TEMPERATURE MONITORING

EBOOK

uffizio

PURPOSE OF THIS EBOOK

This eBook is designed to **highlight the value of temperature monitoring** by showing how it ensures goods' safety and optimizes operations. It explains the unique benefits of temperature monitoring and why it is essential for industries handling perishable or temperature-sensitive items.

It also aims to **educate system integrators** on how to incorporate temperature monitoring into existing setups. By simplifying the technical aspects, the eBook makes integration more accessible and practical.

The eBook demonstrates the **versatility of temperature monitoring** through real-life examples from industries like logistics, pharmaceuticals, and cold chain transportation. These examples highlight its importance in addressing various operational challenges.

To **build trust with data**, this eBook uses measurable results to showcase the effectiveness of temperature monitoring. Testimonials and real-world case studies add credibility, making its value clear to readers.

Finally, the eBook focuses on **encouraging seamless implementation** by offering practical tips on sensor compatibility and dashboard integration. This helps integrators add value and deliver reliable solutions to their clients.

TABLE OF **CONTENTS**

INTRODUCTION

Imagine transporting sensitive goods like food, pharmaceuticals, or chemicals, only to discover they were damaged because the temperature wasn't controlled. Temperature monitoring is the solution to this challenge. It helps businesses track and maintain the right conditions for goods during transit, ensuring safety, quality, and compliance.

This eBook dives into how temperature monitoring works, the challenges it solves, and why it's essential for industries that rely on safe transportation of sensitive products.

CHALLENGES WITHOUT TEMPERATURE MONITORING

Spoilage risk

Even slight temperature fluctuations can ruin sensitive goods like food or medicines.

Manual error

Relying on people to track temperature can lead to mistakes, putting goods at risk.

Compliance with regulations

Meeting strict temperature standards is crucial to avoid legal penalties and maintain quality of goods.

Lack of real-time data

Without real-time monitoring, it's hard to respond quickly to temperature changes.

TEMPERATURE MONITORING FUNCTIONALITIES

This section explains how our temperature monitoring feature helps managers keep goods safe and in good condition. It allows real-time tracking of temperature and sends alerts if the temperature goes beyond set limits. These alerts help managers act quickly to prevent spoilage or damage. Managers can also check temperature trends to find and fix problems early. The dashboard and reports are simple to use, showing temperature changes over time and areas that need attention. With easy controls and mobile access, managers can monitor temperature anytime and ensure smooth operations.

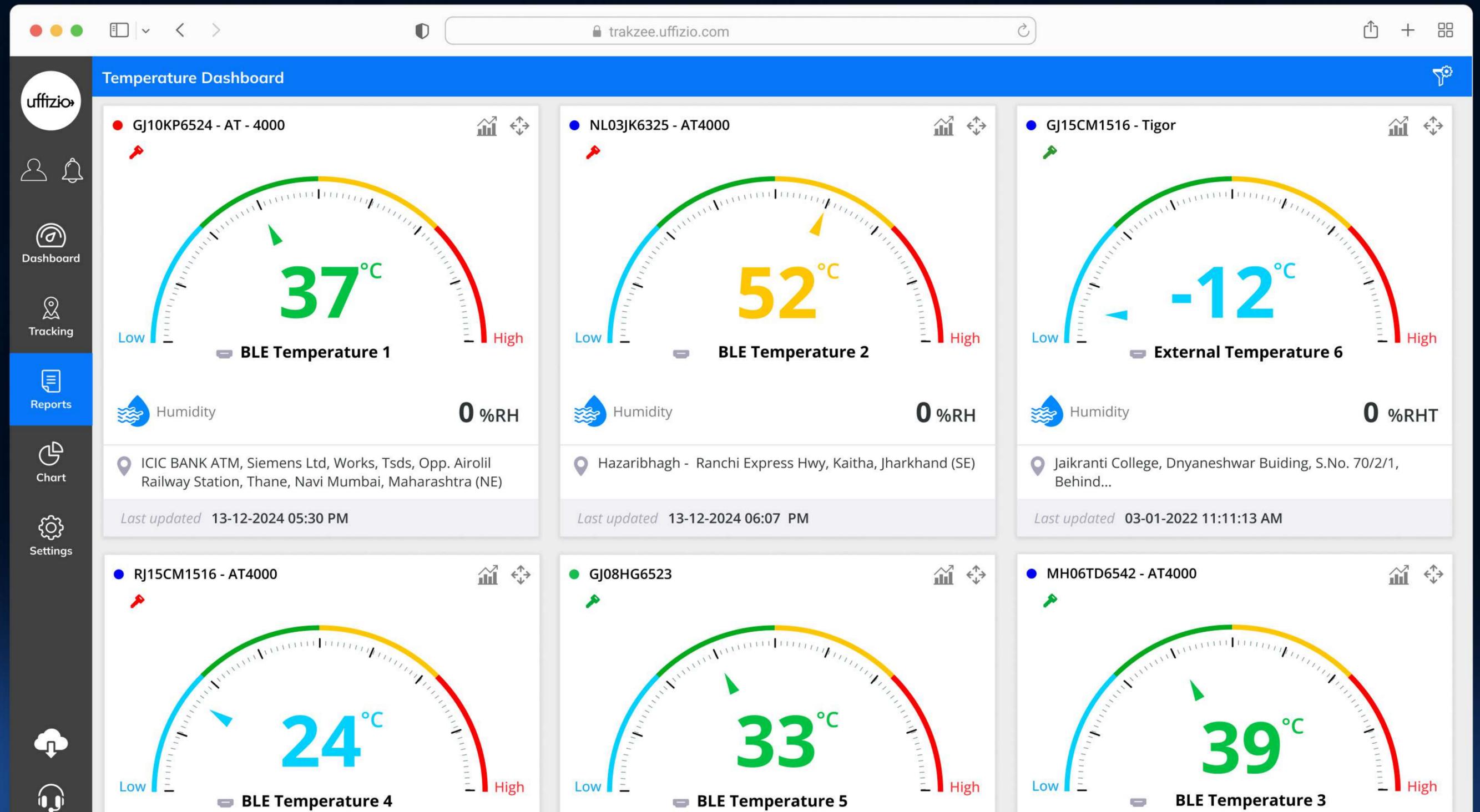Dashboard   Live tracking   Alerts   Reports   Charts

TEMPERATURE DASHBOARD

Get real-time insights into temperature and humidity levels for every vehicle in your fleet. Monitor conditions from a centralized screen to ensure safe transit for temperature-sensitive goods.

KEY FEATURES

Complete overview

Access live temperature and humidity data for all vehicles in your fleet from a single screen.

Detailed readings

View specific temperature metrics, such as ambient air or coolant temperatures, for accurate monitoring.

Location-based tracking

Track temperature data alongside vehicle locations to ensure compliance throughout the journey.

