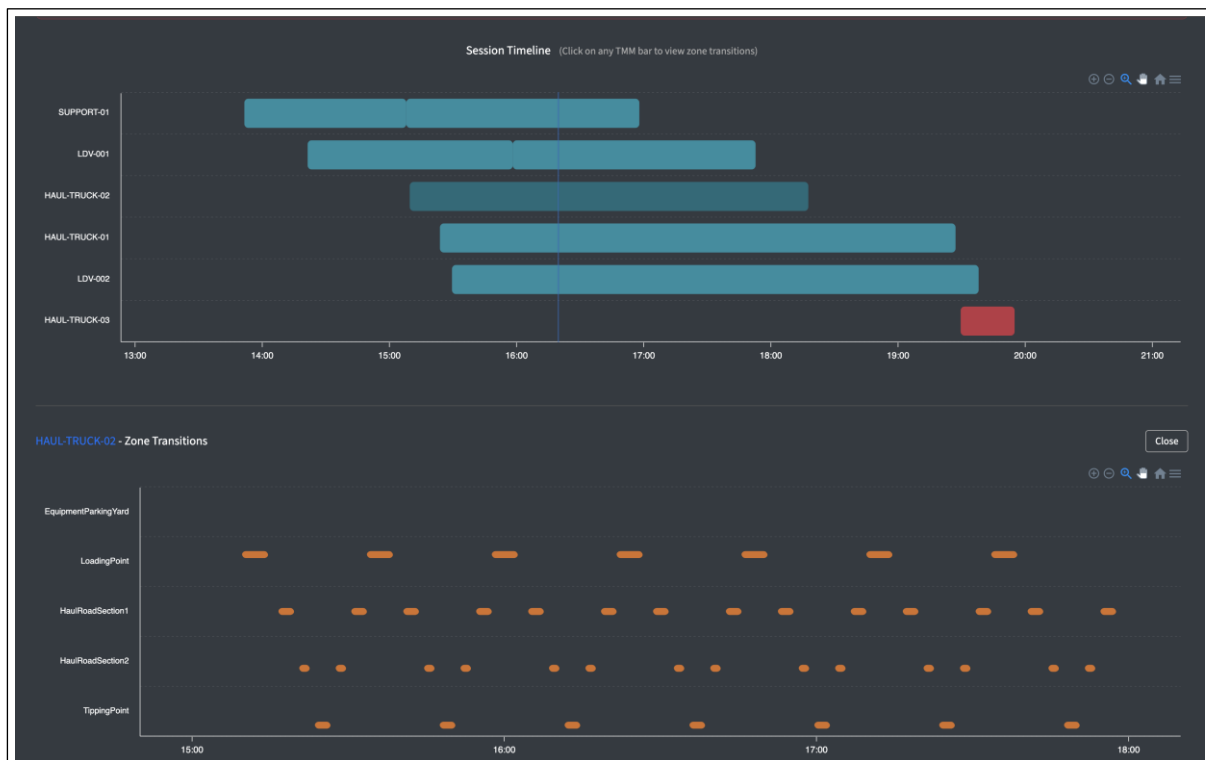


Figure 38: Detail of the Operator of the Current TMM

The Operator Utilization Dashboard provides a detailed analysis of operator performance, shift efficiency, and travel behavior across mining operations. It consolidates data from machine events, operator sessions, and tipping activities to visualize productivity, shift utilization, and time efficiency. This dashboard allows supervisors, engineers, and production managers to understand how effectively operators utilize their shift time, how much time is spent traveling to and from work areas, and how operating duration correlates with production output (tips).

1. Shift-Based Operator Analytics

- Displays average operator start and end times per shift (Morning/Night).
- Highlights average travel times to and from the lamproom.
- Differentiates shifts using color-coded visual indicators (e.g., blue for morning, orange for night).

2. Operator Utilization & Efficiency

- Calculates operator utilization percentage, showing how much of the total shift duration is actively spent in operation.
- Provides average operating duration per shift and overall averages in both hours/minutes and total minutes.
- Identifies top and bottom operators based on duration or productivity (tips per hour).

3. Travel and Session Insights

- Measures and displays average travel times for operators moving underground and returning to surface.
- Tracks average number of operator login sessions per shift.
- Aggregates active operators per shift per day.

4. Productivity Metrics

- Combines operation duration and tipping data to calculate:
 - Average tips per operator
 - Tips per hour per operator
 - Top/Bottom 5 operators by tips/hour efficiency

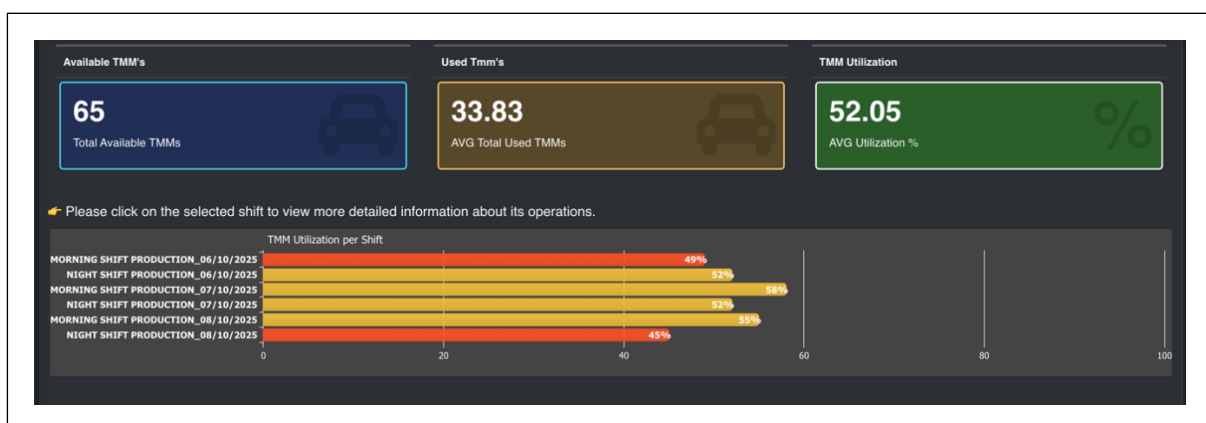


Figure 39. Available TMMs and the AVG Utilization of the TMM's

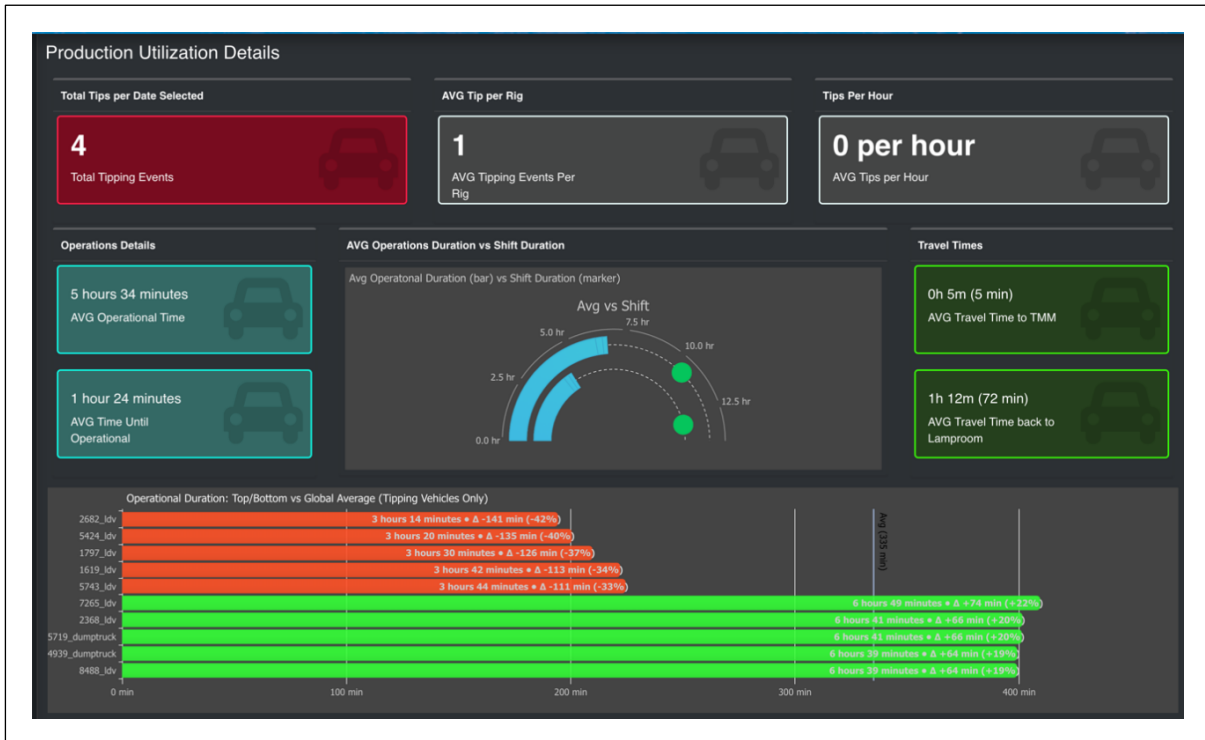


Figure 40. Production Utilization View

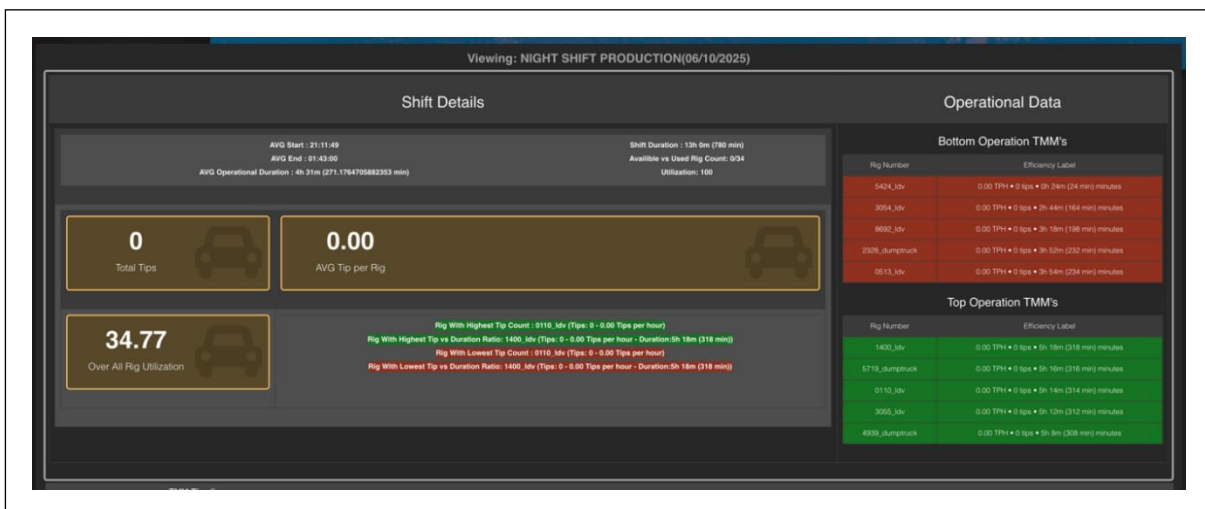


Figure 41. Shift Specific Utilization details. Operator and TMM Operational Results



Figure 42. TMM and Operator Session Visualisation

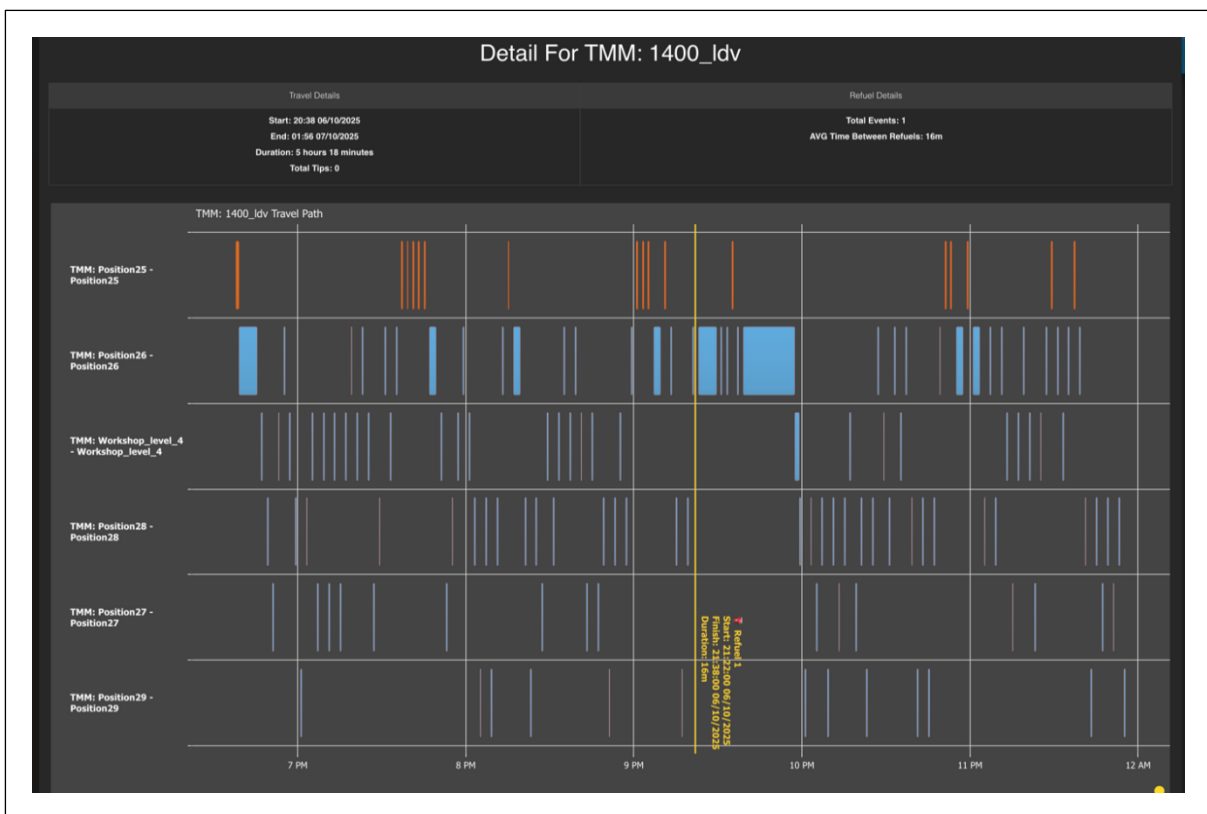


Figure 43. TMM Travel path and Refuel Events Tracking



Figure 44. Operator Session details and Travel path

2.3.5 Vehicle Test Station Reports

The Vehicle Test Station Dashboard offers a centralized platform for managing vehicle inspections, compliance checks, and maintenance schedules in a mining environment. This module streamlines the testing process by digitizing records, tracking test results, and ensuring regulatory compliance. With a user-friendly interface, mine operators can effortlessly schedule, track, and report on vehicle tests.