Timestamped data

Access the most recent temperature readings, ensuring decisions are based on the latest updates.

HOW THE DASHBOARD BENEFITS OPERATIONS
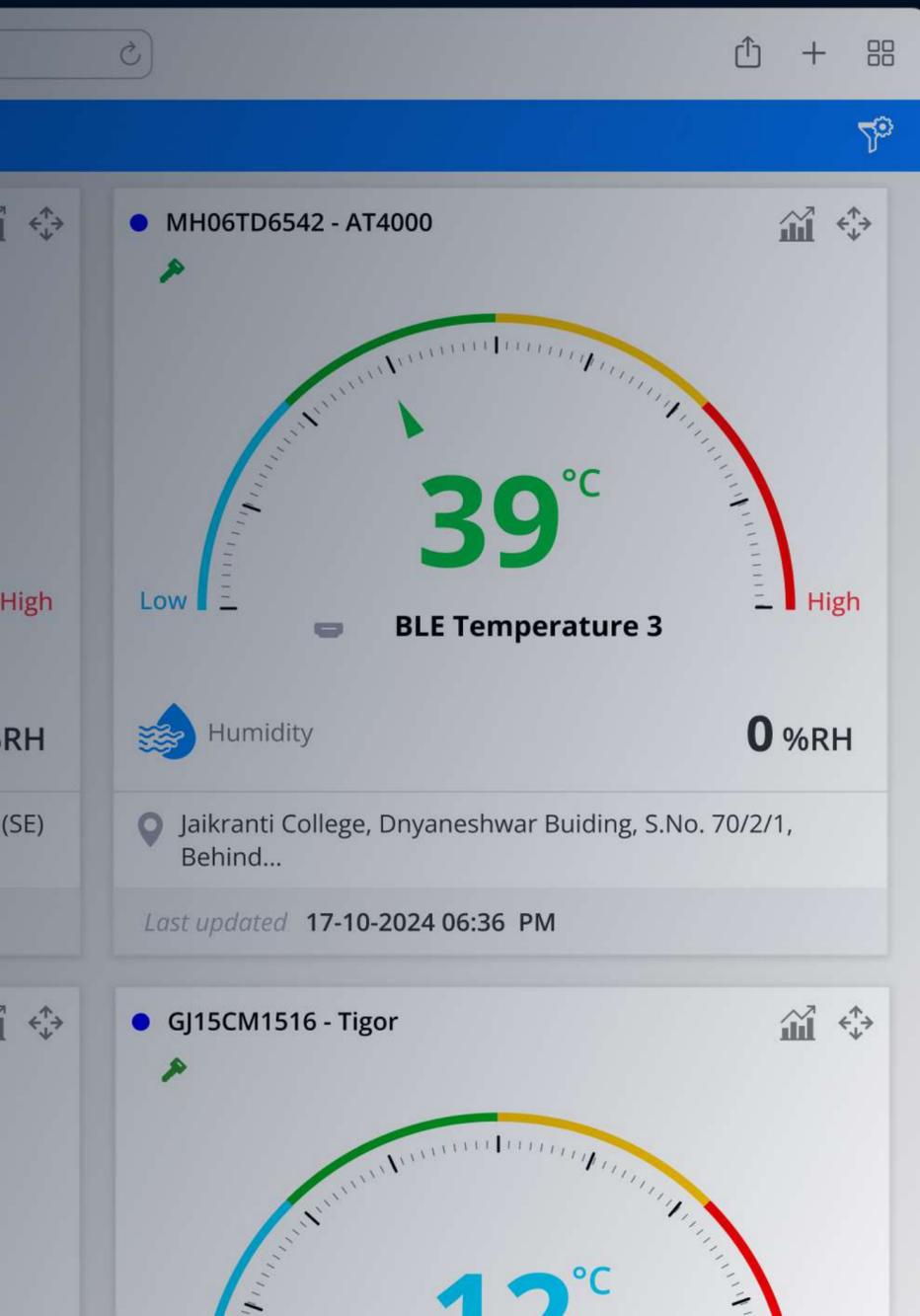
1
Enhances decision-making

Instant access to data helps managers respond quickly to potential issues.

2
Reliable temperature insights

Get accurate updates on temperature data across all vehicles, ensuring optimal conditions are maintained.

3
Proactive decision-making

Instant alerts for temperature deviations allow managers to take quick corrective actions.

4
Meets safety standards

Easy access to accurate temperature records helps ensure goods are transported according to required safety guidelines.

REAL-TIME TEMPERATURE MONITORING

Monitor temperature and humidity data directly on the live tracking screen. Stay informed about your fleet's conditions while tracking their location in real time.

12

KEY FEATURES

Integrated temperature display

View real-time temperature and humidity levels alongside vehicle locations. It provides a complete picture of fleet conditions.

Temperature violation alerts

Receive instant notifications for any deviations from the safe temperature range, ensuring immediate action.

Multiple-sensor support

Monitor multiple sensors per vehicle for detailed tracking, including ambient and cargo-specific temperature levels.

Historical tracking

Access past temperature readings during playback to analyze trends and identify recurring issues.

13
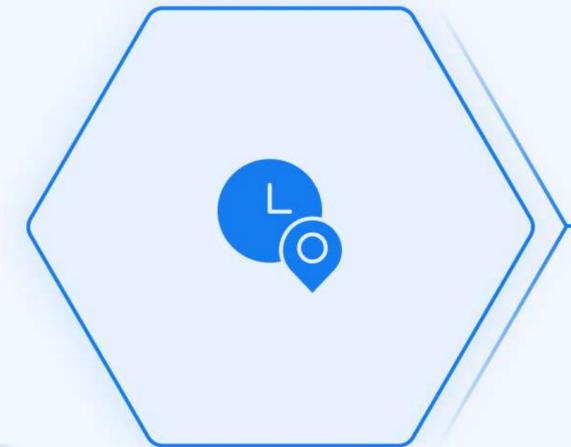
HOW REAL-TIME MONITORING BENEFITS OPERATIONS
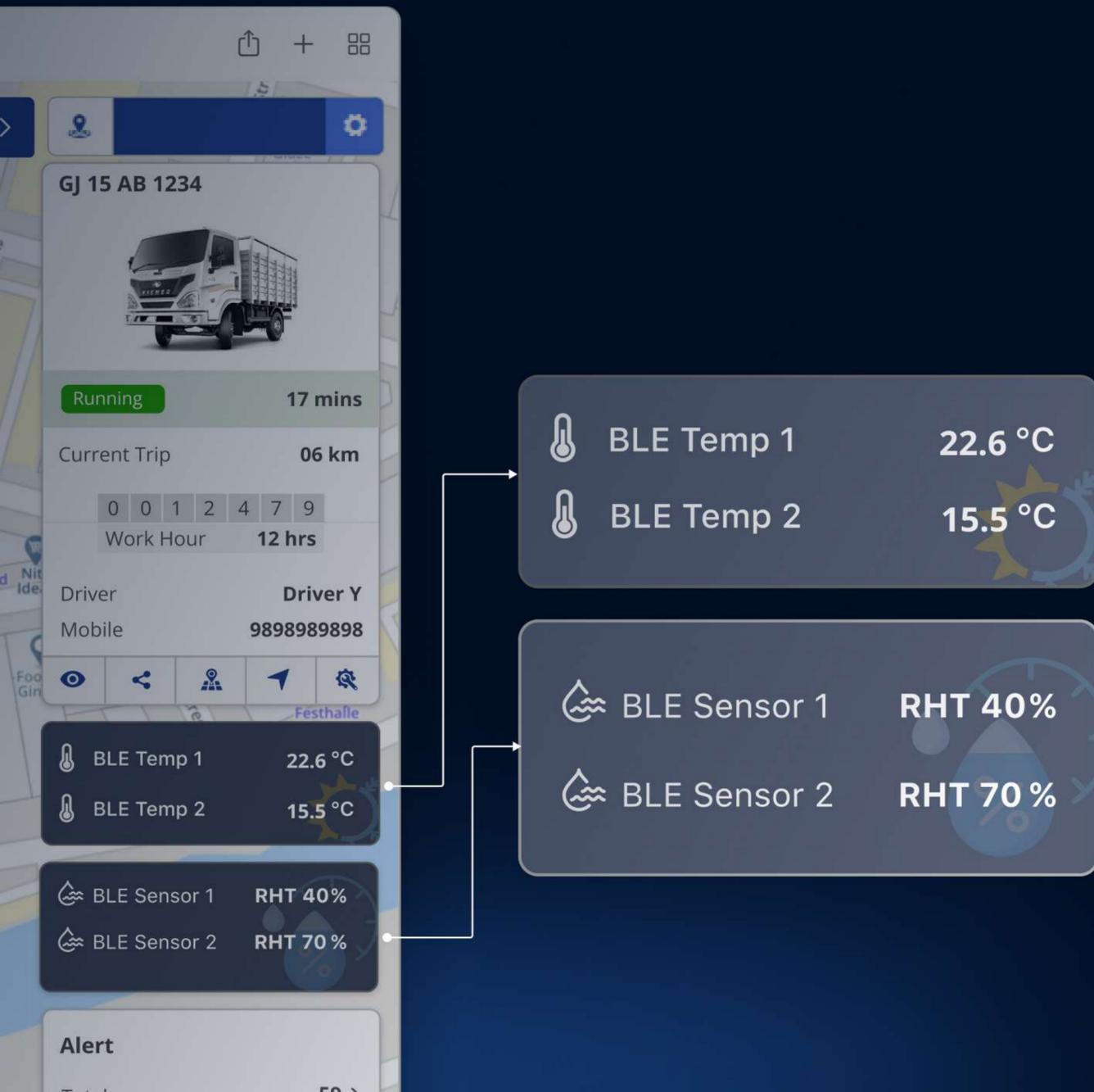
1 Improves response time

Instant alerts allow managers to address temperature fluctuations quickly, reducing the risk of spoilage.

2 Enhances operational visibility

Integrated data provides better insights into fleet performance and environmental conditions.

3 Prevents losses

Real-time tracking ensures goods stay within the required temperature range, preventing financial and reputational damage.

4 Supports compliance

Helps maintain records of temperature data for regulatory audits and ensures industry standards are met.

14

CRITICAL ALERT NOTIFICATIONS

Stay ahead of issues with real-time notifications that keep your fleet safe. Receive alerts for any critical deviations in temperature, humidity, or device status.

9:41

9:41

Tuesday, 1

Attention!

Vaccine Storage Compromised!
Limit: 5.1°C (Required: 2°C to 4°C).

trakzee   2 mins ago

High Temperature Alert

Temperature at 6.7°C (Required: 2°C to 4°C)
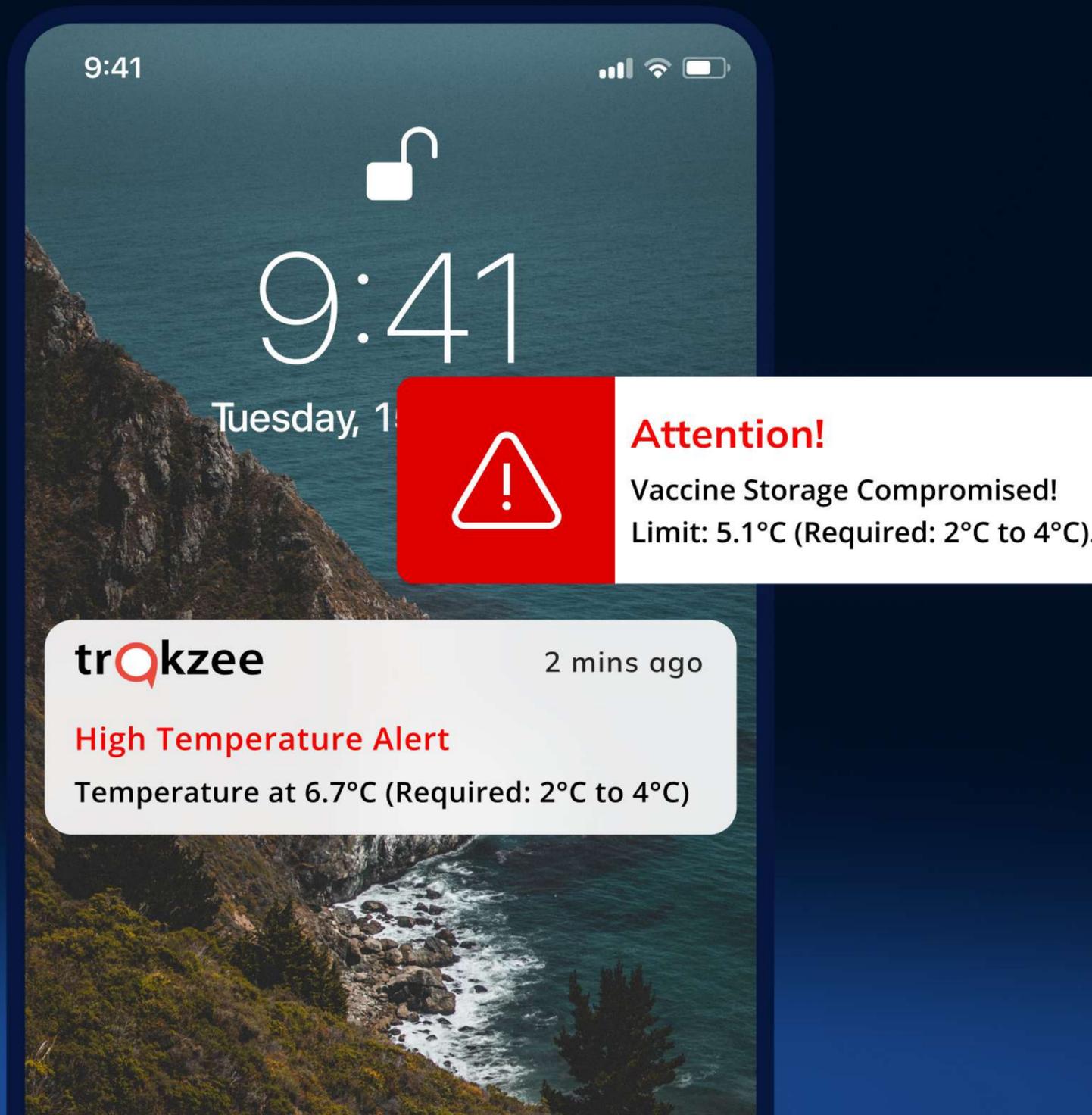
KEY FEATURES