Key features:

- Digital test records for easy access and compliance tracking (see **Error! Reference source not found.**)
- Real-time pass/fail status updates with actionable insights

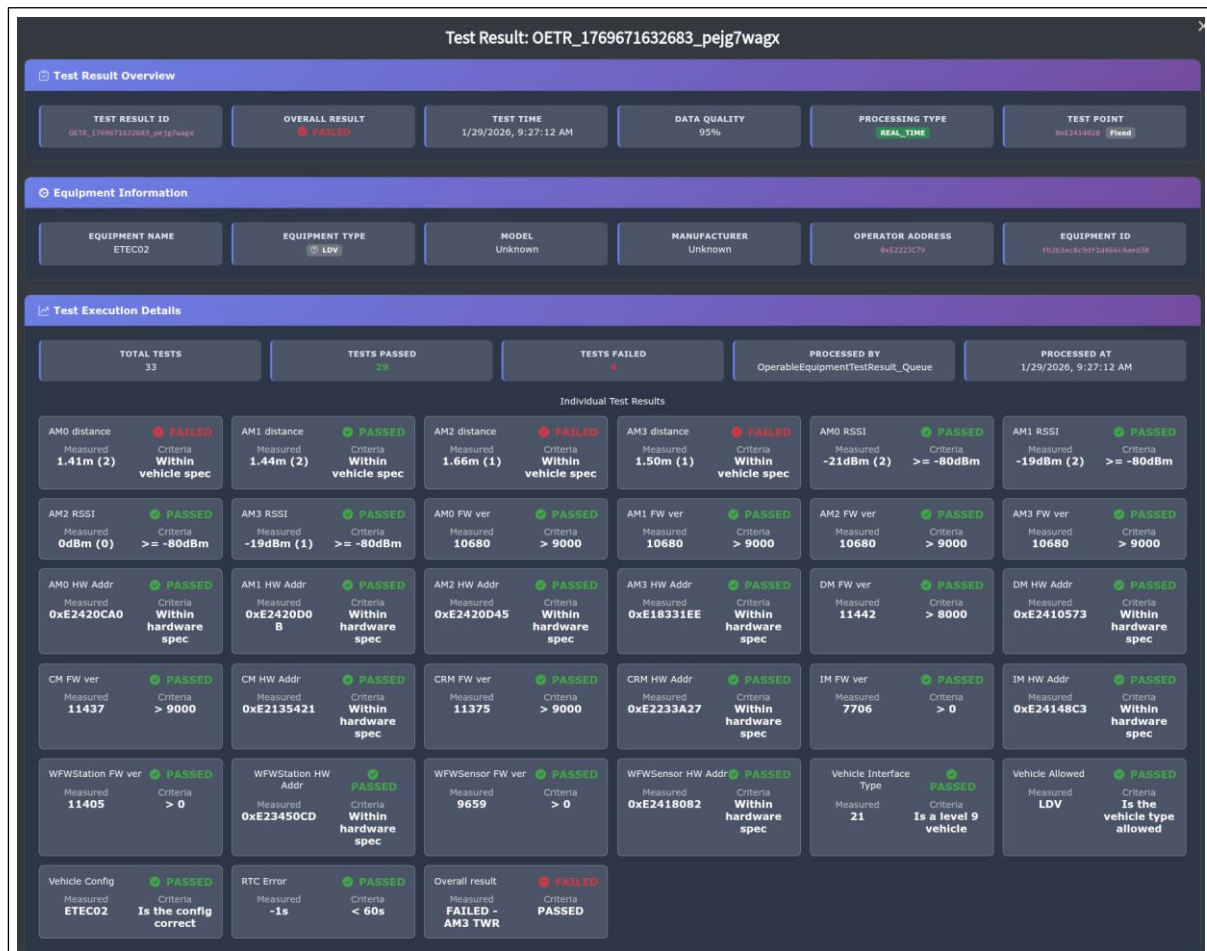


Figure 45. Vehicle Test Station - Test Result

1/29/26, 1:13 PM		Operable Equipment Test Result						
		A&R Engineering & Mining Supplies (Pty) Ltd T: +27 57 353 4292, E: aresa@areng.co.za 20 First St, Industria, Welkom, 9459 P.O. Box 2837, Welkom, 9460 Reg. No.: 198200505187 Web: www.areng.co.za						
		A&R Potchefstroom Operable Equipment Test Results Report						
		Total Results: 65						
Equipment	Type	Result	Test Time	Tests	Test Point	Mode	Quality	Test Details
ETEC No Make No Model	 LDV	 FAILED	10/20/2025, 6:55:15 AM (101d ago)	23/28 passed 5 failed	0xE2414028  Fixed	REAL_TIME	95% Excellent	23/28 tests passed (82%) 5 failed  AM0 distance : 7.00m (2) (Within vehicle spec)  AM1 distance : 5.58m (2) (Within vehicle spec)  AM2 distance : 5.60m (1) (Within vehicle spec)  AM3 distance : 7.38m (1) (Within vehicle spec)  AM0 RSSI : -29dBm (1) (>= -80dBm)  AM1 RSSI : -27dBm (2) (>= -80dBm)
https://gt-training-arm2.argrouppmobile.com/#!/pages/vts/operableequipmenttestresults		1/30						
1/29/26, 1:13 PM		Operable Equipment Test Result						
Equipment	Type	Result	Test Time	Tests	Test Point	Mode	Quality	Test Details
LHD363_DELETE No Make No Model	 LHD	 PASSED (High Quality)	10/23/2025, 9:25:09 AM (98d ago)	36/36 passed 0 failed	0xE2414028  Fixed	REAL_TIME	95% Excellent	36/36 tests passed (100%) 0 failed

Figure 46. Vehicle Test Station Report

2.4 Loco Management

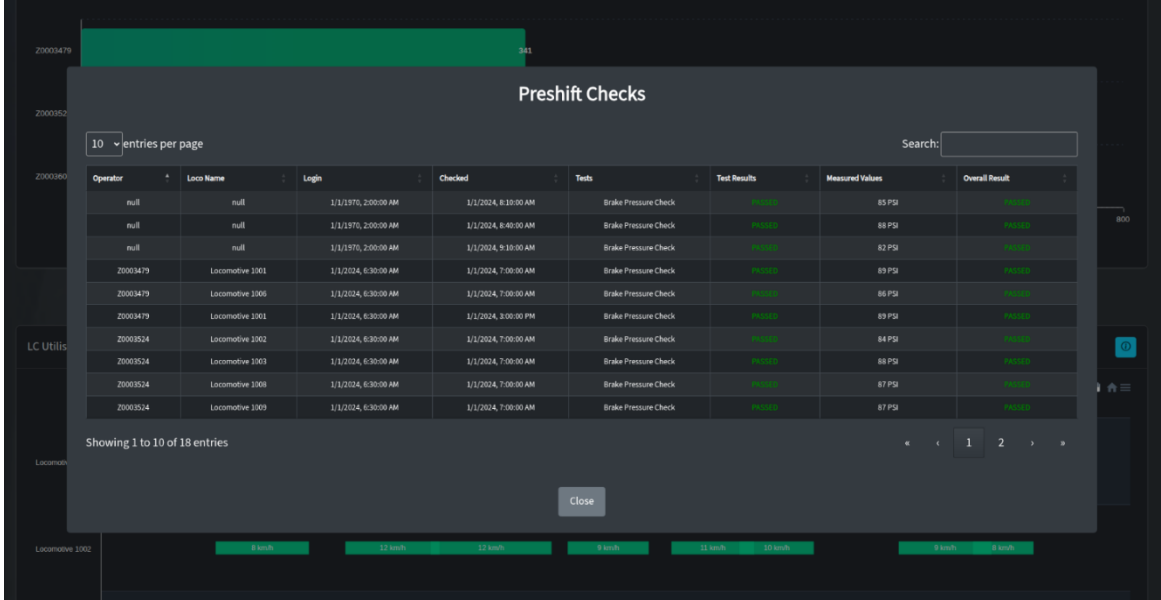
2.4.1 Map – Loco Tracking Tool

The Loco Tracking Tool is a comprehensive tracking and analytics solution designed to optimize locomotive operations within mining environments. This tool can be used in conjunction with the two predominant methods of gathering data relating to loco movement. When operating in conjunction with the 2D online MPL beacons, real-time monitoring data is captured and transmitted. Should 1D offline beacons be used, then the data is captured and can only be accessed once downloaded post shift, i.e. not real-time.

Key Features:

- Real-time locomotive tracking for efficient fleet management when used with 2D online MPL Beacons
- Automated maintenance alerts for proactive servicing and breakdown prevention
- Safety compliance monitoring with alerts for speed and operational deviations
- Integration with production and scheduling systems for seamless operations
- 1D offline beacon monitoring, level layout and route tracking
- Performance analysis
- Improved safety compliance

2.4.2 Loco Utilisation Analysis



Preshift Checks

10 entries per page

Search:

Operator	Loco Name	Login	Checked	Tests	Test Results	Measured Values	Overall Result
null	null	1/1/1970, 2:00:00 AM	1/1/2024, 8:10:00 AM	Brake Pressure Check	Pass	85 PSI	Pass
null	null	1/1/1970, 2:00:00 AM	1/1/2024, 8:40:00 AM	Brake Pressure Check	Pass	88 PSI	Pass
null	null	1/1/1970, 2:00:00 AM	1/1/2024, 9:10:00 AM	Brake Pressure Check	Pass	82 PSI	Pass
20003479	Locomotive 1001	1/1/2024, 6:30:00 AM	1/1/2024, 7:00:00 AM	Brake Pressure Check	Pass	89 PSI	Pass
20003479	Locomotive 1006	1/1/2024, 6:30:00 AM	1/1/2024, 7:00:00 AM	Brake Pressure Check	Pass	86 PSI	Pass
20003479	Locomotive 1001	1/1/2024, 6:30:00 AM	1/1/2024, 8:00:00 PM	Brake Pressure Check	Pass	89 PSI	Pass
20003524	Locomotive 1002	1/1/2024, 6:30:00 AM	1/1/2024, 7:00:00 AM	Brake Pressure Check	Pass	84 PSI	Pass
20003524	Locomotive 1003	1/1/2024, 6:30:00 AM	1/1/2024, 7:00:00 AM	Brake Pressure Check	Pass	88 PSI	Pass
20003524	Locomotive 1008	1/1/2024, 6:30:00 AM	1/1/2024, 7:00:00 AM	Brake Pressure Check	Pass	87 PSI	Pass
20003524	Locomotive 1009	1/1/2024, 6:30:00 AM	1/1/2024, 7:00:00 AM	Brake Pressure Check	Pass	87 PSI	Pass

Showing 1 to 10 of 18 entries

Close

Figure 47. Loco Operator Preshift Check Details

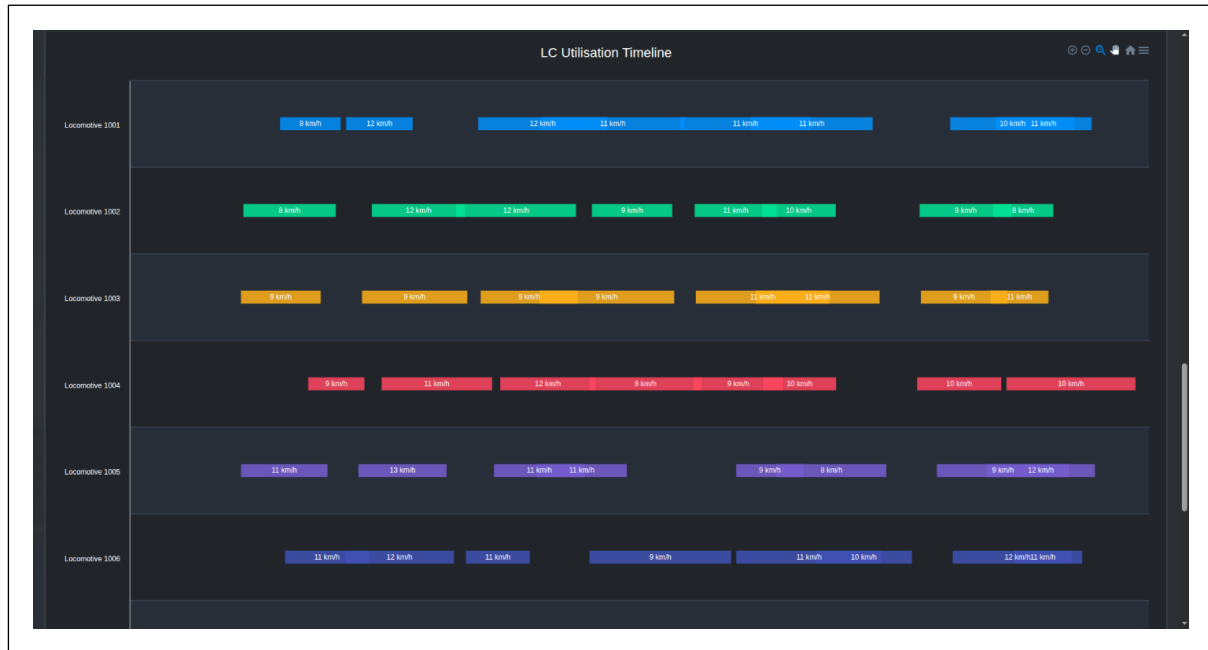


Figure 48. Loco Utilisation #1

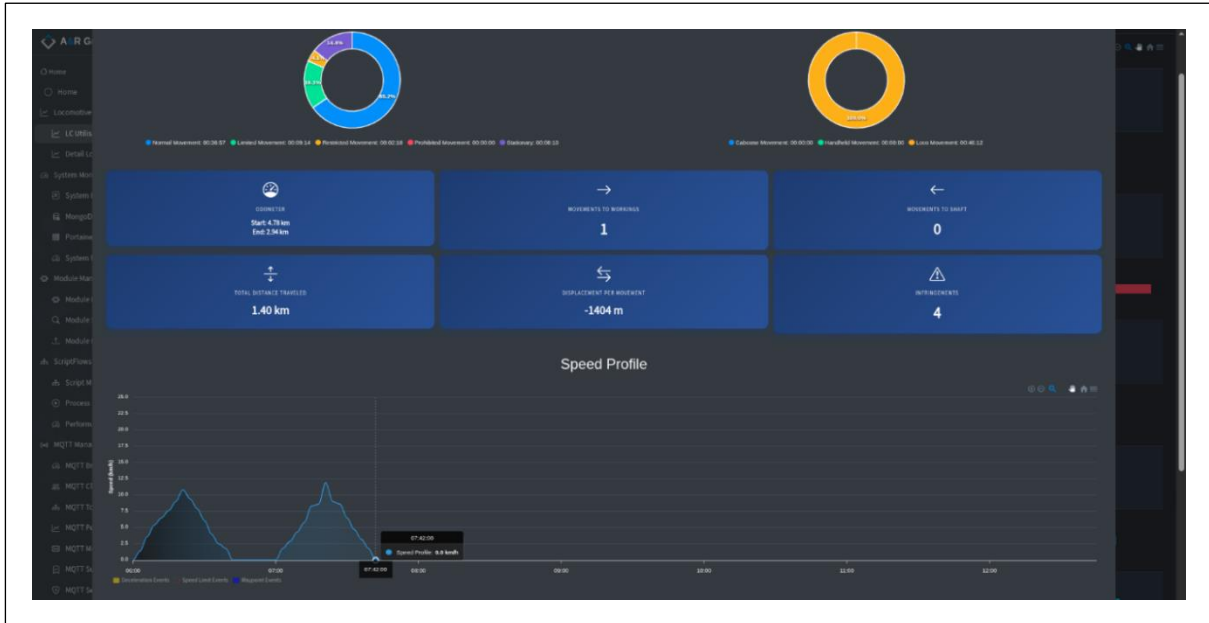


Figure 49. Loco Utilisation #2



Figure 50. Loco Utilisation #3



Figure 51. Loco Utilisation #4



Figure 52. Loco Utilisation #5



Figure 53. Break Test Report

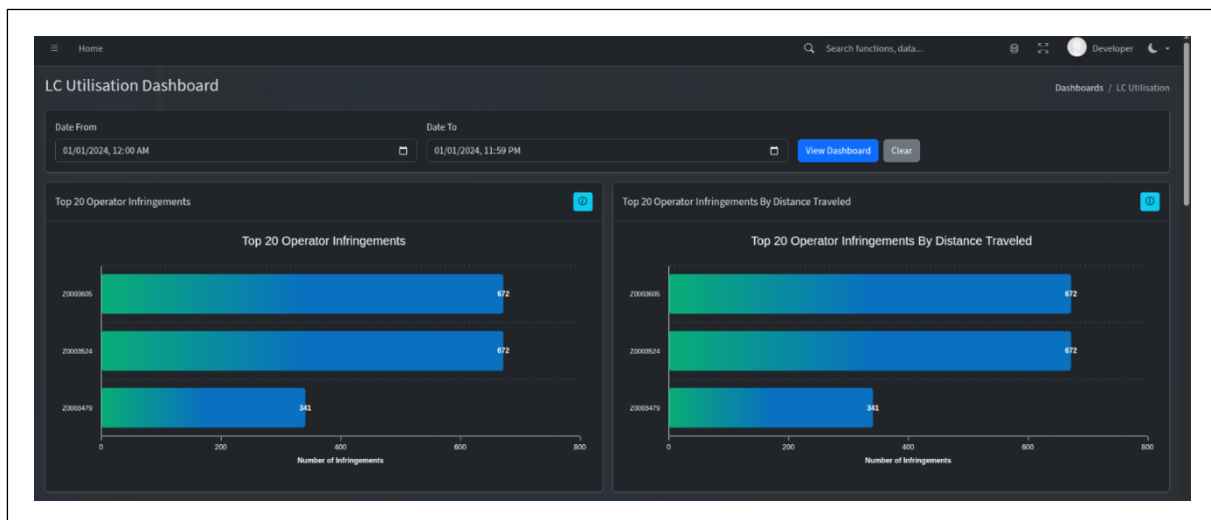


Figure 54. Loco Operator Infringement Summary

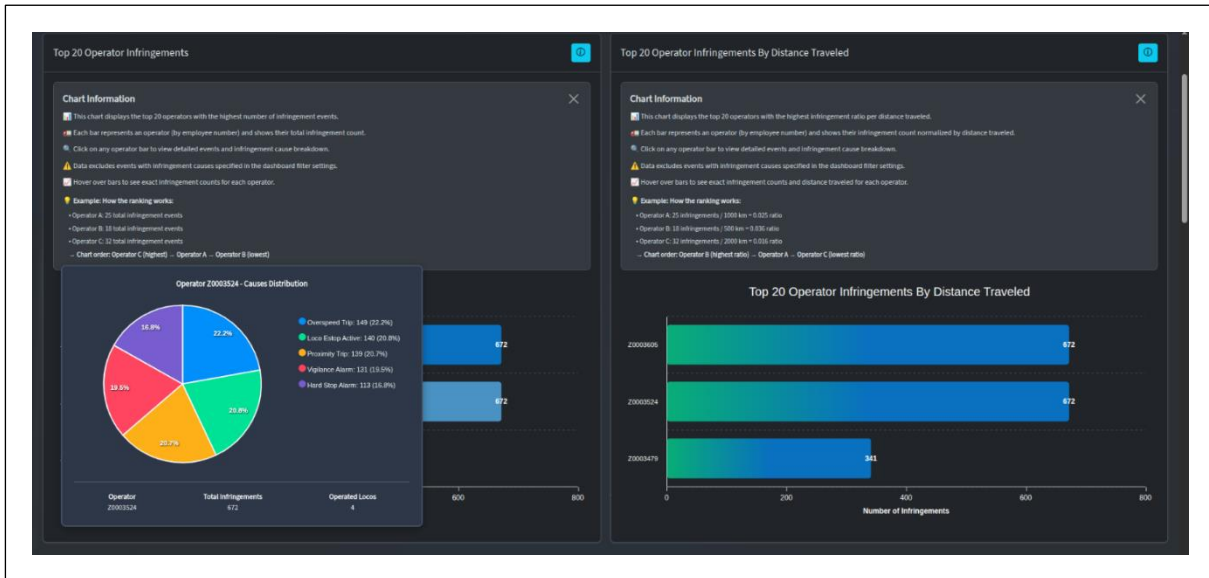


Figure 55. Loco Operator Infringement Summary - Detail

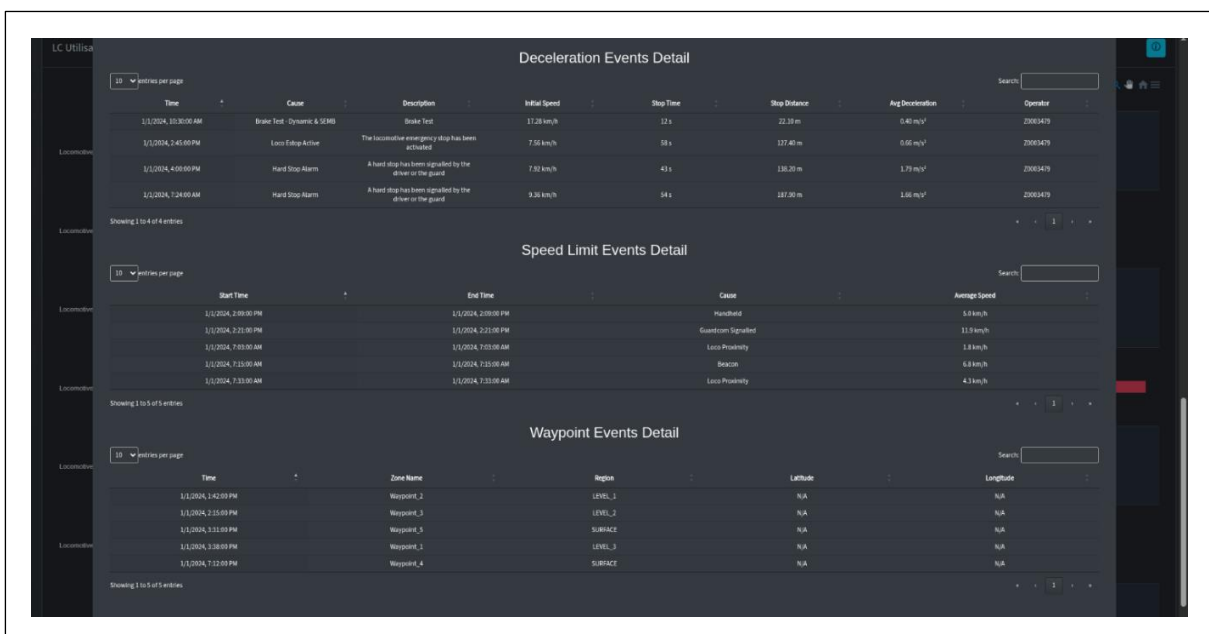


Figure 56. Loco Deceleration & Waypoint Events

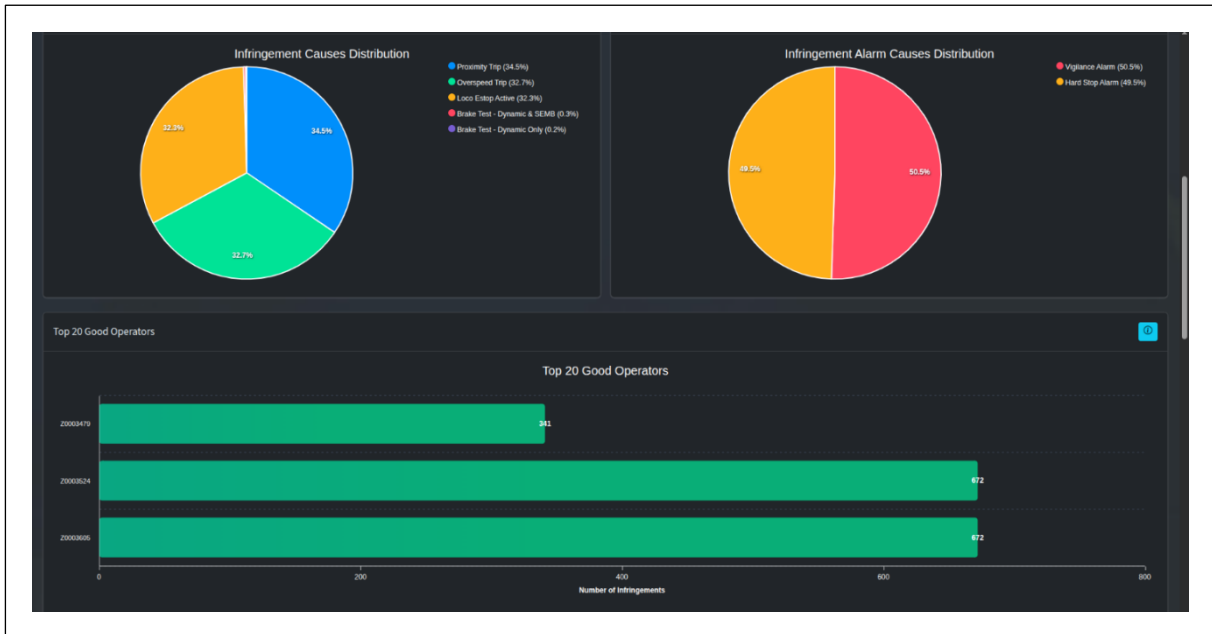


Figure 57. Loco Operator Infringements

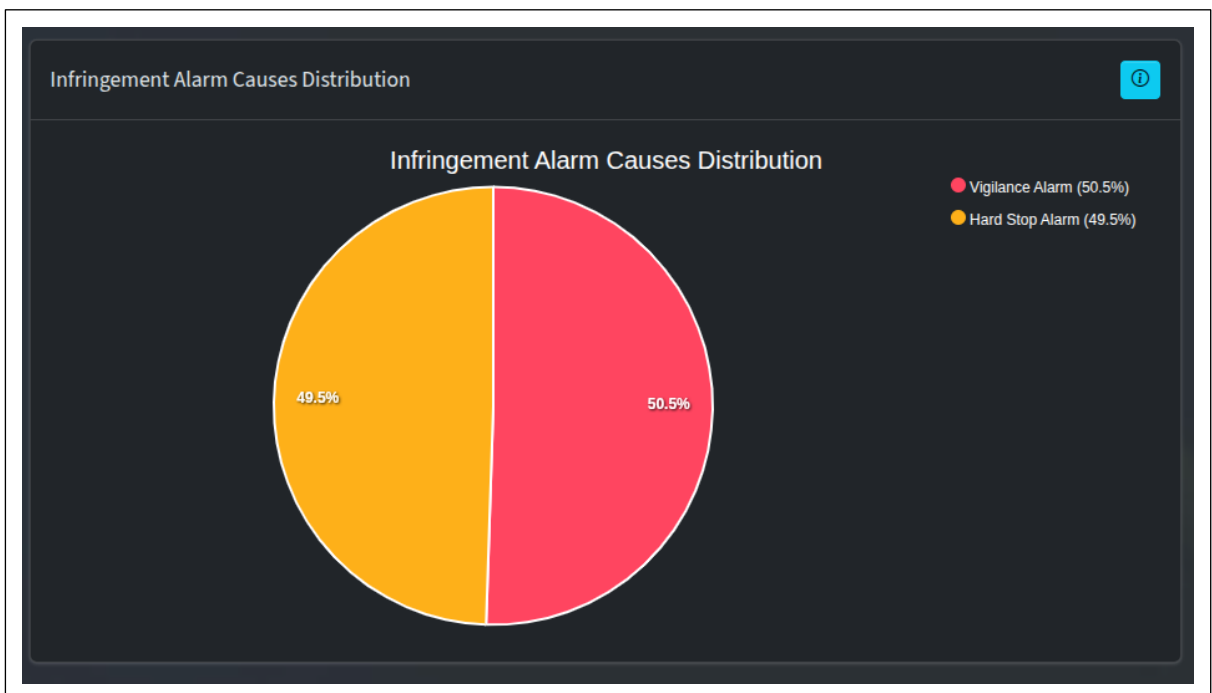


Figure 58. Loco Operator Infringement Alarm Distribution

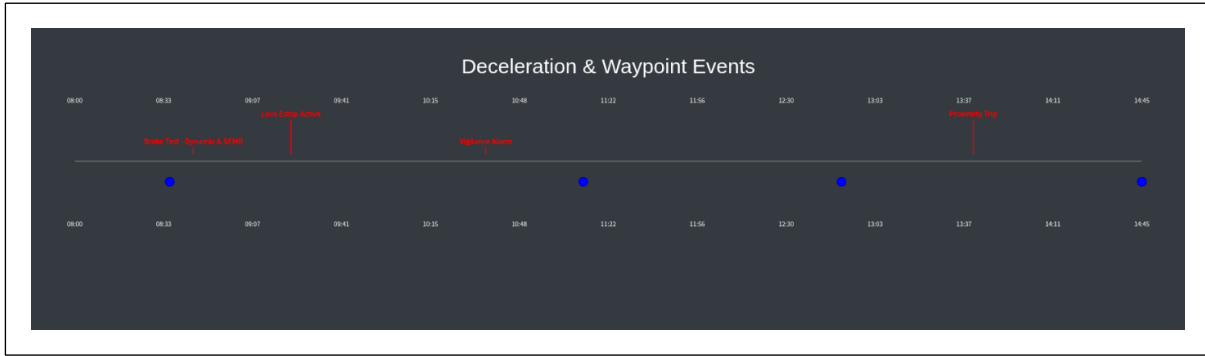


Figure 59. Loco Deceleration & Waypoint Events

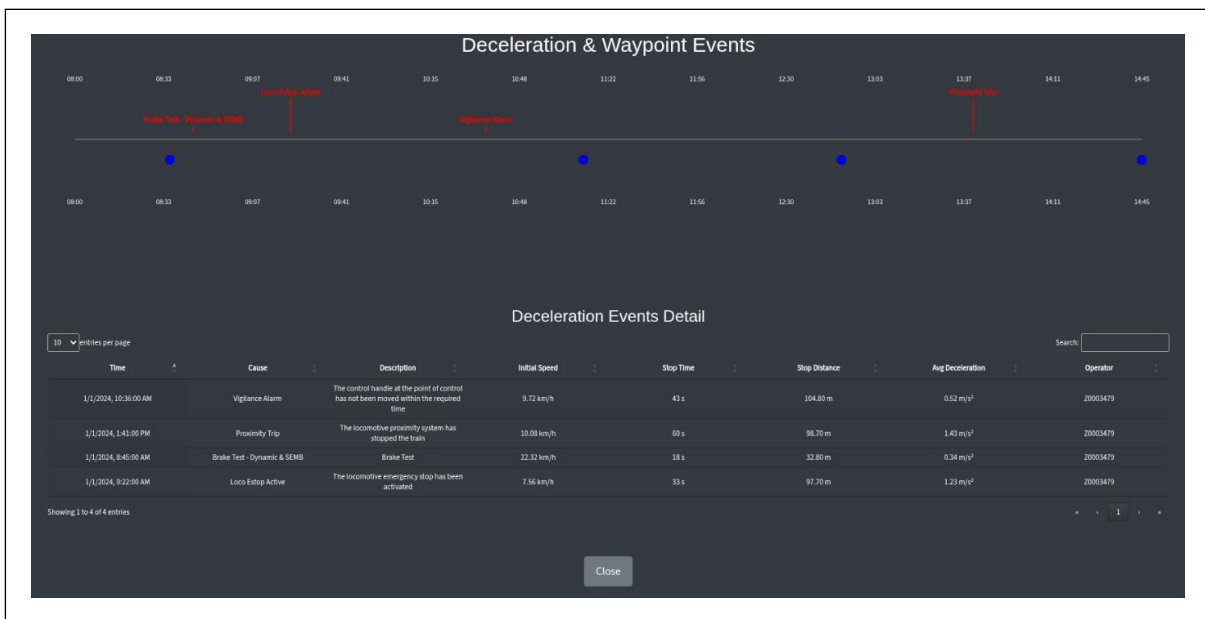


Figure 60. Loco Operator Infringements

2.4.3 Loco detail data analysis tool

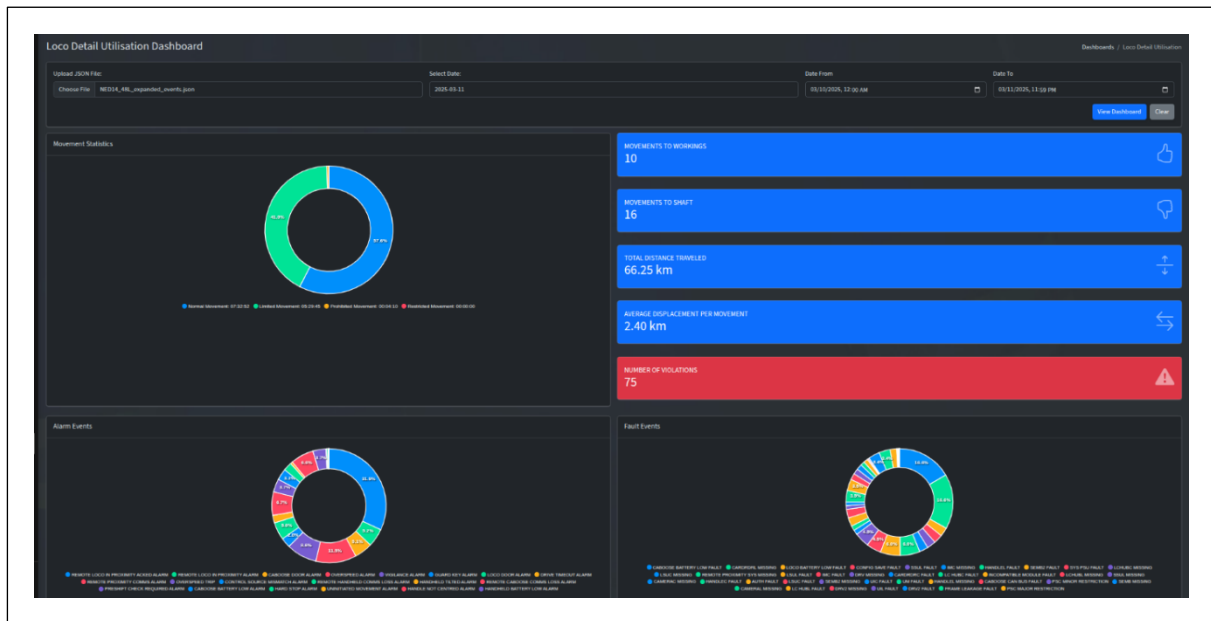


Figure 61. Detail Data Analysis - Loco Utilisation #1

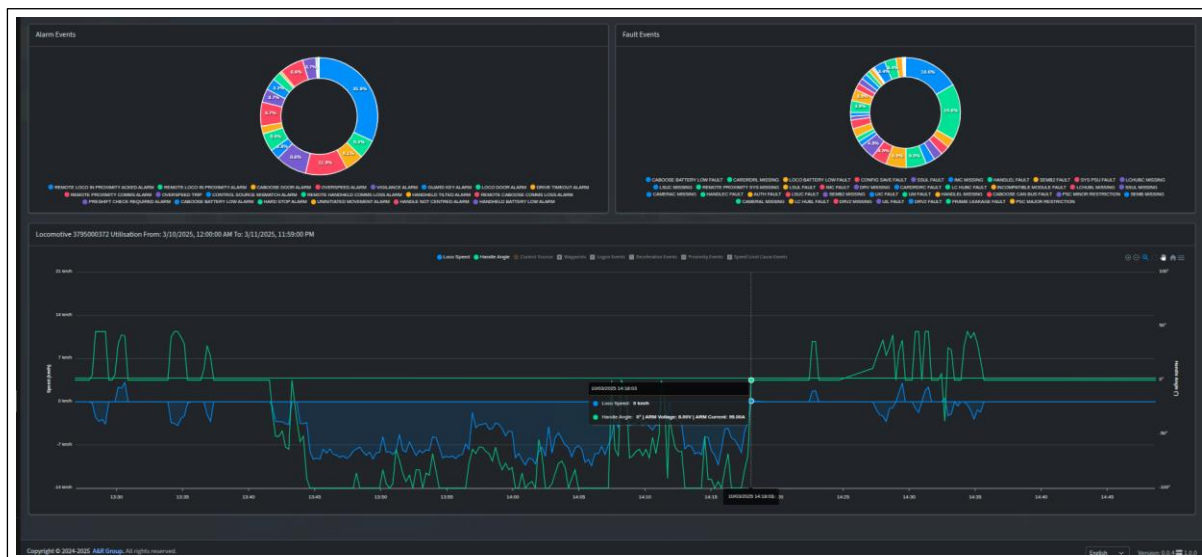


Figure 62. Detail Data Analysis - Loco Utilisation #2



Figure 63. Detail Data Analysis - Loco Utilisation #4



Figure 64. Detail Data Analysis - Loco Utilisation #5

2.4.4 Offline Speed Beacon and Waypoint Monitoring



Figure 65. Offline Speed Beacon and Waypoint Monitoring

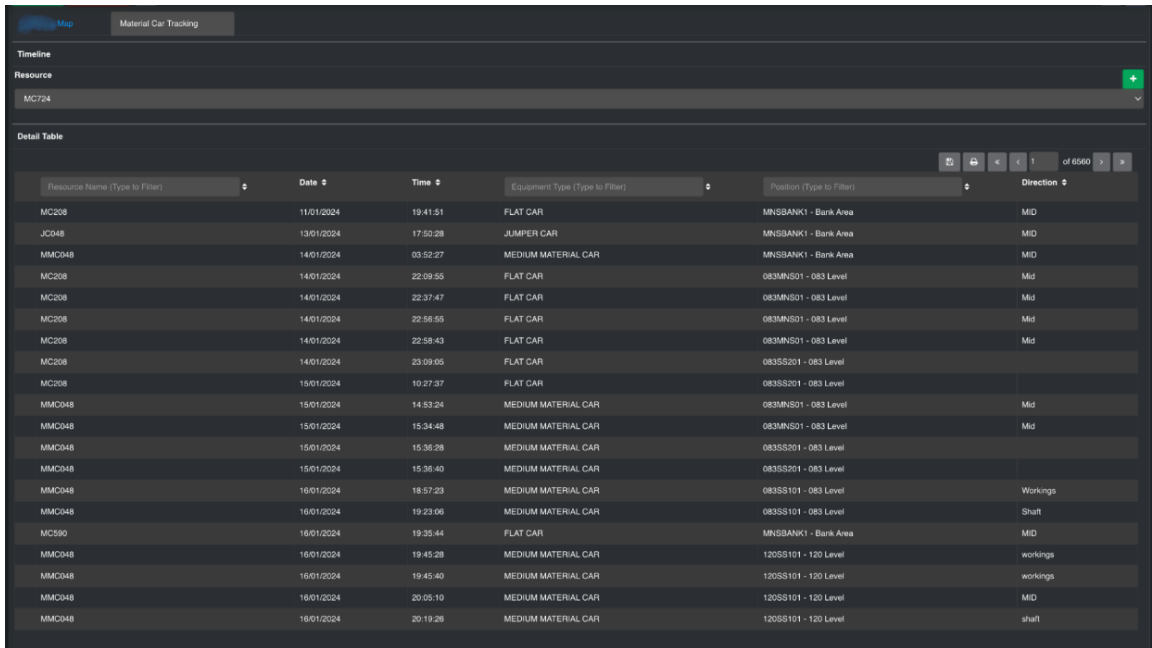
2.5 Asset Management

2.5.1 Map - Asset Tracking Tool

The Asset Tracking Tool is a comprehensive solution designed to track, monitor, and optimize the utilization and maintenance of mining assets. This module provides real-time visibility into asset location, condition, and lifecycle, ensuring improved efficiency, reduced downtime, and cost-effective asset management.

Key Features:

- Automated maintenance scheduling to prevent unexpected breakdowns (TBA)
- Map for live tracking of assets in mining operations (TBA)
- Utilization of analytics to optimize asset deployment and productivity
- Condition monitoring with predictive maintenance insights (TBA)
- Real-time Asset tracking



The screenshot displays the 'Material Car Tracking' interface. It features a 'Timeline' section with a 'Resource' dropdown set to 'MC724'. Below this is a 'Detail Table' with columns for 'Resource Name (Type to Filter)', 'Date', 'Time', 'Equipment Type (Type to Filter)', 'Position (Type to Filter)', and 'Direction'. The table contains 20 rows of data, showing various material cars (e.g., MC208, JCD48, MMC048) and their locations (e.g., MNSBANK1 - Bank Area, 083MNS01 - 083 Level, 083SS201 - 083 Level) and directions (e.g., MID, Mid, Workings, Shaft).