Threshold exceeded alert

Notifies fleet managers when the temperature crosses a safe limit, allowing timely action to prevent spoilage or damage.
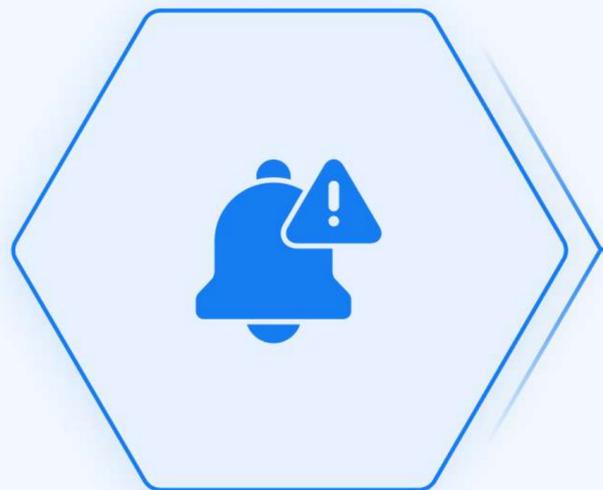
Low battery alert

Triggers an alert when the monitoring device's battery is low. This prompts quick recharging or replacement to maintain continuous tracking.

Humidity level alert

Sends a warning when humidity levels go beyond acceptable ranges.This ensures optimal conditions for sensitive goods.

HOW ALERTS BENEFIT OPERATIONS

Warning!

High Temperature Detected: 5.5°C

Sensor: BT7
Location: Cold Storage Unit B
Detected At: 10:15 AM

CLOSE

Wa

Humidity 85%!

Sensor : BT7 -Zone C
Time Detected : 03:20 PM

CLOSE

Warning!

BLE 05 Battery Low!
Sensor battery at 5%.
Replace now!.

CLOSE

1 **Faster response times**

Immediate alerts allow quick action to prevent product damage and ensure safe conditions.

2 **Regulatory compliance made easy**

Alerts help maintain proper conditions within required standards, simplifying audits and inspections.

3 **Reliable monitoring**

Battery alerts ensure uninterrupted monitoring, preventing device downtime and operational delays.

DETAILED REPORTS

Temperature reports are the foundation of precise monitoring. They deliver critical insights into temperature trends, ensuring compliance and product safety. With Uffizio's temperature monitoring system, generating accurate, easy-to-read reports becomes effortless.

TEMPERATURE STATUS REPORT

The temperature status report provides real-time visibility into the current temperature and humidity conditions of all vehicles in your fleet. It simplifies monitoring by offering a clear and detailed snapshot of essential data.

Temperature Status

Object	Vehicle Brand	Vehicle Model	Location	Port	Value Temperature	Value Humidity	Unit Temperature	Unit Humidity	Last Update Time
GJ09DH6348	Eicher	10:59	Lati Bazar, Lokhand Bazar, Darbargadh, Bhavnagar, Gujarat (NE)	BLE Temperature 1	23.4	0.0	℃	%RH	04-05-2024 04:14 PM
MH03TK3146	AMW	1618 P	Shop Number 6, Kastur Mahal, Opposite Canara Bank, Maharashtra	External Temperature	22.8	0.0	℃	%RH	03-07-2024 08:07 AM
GJ05DH6348	Ashok Leyland	10 Wheel	Hotel KGN, Surat NH-8, Surat Road, Amboli, Amboli Gujarat	BLE Temperature 1	24.1	0.0	℃	%RH	27-11-2024 10:14 AM
GJ05AE3674	Ashok Leyland	10 Wheel	Shree Ganesh Petrol Pump, Pipodara, Gujarat (SW)	BLE Temperature 1	-23.7	0.0	℃	%RH	27-11-2024 03:35 PM
MH25DF3642	AMW	10 Wheel	SAMTA NAGAR, S.R.T.Colony, Dharashiv (Osmanabad), Maharashtra	External Temperature	26.4	0.0	℃	%RH	27-11-2024 10:14 AM
GJ06TU3648	AMW	1618 TP	Shree Khodiyar Rajwadi Kathiyavadi Hotel, G) SH 153, Udalpur, Gujarat (SE)	BLE Temperature 1	-16.7	0.0	℃	%RH	27-11-2024 10:14 AM
GJ15AV6317	Eicher	35.31	Patel Petroleum Service, Beside, SH 55, RTO, Palavasna, Mehsana Gujarat (SW	BLE Temperature 1	21.4	0.0	℃	%RH	27-11-2024 10:14 AM
GJ16ED3647	Eicher	10:59	Ambica Super Store, Bholav, Bharuch, Gujarat (SE)	External Temperature	-10.3	0.0	℃	%RH	12-11-2024 11:36 AM
GJ15EK9999	AMW	1618 TP	3648 Anukul Apt., Tithal Rd, Valsad, Gujarat	BLE Temperature 1	21.7	0.0	℃	%RH	27-11-2024 10:14 AM
GJ16GH6491	Ashok Leyland	10 Wheel	7113, Kohinoor St, Ankleshwar GIDC, Ankleshwar, Gujarat (SW)	BLE Temperature 1	27.4	0.0	℃	%RH	27-11-2024 10:14 AM
GJ06AV3491	Tata	1009g LPT 3800/CAB	Dharmik Super Store, Metropolis Rd, Pipodara, Gujarat (NW)	External Temperature	-23.7	0.0	℃	%RH	07-08-2024 01-04 PM
GJ05SP3189	Ashok Leyland	10 Wheel	Bharat Petrol Pump , Gujarat State	BLE Temperature 1	19.7	0.0	℃	%RH	27-11-2024 10:57 AM

KEY INSIGHTS

1   Detailed temperature and humidity readings

Displays the current temperature and humidity levels for each vehicle. This ensures goods remain within the required safety parameters throughout transit.