Resource Name (Type to Filter)	Date	Time	Equipment Type (Type to Filter)	Position (Type to Filter)	Direction
MC208	11/01/2024	19:41:51	FLAT CAR	MNSBANK1 - Bank Area	MID
JCD48	13/01/2024	17:52:28	JUMPER CAR	MNSBANK1 - Bank Area	MID
MMC048	14/01/2024	03:52:27	MEDIUM MATERIAL CAR	MNSBANK1 - Bank Area	MID
MC208	14/01/2024	22:09:55	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	22:37:47	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	22:58:55	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	22:58:43	FLAT CAR	083MNS01 - 083 Level	Mid
MC208	14/01/2024	23:09:05	FLAT CAR	083SS201 - 083 Level	
MC208	15/01/2024	10:27:37	FLAT CAR	083SS201 - 083 Level	
MMC048	15/01/2024	14:53:24	MEDIUM MATERIAL CAR	083MNS01 - 083 Level	Mid
MMC048	15/01/2024	15:34:48	MEDIUM MATERIAL CAR	083MNS01 - 083 Level	Mid
MMC048	15/01/2024	15:36:28	MEDIUM MATERIAL CAR	083SS201 - 083 Level	
MMC048	15/01/2024	15:36:40	MEDIUM MATERIAL CAR	083SS201 - 083 Level	
MMC048	16/01/2024	18:57:23	MEDIUM MATERIAL CAR	083SS101 - 083 Level	Workings
MMC048	16/01/2024	19:23:06	MEDIUM MATERIAL CAR	083SS101 - 083 Level	Shaft
MC590	16/01/2024	19:35:44	FLAT CAR	MNSBANK1 - Bank Area	MID
MMC048	16/01/2024	19:45:28	MEDIUM MATERIAL CAR	120SS101 - 120 Level	workings
MMC048	16/01/2024	19:45:40	MEDIUM MATERIAL CAR	120SS101 - 120 Level	workings
MMC048	16/01/2024	20:05:10	MEDIUM MATERIAL CAR	120SS101 - 120 Level	MID
MMC048	16/01/2024	20:19:28	MEDIUM MATERIAL CAR	120SS101 - 120 Level	shaft

Figure 66. Asset List indicating location

2.5.2 Asset Tag Configuration Tool

The Asset Tag Configuration Tool provides a mobile platform that is used to configure asset tags on the go and anywhere on the mine. This tool allows for real time syncing with LRMS, MPL and AR Mobile, meaning that all information is readily available as soon as the asset tag has been configured with this tool.

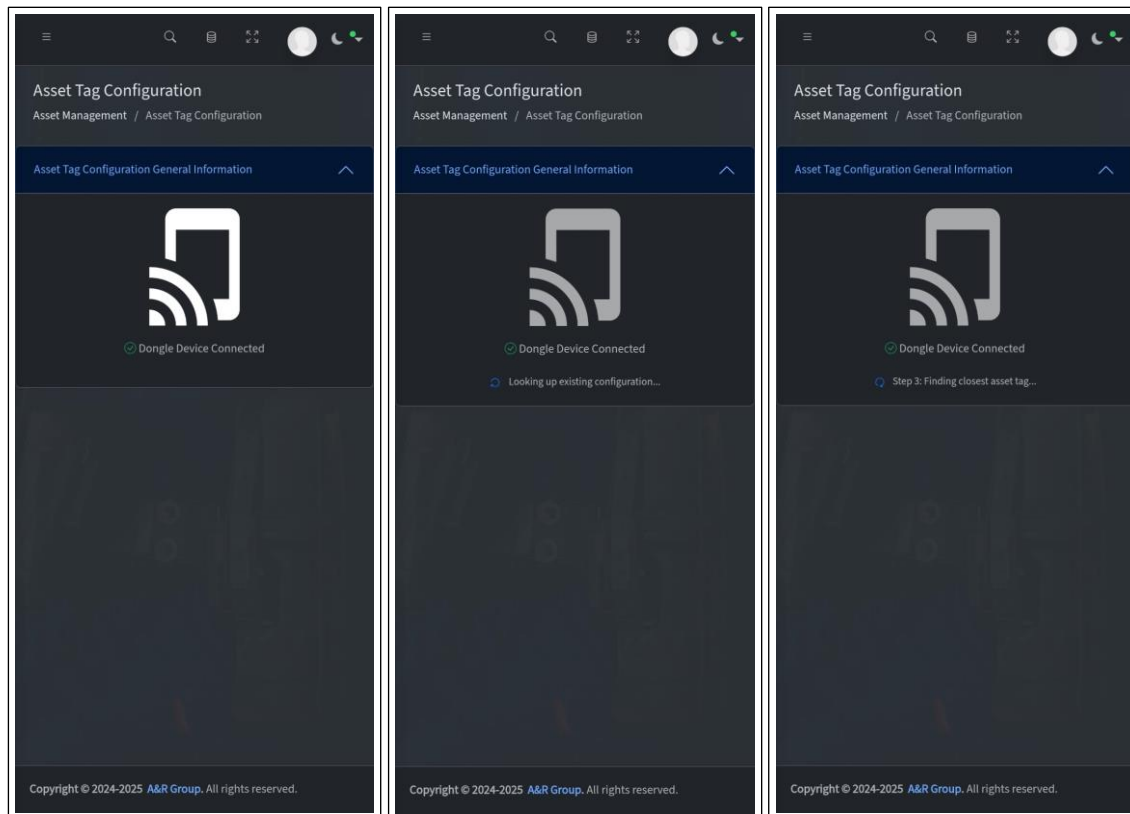


Figure 67. Initial Screens – Asset Tag Config #1

Asset Tag Configuration

Asset Management / Asset Tag Configuration

Asset Tag Configuration General Information



Asset Tag Found

Discovered Asset Tag Info

Hardware Address	3795072701
Model	PAS-ATTM-1001
Serial Number	E234368D
Firmware Version	1E9A1E9A
Battery Level	94%

Reset Battery Level

Okay

Copyright © 2024-2025 A&R Group. All rights reserved.

Asset Tag Configuration

Serial Number *

E234368D

Manufactured Date *

21/01/1970, 11:35

Commissioned Date

30/01/2026, 05:30

Model *

PAS-ATTM-1001

Display Name *

Asset Tag Test

Delivered Date

30/01/2026, 07:00

Tag Owner

A&R Engineering

Tag Profile

Generic

Tag Type

Material Car

Save Configuration
Cancel

Figure 68. Tag Configuration Pages – Asset Tag Config #2

Asset Tag Configurations Asset Management / Asset Tag Configurations

Display Name

Tag Profile
All

Tag Type
All

Serial Number

Tag Owner

Search Clear Refresh

Show 10 entries

Export Print Columns

Display Name	Serial Number	Tag Type	Tag Profile	Tag Owner	Delivered Date	Commissioned Date	Is Active
Asset Tag Test	E23436BD	Material Car	Generic Asset Profile	A&R Engineering	30/01/2026	30/01/2026	Active

Showing 1 to 1 of 1 entries

Figure 69. Configurations Grid – Asset Tag Config #3

Asset Tag Configurations Asset Management / Asset Tag Configurations

Display Name

Serial Number

Show 10 entries

Print Columns

Display Name
Asset Tag Test

Serial Number
E23436BD

Tag Type
Material Car

Tag Profile
Generic Asset Profile

Tag Owner
A&R Engineering

Manufactured Date
21/01/1970

Delivered Date *
30/01/2026

Commissioned Date
30/01/2026

Is Active *
☒

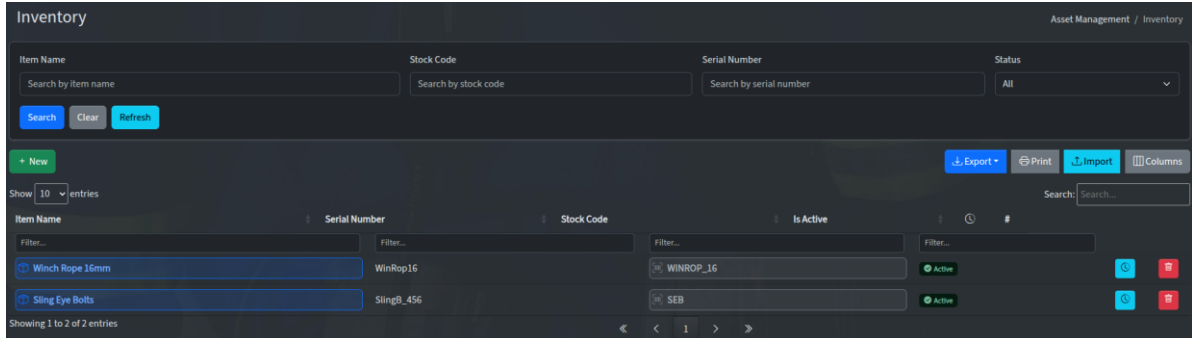
Cancel Save

Figure 70. Configurations Editing Form – Asset Tag Config #4

2.5.3 Material Car Inventory Control

Material Car Inventory Control tracks material types, quantities, and locations of material cars.

The reasoning behind it is to reduce unaccounted material, quicker return cycle, better logistics understanding, improved planning, optimized schedules, and reduced downtime.



Item Name	Serial Number	Stock Code	Is Active
Winch Rope 16mm	WinRop16	WINROP_16	Active
Sling Eye Bolts	SlingB_456	SEB	Active

Figure 71. Items Grid for Inventory – Material Car Inventory Control #1

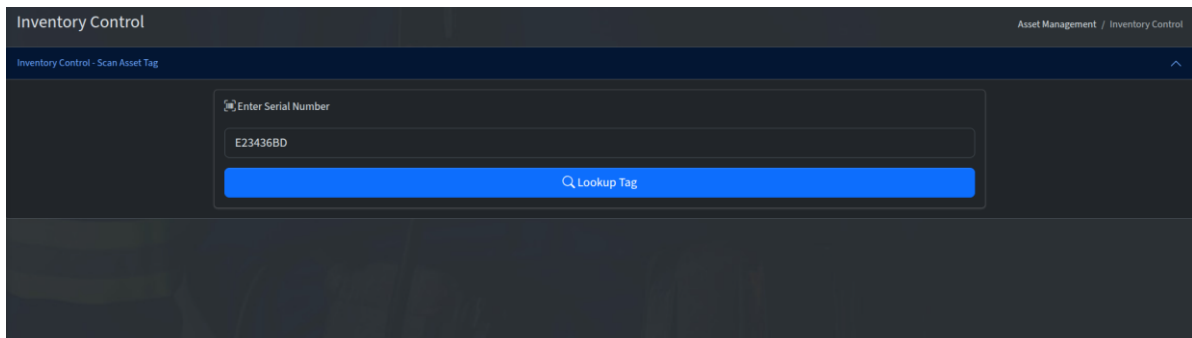


Figure 72. Tag Scan Form for Inventory Loading – Material Car Inventory Control #2

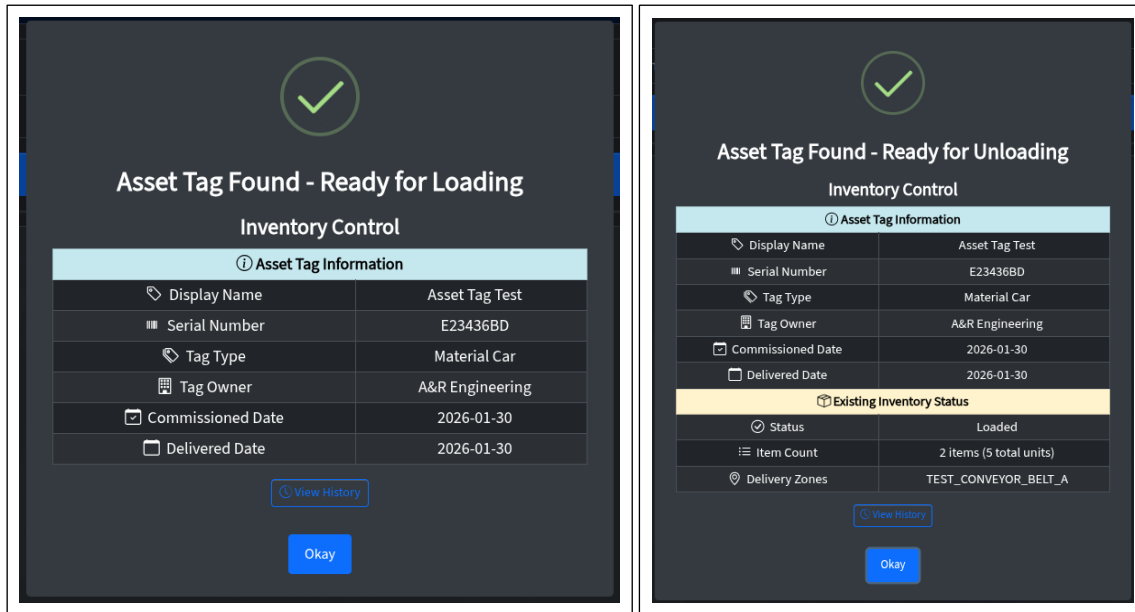
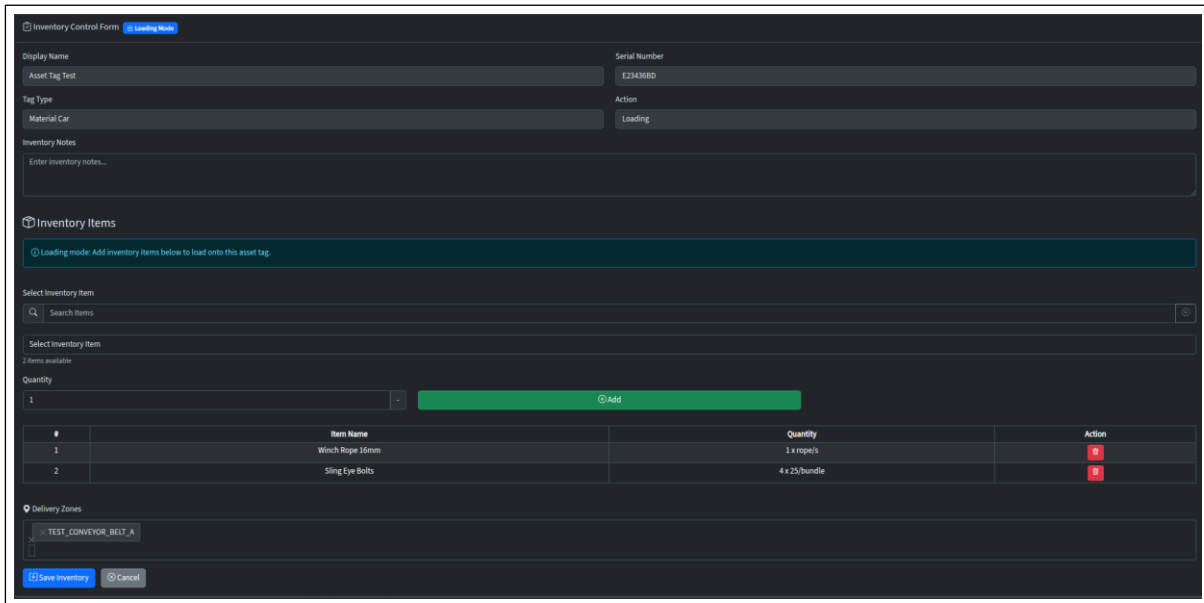


Figure 73. Asset Tag Information – Material Car Inventory Control #3



Inventory Control Form Loading Mode

Display Name: Asset Tag Test Serial Number: E23436BD

Tag Type: Material Car Action: Loading

Inventory Notes: Enter inventory notes...

Inventory Items

Loading mode: Add inventory items below to load onto this asset tag.

Select Inventory Item:

Select Inventory Item: 2 items available

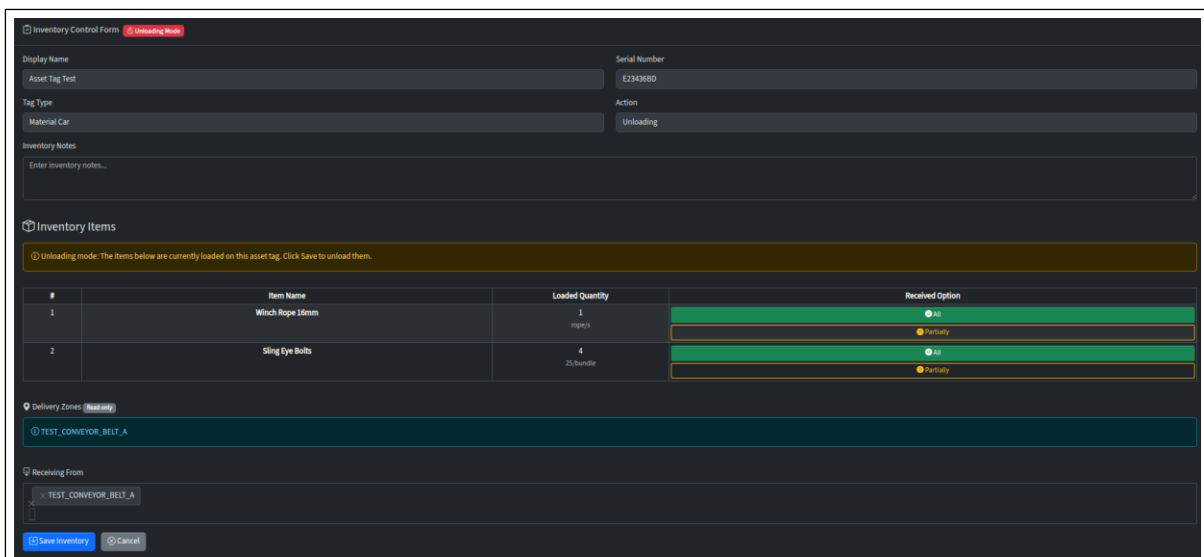
Quantity: 1 Add

#	Item Name	Quantity	Action
1	Winch Rope 16mm	1 x rope/s	X
2	Sling Eye Bolts	4 x 25/bundle	X

Delivery Zones: TEST_CONVEYOR_BELT_A

Save Inventory Cancel

Figure 74. Inventory Loading Form – Material Car Inventory Control #4



Inventory Control Form Unloading Mode

Display Name: Asset Tag Test Serial Number: E23436BD

Tag Type: Material Car Action: Unloading

Inventory Notes: Enter inventory notes...

Inventory Items

Unloading mode: The items below are currently loaded on this asset tag. Click Save to unload them.

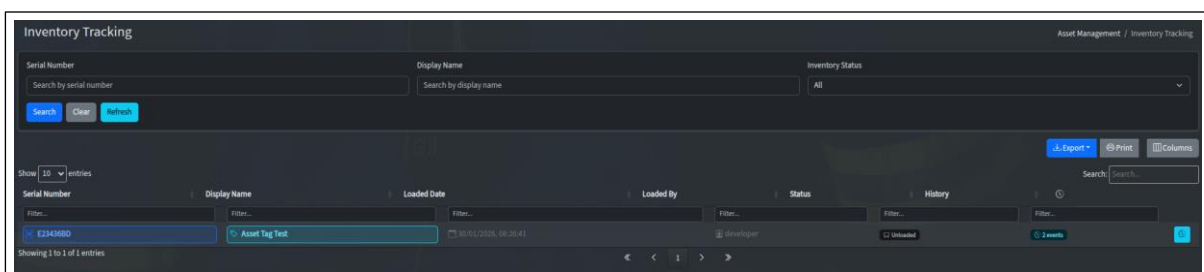
#	Item Name	Loaded Quantity	Received Option
1	Winch Rope 16mm	1 rope/s	All Partially
2	Sling Eye Bolts	4 25/bundle	All Partially

Delivery Zones: TEST_CONVEYOR_BELT_A

Receiving From: TEST_CONVEYOR_BELT_A

Save Inventory Cancel

Figure 75. Inventory Unloading Form – Material Car Inventory Control #5



Inventory Tracking Asset Management / Inventory Tracking

Serial Number: Display Name: Inventory Status: All

Search Clear Refresh

Show 10 entries

Serial Number	Display Name	Loaded Date	Loaded By	Status	History
E23436BD	Asset Tag Test	NOV 2025, 08:26:43	developer	Unloaded	2 events