2   Vehicle-specific details

Shows critical information such as the vehicle's name, sensor location, and monitoring port. This provides an in-depth understanding of each vehicle's condition.

3   Last updated time

Displays the latest recorded timestamp for each vehicle. This helps managers confirm that the data is current and reliable.

BENEFIT

Provides real-time monitoring of fleet-wide conditions. This enables fleet managers to take proactive measures to prevent spoilage, ensure compliance, and maintain operational efficiency.

TEMPERATURE SUMMARY REPORT

The temperature summary report provides complete analysis of temperature trends. It highlights average, minimum, and   maximum temperature readings over a specified period to help identify any difference.

Temperature Summary [27-11-2024 12:00 AM - 30-11-2024 10:52 PM]

Object	Vehicle Brand	Vehicle Model	Port Temperature	Port Humidity	Distance	Start Location	Temperature Average	Temperature Min	Temperature Max	Unit	Humidity (%RH) Average	Humidity (%RH) Min	Humidity (%RH) Max	End Location	Temperature Chart
MH18CC2635	AMW	1618 TP	BLE Temperature 1	--	694.42	MH NK 325, Mahar	9.35	0.0	28.9	℃	0.0	0.0	0.0	Station Rd, Chal	
MP06KL3648	Chevrolet	Car	External Temperature	--	900.18	MP 02, Vindhyachal	19.65	-24.0	27.9	℃	0.0	0.0	0.0	Ambica Super,	
GJ05YL7865	Ashok Leyland	10 Wheel	BLE Temperature 1	--	2340.43	Hotel KGN, Surat,	4.49	-22.9	27.9	℃	0.0	0.0	0.0	Hotel KGN, Sur	
GJ15KL3648	AJAX-FIORI	AGRO 400	External Temperature	--	1197.57	NH 63,Gujarat (NW	23.63	16.0	16.0	℃	0.0	0.0	0.0	NH 63, Gujarat	
MH12BD1165	Eicher	10:59	BLE Temperature 1	--	2070.3	NH 48, Gujarat (NW	-16.89	-28.8	17.9	℃	0.0	0.0	0.0	Hansraj Talkies,	

Date	Distance	Start Location	Temperature Average	Temperature Min	Temperature Max	Unit	Temperature Average	Temperature Min	Temperature Max	End Location
27-11-2024	3.9	NH 48, Gujarat (NW)	-22.45	-28.8	-14.1	℃	0.0	0.0	0.0	Ambica Super Store, Bholav, Bharuch, Gujarat
28-11-2024	605.98	At Havmor- Ahmedabad	-6.0	-28.8	17.9	℃	0.0	0.0	0.0	Ambica Super Store, Bholav, Bharuch, Gujarat
29-11-2024	23.94	Nana Chiloda Gam, Kotarpur, Ahmedabad	-15.77	-27.8	-17.1	℃	0.0	0.0	0.0	Ambica Super Store, Bholav, Bharuch, Gujarat
30-11-2024	841.4	MH SH 141, Jalgaon, Maharashtra (SW)	-20.84	-23.9	-12.7	℃	0.0	0.0	0.0	Ambica Super Store, Bholav, Bharuch, Gujarat

| MH08EK6348 | Ashok Leyland | 10 Wheel | BLE Temperature 1 | -- | 405.64 | Shree Ganesh Petr | -14.13 | -28.5 | 30.9 | ℃ | 0.0 | 0.0 | 0.0 | Krishna Park, M | |

KEY INSIGHTS

1   **Temperature trends**

Displays average, minimum, and maximum temperature readings. This allows managers to analyze patterns and identify unusual fluctuations.

2   **Location data**

Provides the start and end locations associated with temperature changes. This helps in tracing conditions during transit.

3   **Distance correlation**

Links temperature variations to the distance traveled. This ensures precise monitoring across different journeys.

4   **Quick data overview**

Offers a summarized view of temperature performance for all vehicles. This simplifies the process of detecting any outliers or irregularities.

BENEFIT

Helps identify long-term trends and optimize fleet operations. It aids in detecting unusual patterns and taking timely corrective actions.

TEMPERATURE DAILY SUMMARY

The temperature daily summary offers a detailed breakdown of temperature data for each day. It ensures that daily conditions meet safety standards and provides actionable insights for better control.

Temperature Daily Summary [27-11-2024 12:00 AM - 30-11-2024 10:52 PM]

	Vehicle	Vehicle Brand	Vehicle Model	Port / Temperature	Date	Distance	Start Location	Temperature Average	Min	Max	End Location
+	GJ10TF3600	Ashok Leyland	10 Wheel	BLE Temperature 1	27-11-2024	0.0	Hotel KGN, Surat, NH	22.65	21.0	28.0	Hotel KGN, Surat, NH
+	GJ05MT3159	Ashok Leyland	10 Wheel	BLE Temperature 1	27-11-2024	7.32	Shree Ganesh Petrol	22.11	19.0	33.0	GJ SH 168, Pardi, Gujarat
+	GJ05SP3186	Ashok Leyland	10 Wheel	BLE Temperature 1	27-11-2024	47.27	Shree Ganesh Petrol	19.21	15.0	30.0	HP PETROL PUMP-
+	GJ06BE6530	AMW	1618 TP	BLE Temperature 1	27-11-2024	220.5	GJ SH 193, Gujarat (NE)	23.11	20.0	16.0	Essar Petrol Pump, Near C
+	GJ16AZ3715	Eicher	10:59	BLE Temperature 1	27-11-2024	12.2	MH NK 325, Mahar	19.23	16.0	28.0	Ambica Super Store, East
−	GJ16CC2316	AJAZ-FIORI	ARGO 4000	BLE Temperature 1	27-11-2024	0.02	NH 48, Gujarat (NW)	20.58	18.0	25.0	NH 48, Gujarat (NS)

Date Time	Temperature Value	Humidity Level	Ac	Ignition	Door	Chiller	Speed	Location	Map
27-11-2024 12:00:21 AM	24.0	0.0	NA	ON	NA	NA	49	NH 48, Gujarat (NW)	📍
27-11-2024 12:00:52 AM	24.0	0.0	NA	OFF	NA	NA	0	Bharuch SH-3 Narmda	📍
28-11-2024 12:00:52 AM	24.0	0.0	NA	ON	NA	NA	30	Krishana Hotel, NH 7538	📍
29-11-2024 12:00:52 AM	24.0	0.0	NA	OFF	NA	NA	0	Ankleshware - Burhanpur	📍
30-11-2024 12:00:52 AM	24.0	0.0	NA	ON	NA	NA	31	Trilok Hardware, Jagatnatha	📍

	Vehicle	Vehicle Brand	Vehicle Model	Port / Temperature	Date	Distance	Start Location	Average	Min	Max	End Location
+	GJ16TR4456	AJAX-FIORI	AGRO 4000	BLE Temperature 1	27-11-2024	12.2	Shree Ganesh Petrol P	28.43	24.0	48.0	Shree Ganesh Petrol Pump,
+	HR55AY1593	AMW	1618 TP	BLE Temperature 1	27-11-2024	12.2	Jalna-Bhokardan Rd,	25.27	17.0	45.0	Ambica Super Store, East
+	HR55EF1483	AMW	1618 TP	BLE Temperature 1	27-11-2024	12.2	---	23.95	21.0	26.0	Reliance Petrol Pump,
+	HR55EF1254	AMW	1618 TP	BLE Temperature 1	27-11-2024	12.2	NH52, Manglaya Sada	30.91	20.0	49.0	Indore Bypass Rd, Indori Chai

KEY INSIGHTS

1   ### Daily temperature range

Lists minimum, maximum, and average temperature readings for each day. This ensures transparency in daily monitoring.