Showing 1 to 1 of 1 entries

Figure 76. Inventory Tracking Grid – Material Car Inventory Control #6

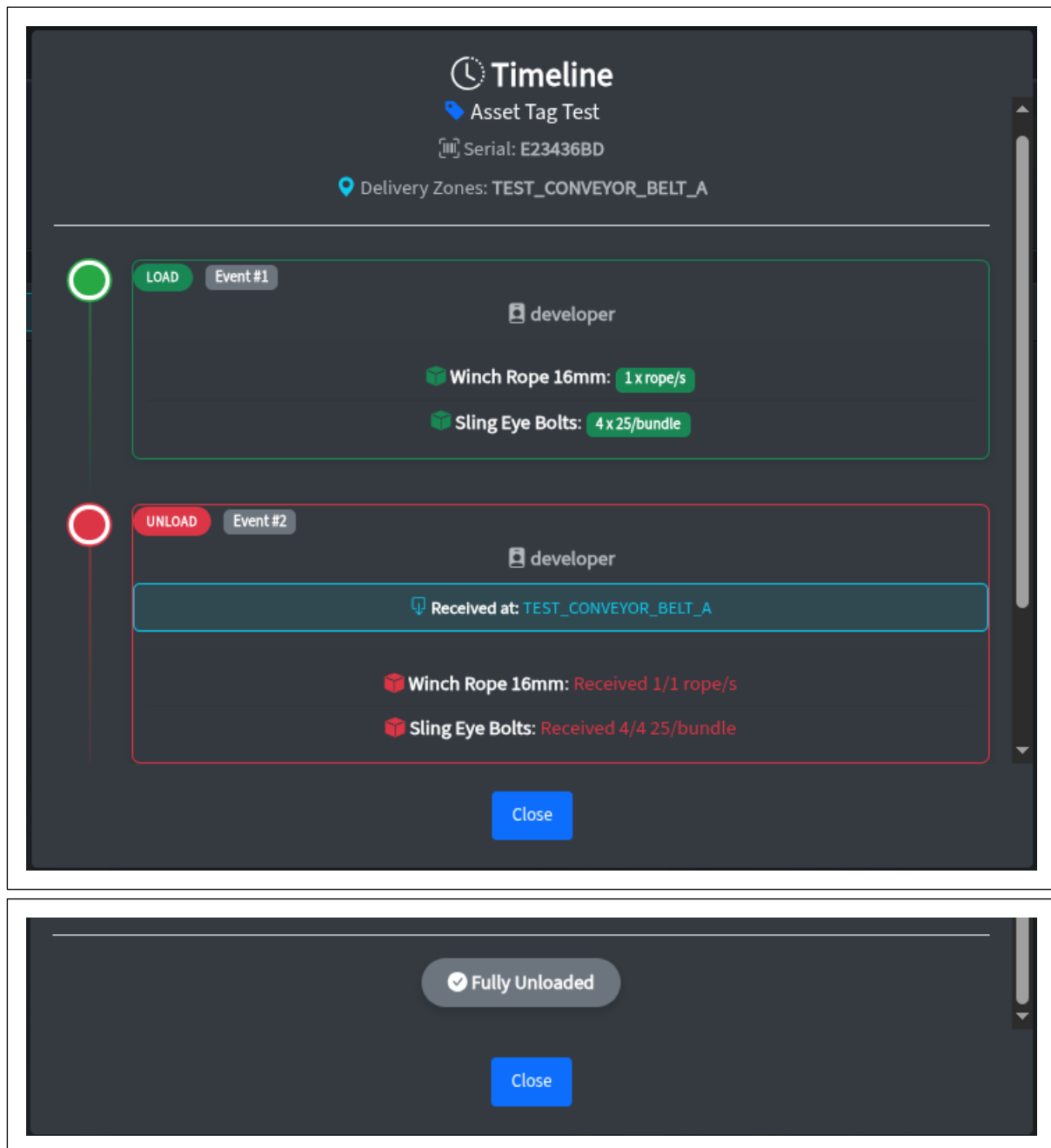


Figure 77. Inventory Tracking Events – Material Car Inventory Control #7

2.6 Kiosk Module

The Kiosk Module is designed for large-screen deployments in control rooms, providing a dedicated interface for real-time monitoring of critical mining dashboards. This module ensures that mine operators and control room personnel have continuous visibility into key performance indicators (KPIs), safety metrics, and operational insights without the need for manual system interactions.

Key Features:

- Full-screen dashboard display for real-time monitoring
- Automated data refresh to provide up-to-date operational insights
- Multi-dashboard switching for different monitoring views
- Customizable layouts to display production, safety, or asset-tracking dashboards
- 24/7 operation mode for continuous oversight in control rooms

2.6.1 Kiosk Per Display

A monthly fee is charged per physical monitor / display.

2.6.2 Beacon Status Monitoring

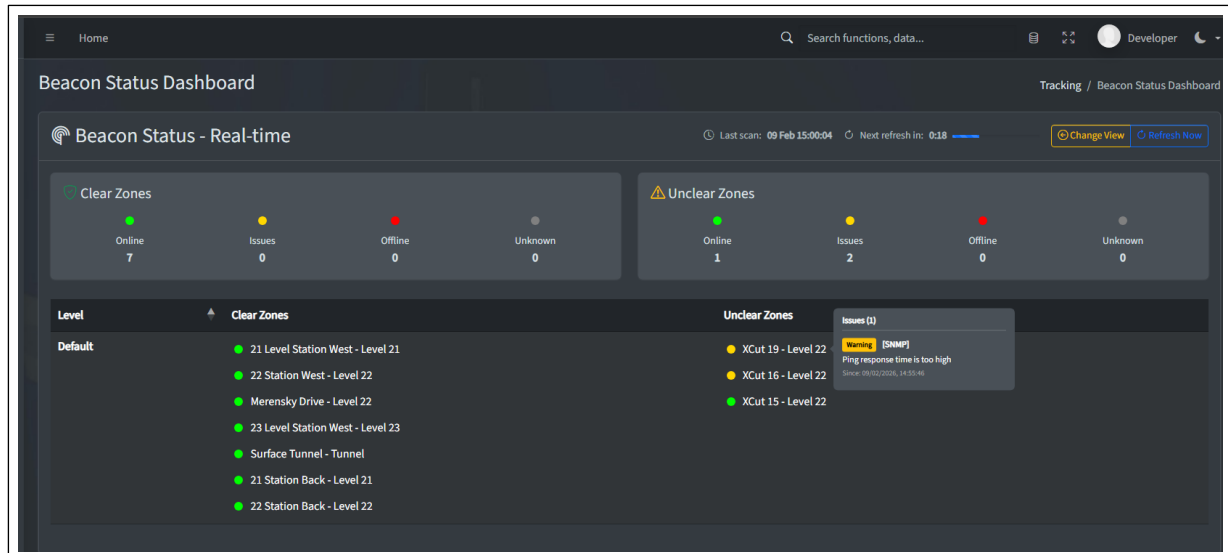


Figure 78. Beacon Status Monitoring

2.7 Datawarehouse Module

The Data Warehouse Module is a high-performance data management solution designed to store, consolidate, and analyse large volumes of mining operational data. This module enables centralized data storage, historical trend analysis, and advanced reporting, allowing mines to make data-driven decisions with confidence.

Key Features:

- Centralized data repository for mining operations, production, and compliance data
- Optimized for big data processing with fast query performance
- Automated ETL pipelines for seamless data integration
- Historical data storage for trend analysis and forecasting
- Customizable reporting and analytics to support decision-making
- Scalable architecture to handle increasing data loads
- Integration with third-party BI tools (Power BI, Tableau, GraphQL, etc.)

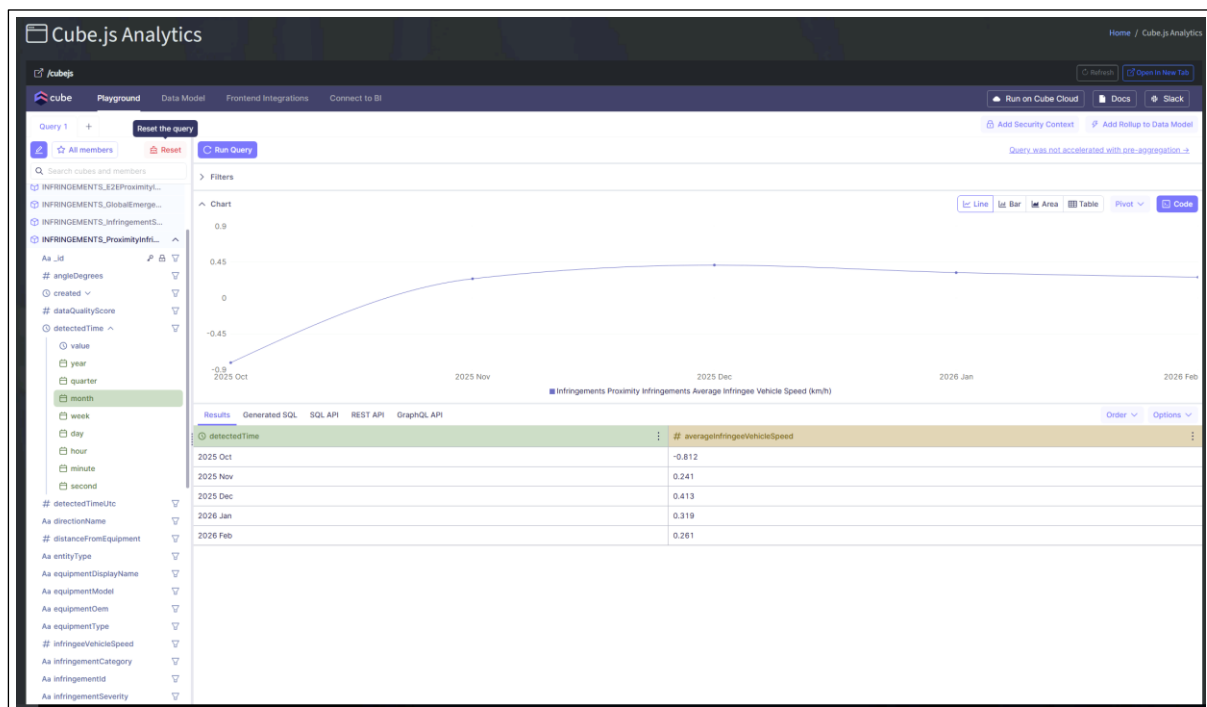


Figure 79. Datawarehouse Module

2.8 Compliance and Investigation Module

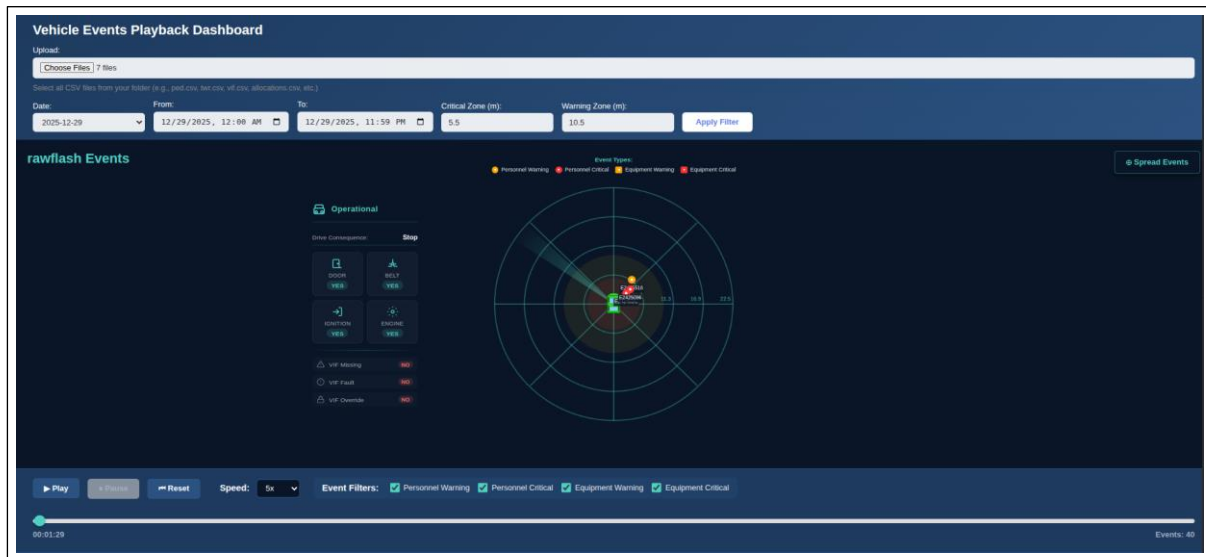


Figure 80. Compliance and Investigation Module #1



Figure 81. Compliance and Investigation Module #2



Figure 82. Compliance and Investigation Module #3

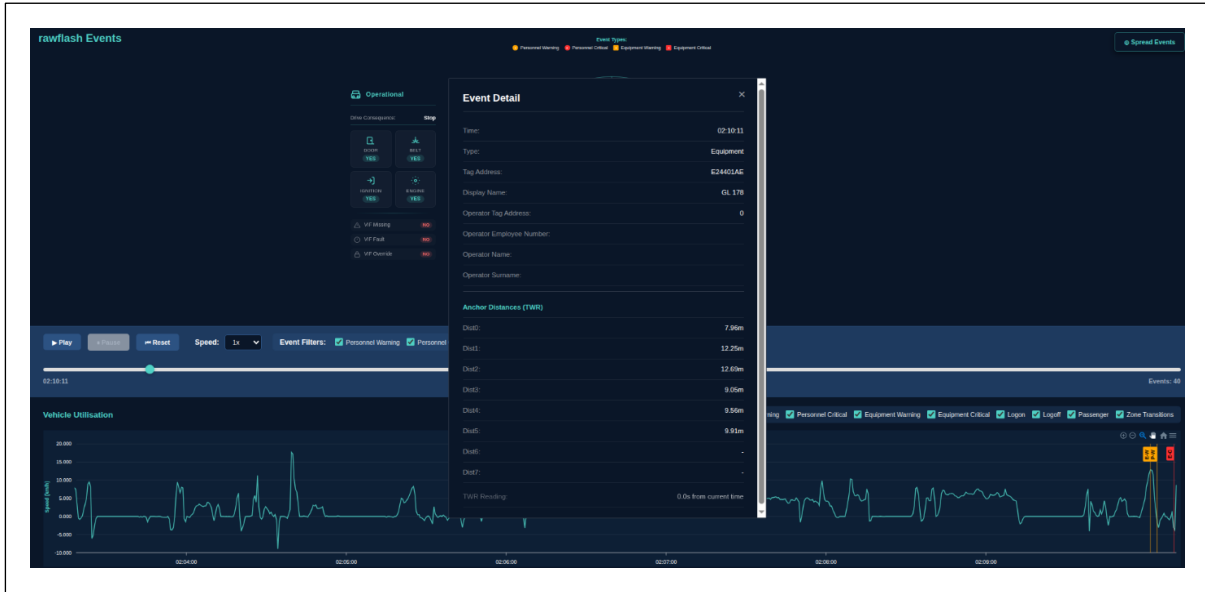


Figure 83. Compliance and Investigation Module #4

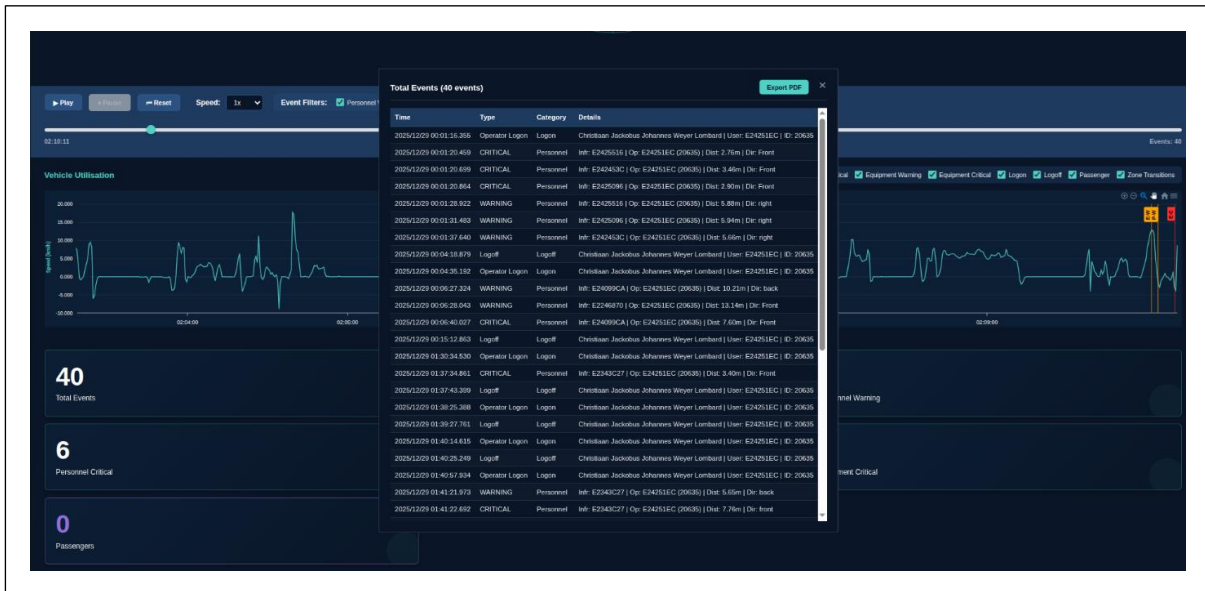


Figure 84. Compliance and Investigation Module #5



Figure 85. Compliance and Investigation Module #6

2.9 Shift Capture

The Shift Capture module has been designed to capture shift data for different TMM types, data such as delays encountered on the shift or amount of material moved etc. This module is completely customizable to adapt to any information to be captured and displayed via a report or a Dashboard. The data captured can be used to measure KPI's and the efficiency of each shift, TMM type or TMM.

2.9.1 Shift Capture Form



Capture Shift Project Management / Capture Shift

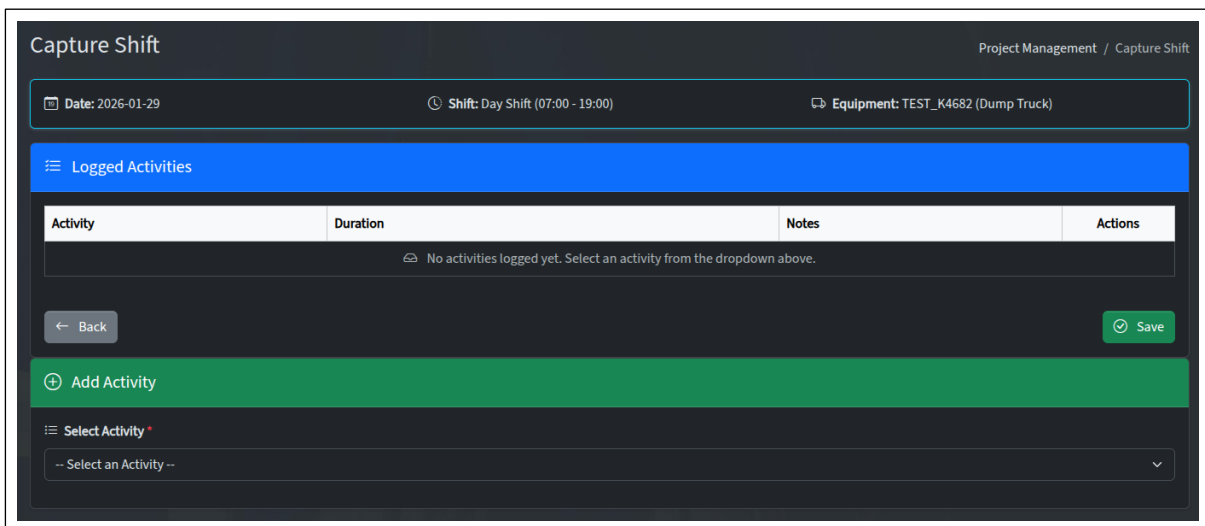
☒ Select Shift Details

Shift Date *

Shift *

Equipment *

Figure 86. Home Screen – Shift Capture #1



Capture Shift Project Management / Capture Shift

☒ Logged Activities

Activity	Duration	Notes	Actions
No activities logged yet. Select an activity from the dropdown above.			

Select Activity *

Figure 87. Activity Screen Initial – Shift Capture #2

The screenshot shows the 'Add Activity' screen for 'Offload Transfer'. At the top is a green bar with a plus icon and the text 'Add Activity'. Below this is a dark grey section with a hamburger menu icon and the text 'Select Activity *'. A dropdown menu is open, showing 'Offload Transfer'. Below the dropdown is a teal box with a plus icon, the text 'Offload Transfer', and a subtext 'Record offload transfer details'. The form contains several fields: 'Offload Level *' with a dropdown set to 'LEVEL_2', 'Offload Area *' with a dropdown set to 'Area 1', 'Offload Tons *' with a text input containing '8', and 'Duration *' with two sliders. The 'Hours' slider is set to '2 hrs' and the 'Minutes' slider is set to '10 min'. At the bottom is a 'Notes (Optional)' section with a text input containing 'Notes for Offload Transfer Activity' and a blue 'Add Activity' button.

Figure 88. Activity Screen New – Shift Capture #3

The screenshot shows the 'Capture Shift' screen. At the top is a dark grey header with the text 'Capture Shift' and 'Project Management / Capture Shift'. Below the header is a dark grey bar with three items: 'Date: 2026-01-29', 'Shift: Day Shift (07:00 - 19:00)', and 'Equipment: TEST_K4682 (Dump Truck)'. Below this is a blue bar with a hamburger menu icon and the text 'Logged Activities'. Below the blue bar is a table with four columns: 'Activity', 'Duration', 'Notes', and 'Actions'. The table has one row for 'Offload Transfer' with the following data: 'Offload Transfer' (with subtext 'Record offload transfer details'), 'Duration: 130 minutes', 'Notes for Offload Transfer Activity', and a red trash icon. Below the table are two buttons: 'Back' and 'Save'. Below the buttons is a green bar with a plus icon and the text 'Add Activity'. Below the green bar is a dark grey section with a hamburger menu icon and the text 'Select Activity *'. A dropdown menu is open, showing '-- Select an Activity --'.

Figure 89. Activity Screen Report – Shift Capture #4

2.9.2 Shift Capture Report

Shift Report Project Management / Shift Report

Date From: dd/mm/yyyy Date To: dd/mm/yyyy Shift: All Shifts

Search Clear Refresh

Show 10 entries

Export Print Import Columns

Search: Search...

Shift Date	Shift	Equipment	Type	Activities	Created	#
13 Jan 2026	Day Shift	TEST_K4682	Dump Truck	3 Activities	13 Jan 2026, 14:49	
23 Jan 2026	Day Shift	TEST_K4683	Drill Rig	2 Activities	23 Jan 2026, 13:36	
26 Jan 2026	Night Shift	TEST_LHD	LHD	3 Activities	26 Jan 2026, 07:58	
26 Jan 2026	Day Shift	TEST_ANFO	ANFO Loader	2 Activities	26 Jan 2026, 08:09	
26 Jan 2026	Day Shift	TEST_Shot	Shotcrete	2 Activities	26 Jan 2026, 09:20	
26 Jan 2026	Night Shift	TEST_Shalt	Shalt	1 Activity	26 Jan 2026, 09:20	
26 Jan 2026	Day Shift	TEST_RoofBolter	Roof Bolter	3 Activities	26 Jan 2026, 10:24	

Showing 1 to 7 of 7 entries

Figure 90. Initial Grid – Shift Report #1

Edit Shift Document: TEST_K4682 - Day Shift

Shift Date * 13/01/2026

Shift * Day Shift

Equipment * TEST_K4682

Activities

- Offload Transfer
13/01/2026, 14:49:22
Offload Level: LEVEL_2 Offload Area: Area 1 Offload Tons: 3 Duration: 2 hr
- Ore Loading
13/01/2026, 14:49:46
Ore Loading Level: LEVEL_5 Ore Loading Area: Area 2 Scoop: Scoop 1 Loads: 8 Load Type: Waste Scoop Driver: Driver 1 Duration: 2 hr 5 min
- Delay
19/01/2026, 09:16:57
Reason: Flat Tire Duration: 2 hr

Add Activity

Select Activity

Notes

Cancel Save

Figure 91. Grid Report Editing – Shift Report #2

2.9.3 Shift Dashboard / KPI Dashboard for Shifts

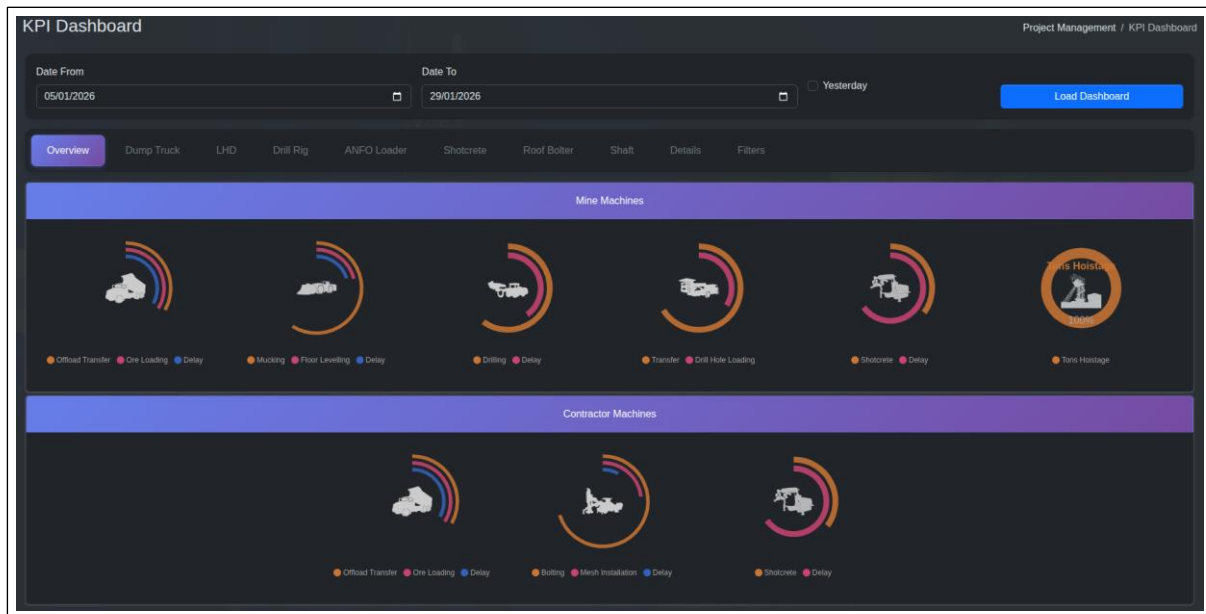


Figure 92. Dashboard Overview – KPI Dashboard

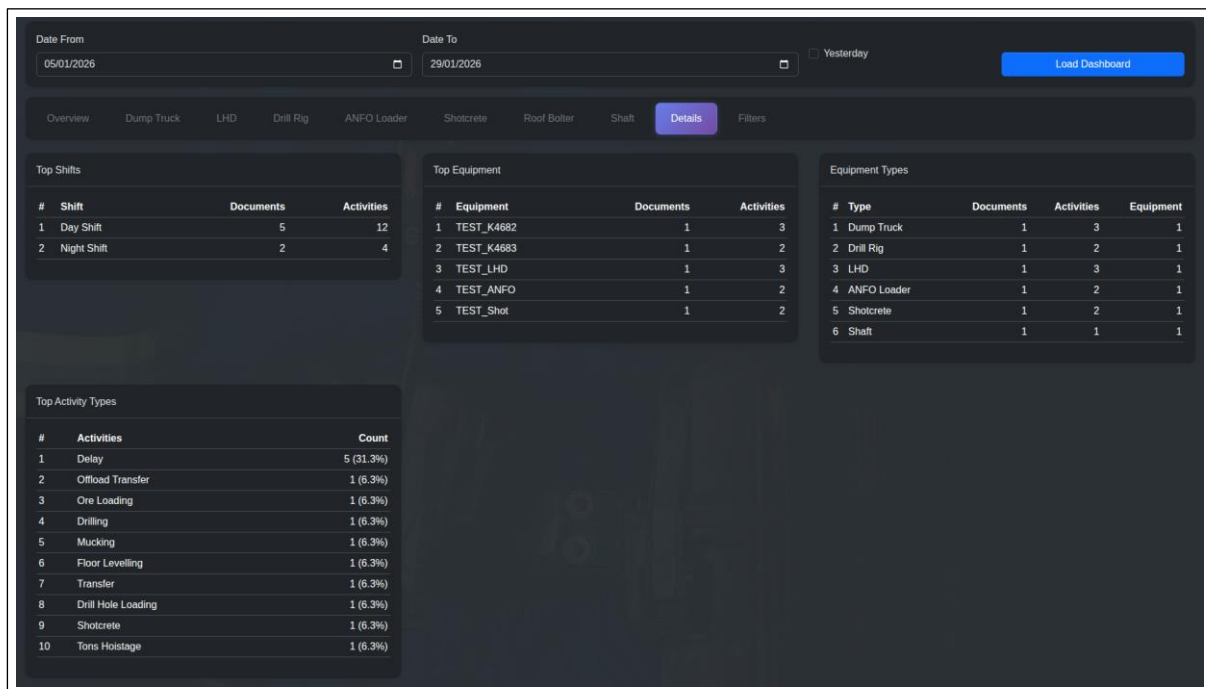


Figure 93. Additional Detail View – KPI Dashboard

Other tabs different from use case to use case, any chart related to the date captured from the shift can be presented on the dashboard via a chart or a grid.

3. Features in Development

3.1 Short Interval Control Lite

via Microsoft Teams

Short Interval Control Lite support operational response by sending alerts and updates via Microsoft Teams. With this integration, notifications will reach the right personnel without delay, making incident resolution faster and helping teams coordinate. This system will keep mining operations informed and responsive, improving site safety and efficiency.

- **Real time Alerts in Microsoft Teams**
Critical and actionable events are delivered instantly to your Teams channels or direct messages.
- **Safety Event Notifications**
Example:
Loco Door Open While Moving – Supervisor notified for corrective action.
- **System Health Updates**
Critical failures or downtime alerts posted to designated Teams channels for rapid response.
- **Actionable Messages**
Alerts could include context and quick action buttons: Acknowledge, Escalate, Assign.
- **Improved Compliance & Governance**
Full audit trail of who was informed, who acted, and when.

Benefits for Mining Operations

- Faster incident response and reduced downtime.
- Enhanced safety compliance and risk management.
- Integration with existing Teams workflows.

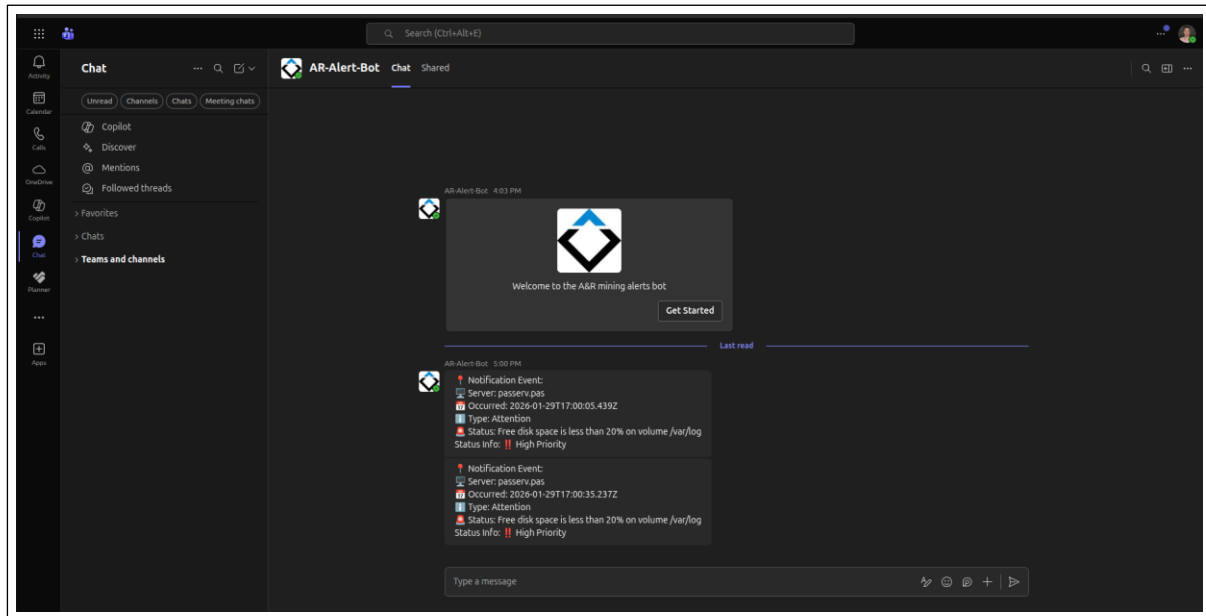


Figure 94. An example of Teams Alerts

3.2 Ask-FRICY

Ask-FRICY is an advanced question-answering system leveraging Secure Private Large Language Models (SP-LLMs) and the FRICY framework (Fast Retrieval and Inference for Conversational Y-models). It aims to provide real-time responses to user queries, improving information accessibility and enhancing engagement.