2   ### Precise data points

Logs every recorded instance of temperature changes. This ensures accurate and detailed reporting for all vehicles.

3   ### Date-wise comparison

Tracks and compares temperature fluctuations across different days. This helps in identifying consistent issues or anomalies.

4   ### Regulatory compliance

Provides accurate daily records to meet safety and regulatory requirements. This ensures smooth audits and operations.

BENEFIT

Simplifies daily monitoring of fleet conditions. It ensures operational efficiency and compliance with safety standards.

TEMPERATURE TRIP SUMMARY

The temperature trip summary records temperature conditions throughout each trip. It helps managers ensure the safe transportation of temperature-sensitive goods.

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Temperature Trip Summary [27-11-2024 12:00 AM - 30-11-2024 10:52 PM]

Vehicle	Driver	IMEI No.	Distance	Running	Idle	Stop	First Ignition On			Last Ignition Off			Speed		Temperature			Over Speed	Alert (S)	No Of Trip
							First Ignition On Time	First Ignition On Location	Start Odometer	Last Ignition On Time	Last Ignition On Location	End Odometer	AVG	MAX	Min	Max	Avg			
GJ15TF1456	No Driver	356737430151792	18979.4 / 2340.43	380:07 / 55:11	54:37 / 05:52	1171:1 / 53:37	08-12-2024 12:00:10 AM	Kherali Road, Hariom Nagar, Surendranagar, Gujarat (NW)	33183.94	12-12-2024 09:53:47 AM	Ankul Apt., Bapodra Chal Ahmedabad	35524.4	42	80	-22.9	27.9	12.77	0 / 0	6208 / 264	1412 / 54
MH12RD6975	No Driver	325698741256346	2070.3	36:42	07:39	55:04	08-12-2024 03:14:08 PM	D-2/1, Sahar Rd, AAI Colony, J B Nagar, Andheri East, Mumbai, Maharashtra (SE)	33542.37	12-12-2024 05:16:29 AM	Hasubai Complex Shop No. 10, Sanjay Sport Academy, Ward No. 8, Someshwar wad Pashan, Pune, Maharashtra (NE)	35612.66	56	89	-28.8	17-9	-534.9	0	317	48

Start				End				Driver	Distance	Total Distance	Running	Idle	Stop	Speed		Temperature			Over Speed	Alert (s)
Start Time	Start Location	Start Odometer	Start Coordinate	End Time	End Location	End Odometer	End Coordinate							AVG	MAX	Min	Max	Avg		
08-12-2024 03:14 AM	D-2/1, Sahar Rd, National P	33542.37	(23.087766, 72.862448)	08-12-2024 03:19 AM	IA Project Rd, Navman Dairy	33544.14	(23.082913, 72.872427)	No Driver Foun	1.77		00:04	00:02	00:11	27	34	-16.90	0.00	-15.20	0	4
08-12-2024 03:30 AM	Maan Petroleu	33544.14	(23.082346, 72.658431)	08-12-2024 12:27 AM	IA Project Rd, Navman Dairy	33546.26	(23.088763, 72.346924)	No Driver Foun	2.12		00:12	00:06	06:22	24	34	-28.80	0.00	-27.00	0	26
08-12-2024 10:03 AM	Devraj Mall, Th	33546.26	(23.086426, 72.648246)	08-12-2024 12:27 AM	Shop No.56, Sarojini Rd,	33546.26	(23.658576, 72.872427)	No Driver Foun	0.0	3.90	00:00	00:01	00:02	0	0	-27.60	0.00	-25.60	0	0
MH04TS3624	No Driver	356737430151792	1918.29	31:25	05:57	77:08	08-12-2024 12:09:24 AM	Kherali Road, Hariom Nagar,	25946.6	--	--	27884.52	61	80	-29.9	18.9	-2,425	0	481	163

Dashboard

Tracking

Reports

Chart

Settings

KEY INSIGHTS

1 **Trip-specific temperature data**

Records minimum, maximum, and average temperature readings during each trip. This helps in analyzing conditions specific to that journey.

2 **Route-based monitoring**

Associates temperature data with start and end locations to track variations along the route. This helps in identifying temperature changes during transit and ensures cargo safety.

3 **Deviation tracking**

Highlights irregularities in temperature during a trip. This ensures immediate corrective action to maintain cargo quality.

4 **Complete trip overview**

Combines temperature data with other trip-related metrics like distance and duration. This provides a complete view of trip performance.

BENEFIT

Ensures safe transport by providing trip-specific temperature insights. This maintains product quality, and enhancing customer satisfaction.