Key Features:

- **Improved Information Access:** Users can retrieve safety-related data through natural language queries.
- **Dynamic Data Retrieval:** Unlike static FAQs, Ask-FRICY dynamically processes information for accurate responses.
- **Enhanced Engagement:** A conversational interface fosters better user interaction and decision-making.
- **Accurate and efficient retrieval of mining safety data.**
- **Intuitive user interface for seamless adoption by safety personnel.**

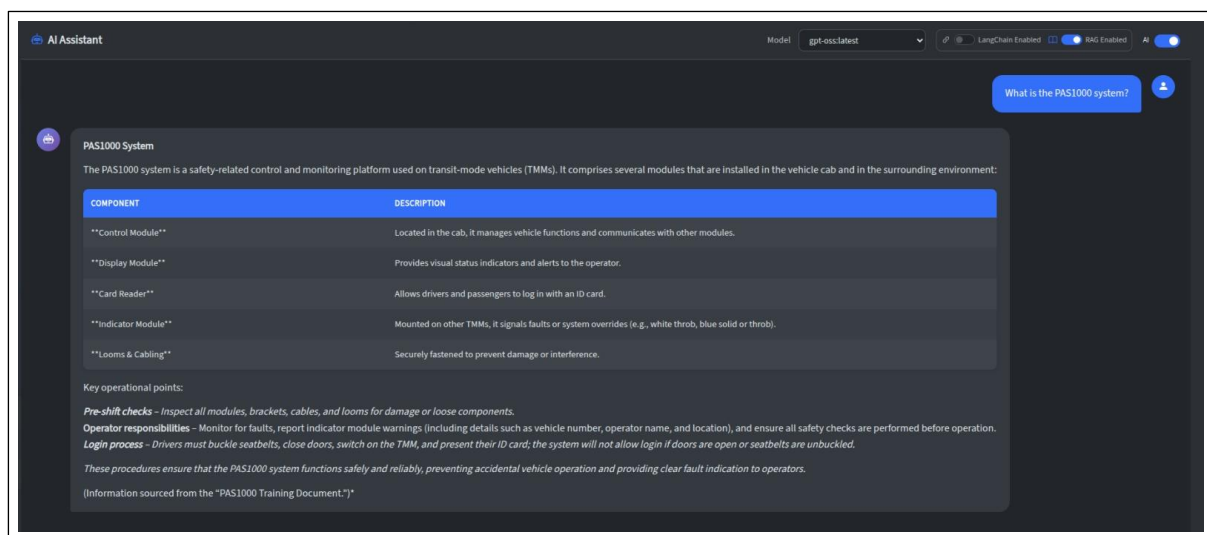


Figure 95. An example prompt and answer

3.3 Winch Proximity System Dashboard

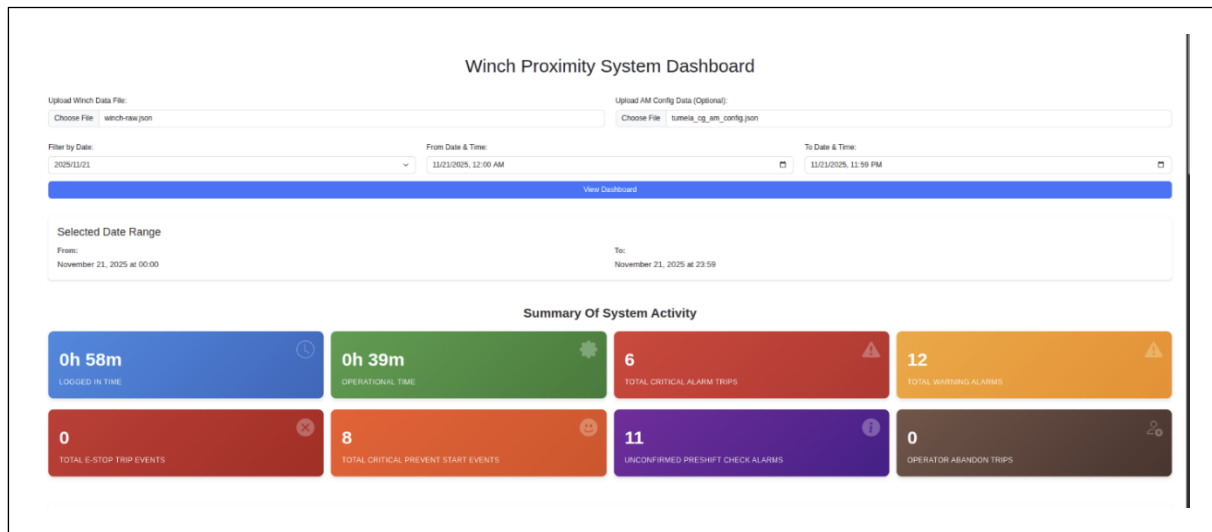


Figure 96. Winch Proximity System Dashboard #1

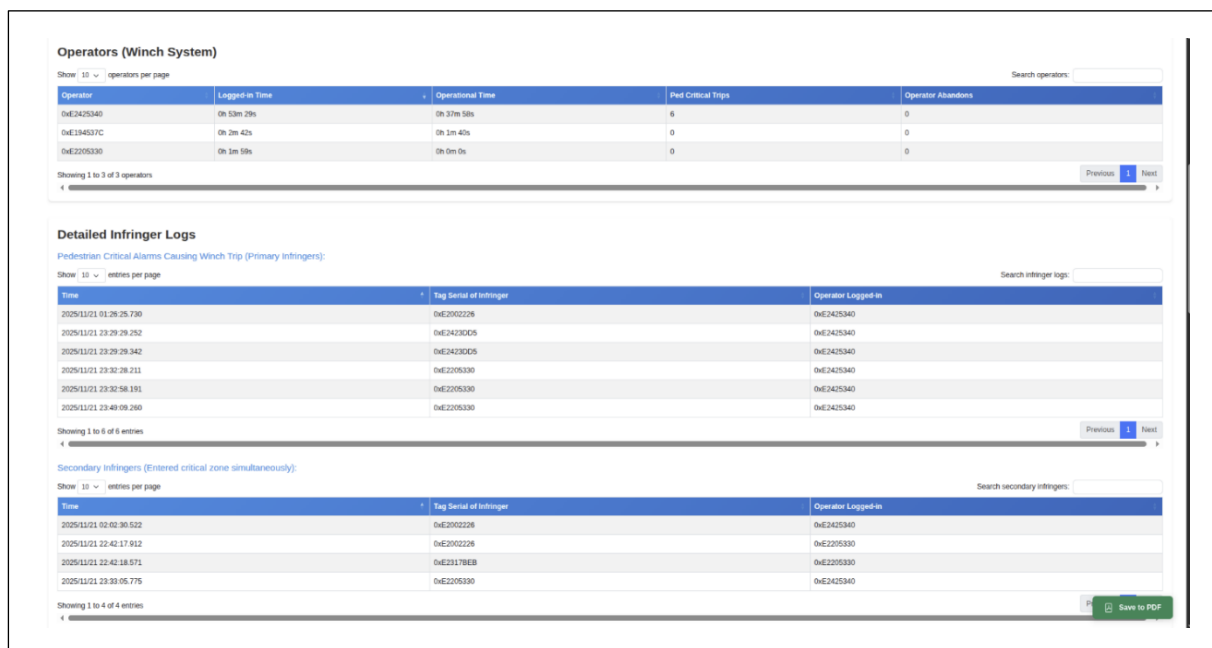


Figure 97. Winch Proximity System Dashboard #2

Pedestrians Preventing Winch Start Due to Critical Alarm (Primary Infringers):

Show: 10 ▾ entries per page Search prevent start incidents:

Time	Tag Serial of Infringer	Operator Logged-in
2025/11/21 01:29:24.149	0xE222705B	0xE2425340
2025/11/21 02:00:58.958	0xE2002226	0xE2425340
2025/11/21 02:02:05.427	0xE222705B	0xE2425340
2025/11/21 22:42:16.773	0xE2425340	0xE2205330
2025/11/21 23:17:54.645	0xE23178EB	0xE2205330
2025/11/21 23:19:04.289	0xE23178EB	0xE2205330
2025/11/21 23:35:36.340	0xE2223C4B	0xE2425340
2025/11/21 23:49:47.530	0xE2223C4B	0xE2425340

Showing 1 to 8 of 8 entries Previous 1 Next

Secondary Infringers (Winch Start Prevention):

Show: 10 ▾ entries per page Search prevent start secondary infringers:

Time	Tag Serial of Infringer	Operator Logged-in
2025/11/21 02:02:30.522	0xE2002226	0xE2425340
2025/11/21 22:42:17.812	0xE2002226	0xE2205330
2025/11/21 22:42:18.571	0xE23178EB	0xE2205330

Showing 1 to 3 of 3 entries Previous 1 Next

Figure 98. Winch Proximity System Dashboard #3

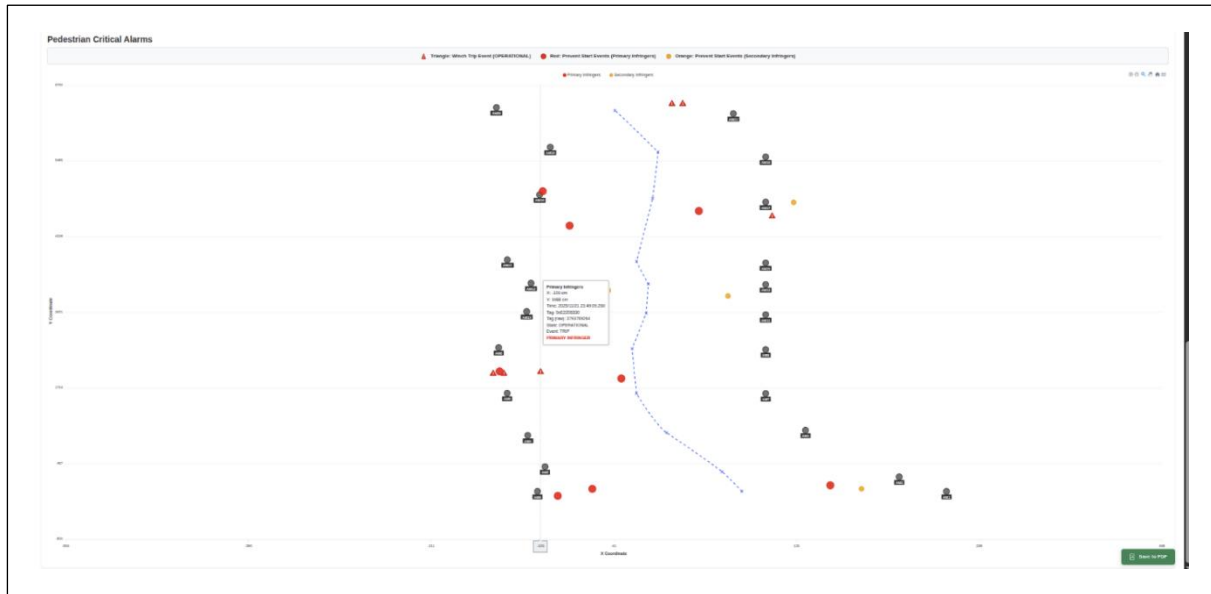


Figure 99. Winch Proximity System Dashboard #4

3.4 Diesel Rebate Tracking and Reporting

The Diesel Rebate and Tracking module is designed to help mining operations optimize fuel usage, claim rebates efficiently, and prevent fuel loss. By providing detailed tracking and reporting of diesel consumption, this module ensures that all fuel transactions are accurately recorded and compliant with rebate requirements. It offers automated reconciliation, usage analytics, and fraud detection to maximize cost savings.

Key features:

- Real-time diesel consumption tracking by vehicle and equipment
- Automated rebate calculations based on regulatory guidelines
- Fuel usage anomaly detection to prevent fraud or inefficiencies

4. Custom Development Services

ARMobile is more than just a mining operations platform—it is fully capable of supporting custom development to meet your specific business needs. Whether you require bespoke integrations, advanced analytics, workflow automation, or tailored reporting, our team can work with you to develop a solution that aligns with your operational goals.

Our custom development services include:

- Integration with third-party systems (ERP, IoT, tracking solutions, etc.)
- Custom dashboards & analytics tailored to unique KPIs
- Workflow automation & optimisation
- Specialised reporting & data transformation solutions
- Business Forms

If you have specific development requirements, our team is ready to collaborate and build solutions that drive efficiency, safety, and compliance within your mining operations. Contact us to discuss your needs and receive a custom proposal.

5. ARMobile 2.0 Feature Release Roadmap

Feature	Beta / UAT	Production Release
1. ARMobile 2.0 - Standard Edition		
1.1. LRMS Standard Reporting	Q1 2026	Q2 2026
1.1.1 Lamproom Management System Baseline Reporting.	Q1 2026	Q2 2026
1.1.2 Tracking Manager Baseline Reporting	Q1 2026	Q2 2026
1.1.3 Standard Equipment Clearance	Q1 2026	Q2 2026
2. ARMobile - Advanced Edition		
2.1 Personnel Management		
2.1.1 Map - Personnel Tracking Tool	Q1 2026	Q2 2026
2.1.2 Infringement Dashboards	Q1 2026	Q2 2026
2.1.3 Workplace Analysis	Q1 2026	Q2 2026
2.1.4 Inactivity Dashboard & Report	Q1 2026	Q2 2026
2.1.5 Workplace Movement Analytics	Q1 2026	Q2 2026
2.2 Secondary Zone Clearance Tool		
2.3 TMM Management		
2.3.1 Map – TMM Tracking Tool	Q1 2026	Q2 2026
2.3.2 Zone Infringement Dashboard	Q1 2026	Q2 2026
2.3.3 Tipping Events Analysis	Q1 2026	Q2 2026
2.3.4 TMM Utilization Analysis	Q1 2026	Q2 2026
2.3.5 Vehicle Test Station Reports	Q1 2026	Q2 2026
2.4 Loco Management		
2.4.1 Map – Loco Tracking Tool	Q1 2026	Q2 2026
2.4.2 Loco Utilisation Analysis	Q1 2026	Q2 2026
2.4.3 Loco detail data analysis tool	Q1 2026	Q2 2026
2.4.4 Offline Speed Beacon and Waypoint Monitoring	Q2 2026	Q3 2026
2.5 Asset Management		
2.5.1 Map - Asset Tracking Tool	Q1 2026	Q2 2026
2.5.2 Asset Tag Configuration Tool	Q1 2026	Q2 2026
2.5.3 Material Car Inventory Control	Q2 2026	Q3 2026
2.6 Kiosk Module	Q1 2026	Q2 2026
2.7 Datawarehouse Module	Q1 2026	Q2 2026
2.8 Compliance and Investigation Module	Q1 2026	Q2 2026
2.9 Shift Capture	Q1 2026	Q2 2026
3. Features in Development		
3.1 Short Interval Control Lite via Microsoft Teams	Q2 2026	Q3 2026
3.2 Ask-FRICY	Q2 2026	Q3 2026
3.3 Winch Proximity System Dashboard	Q2 2026	Q3 2026
3.4 Diesel Rebate Tracking and Reporting	Q3 2026	Q4 2026