INSIGHTFUL CHART

Chart provide a visual representation of temperature data. Uffizio's temperature monitoring system includes dynamic chart that simplify complex information. It is easy for managers to understand temperature trends at a glance. They allow users to quickly identify issues without sorting through detailed numbers, saving time and effort. Additionally, chart present insights in a clear and visual way, making it easier to share information effectively with stakeholders.
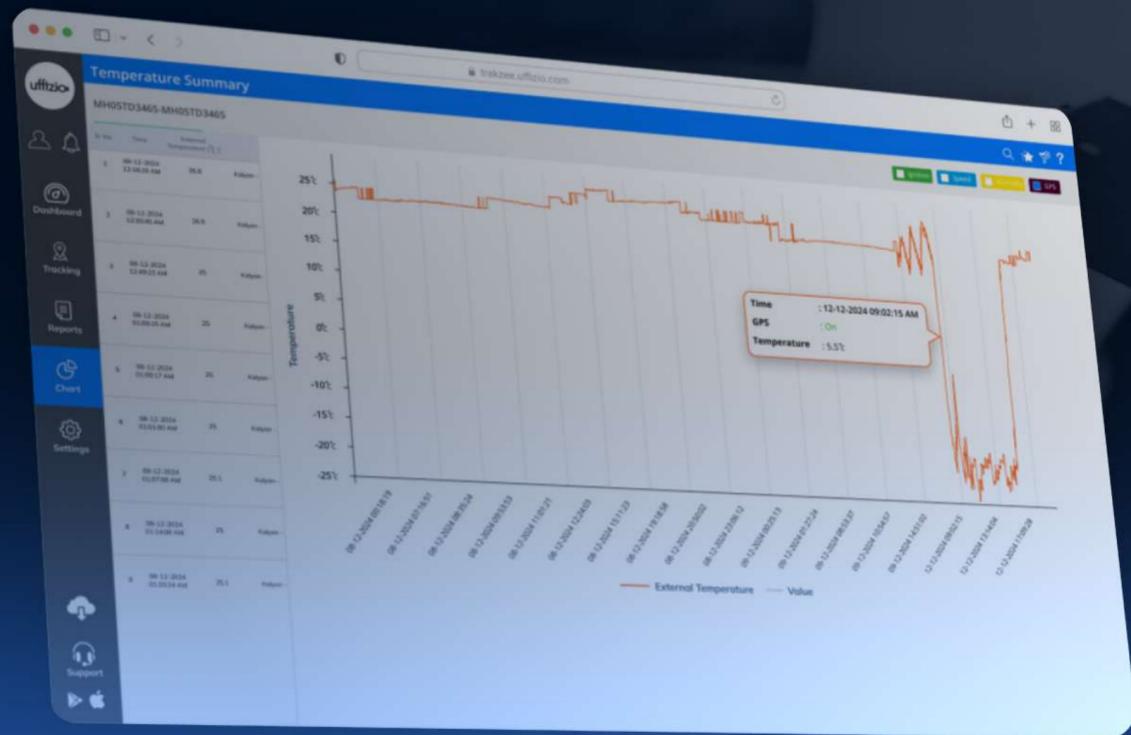
TEMPERATURE CHART

Provides a visual representation of temperature variations over time. It allows fleet managers to observe trends, identify irregularities, and maintain optimal conditions for goods during transit.
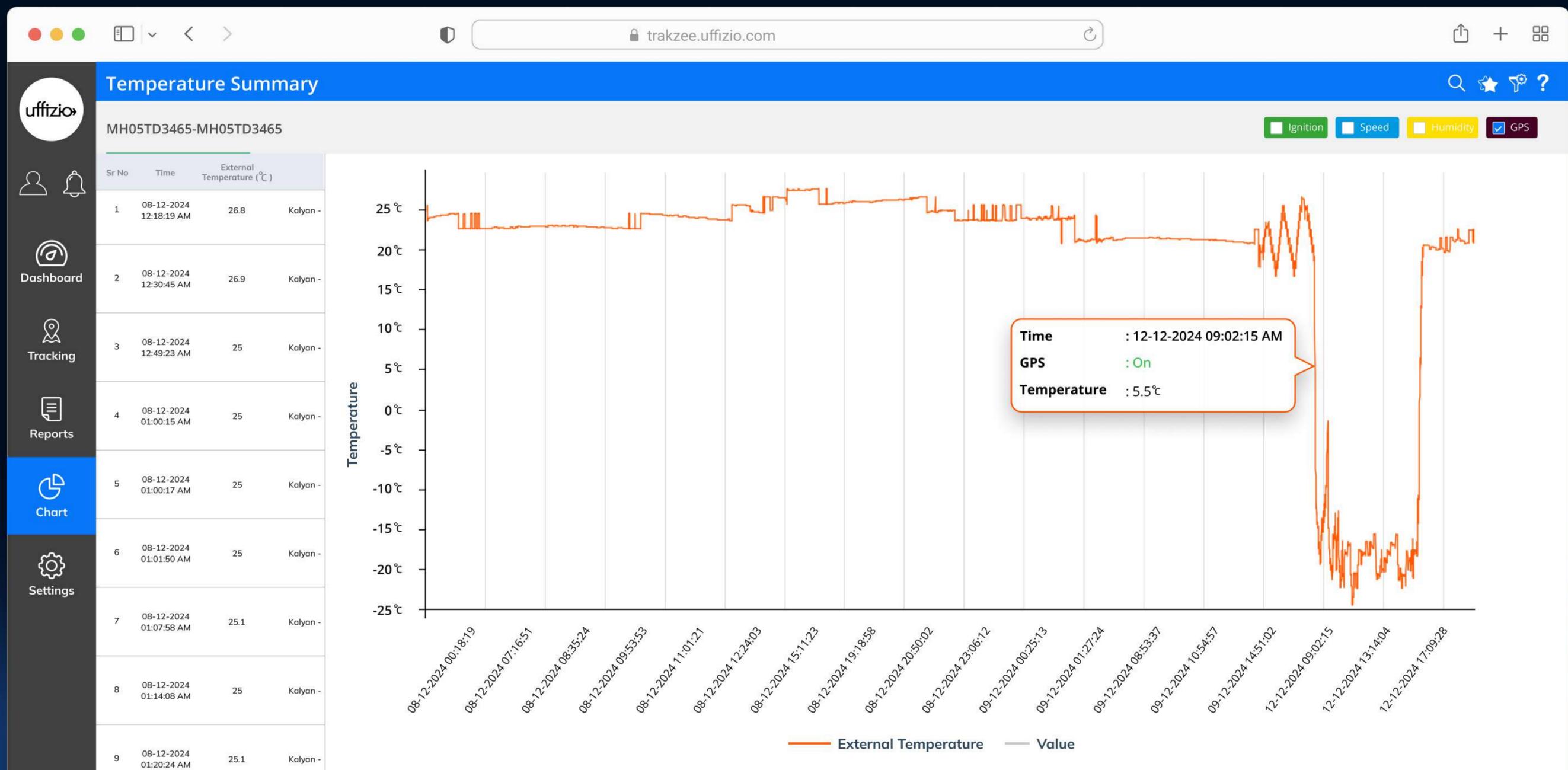
KEY INSIGHTS

1 **Track temperature changes**

Shows how temperatures change over time, helping to spot unusual patterns easily.

2 **Catch issues early**

Makes it simple to find and fix problems before they cause damage.

3 **Support for regulations**

Highlights changes to meet required standards and avoid penalties.

BENEFIT

Provides clear information about temperature trends. It helps to spot problems quickly, follow regulations, and take timely action to fix issues.

KEY REASONS TO INVEST

WHY SYSTEM INTEGRATORS SHOULD INVEST IN OUR TEMPERATURE MONITORING SOLUTION

Delivering in-depth temperature analytics to your clients helps them make informed decisions and ensures safe transportation of temperature-sensitive goods. These insights reinforce your value as an integrator, supporting your clients' strategic goals.

Strong after-sales support and training

Scalable solution

Accurate analytics

Customizable development options

Return on investment for clients

COMPATIBLE WITH ALL TYPES OF SENSORS

Our temperature monitoring software works with many types of sensors, making it easy to use for any setup.

→ **Works with different sensors**

Supports BLE sensors, wired temperature sensors, RFID tags, and other devices.
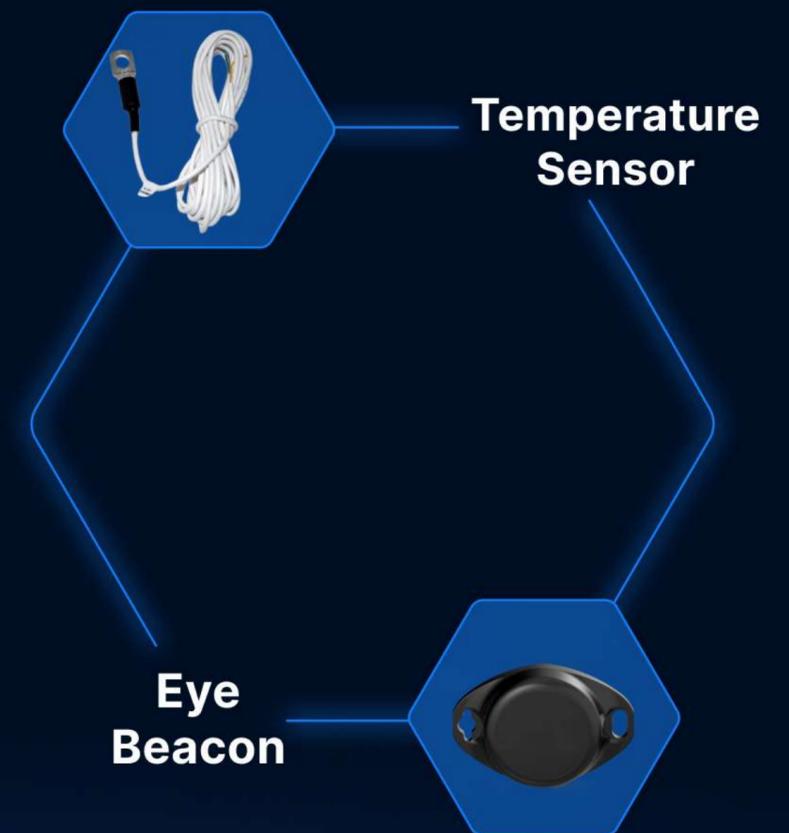
→ **Quick and easy setup**

Connects to most sensors without any hassle, saving time and effort.

→ **Fits your needs**

Can be customized to work with specific sensors used in your industry.

→ **Accurate monitoring**

Ensures reliable temperature readings from any connected sensor.

Temperature Sensor

Eye Beacon

MANAGE YOUR FLEET WITH OUR MOBILE APP

Get instant access to live fuel data, customizable reports, and actionable alerts. Manage your fleet professionally with ease through our mobile app.
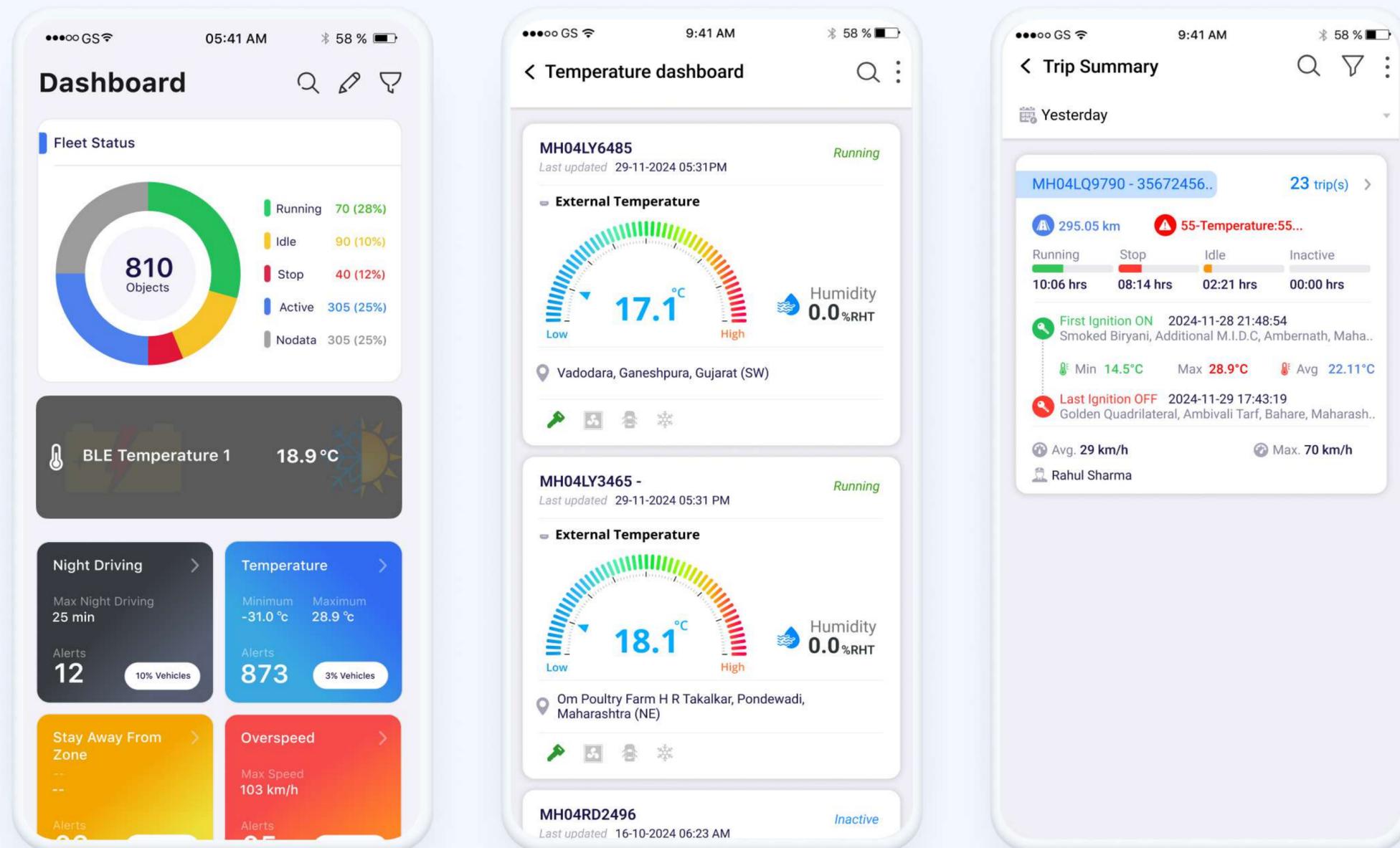
USE CASES ACROSS INDUSTRIES

Pharmaceutical Transport

Cold Chain Monitoring

Dairy Products Transportation

Food and Beverage Transportation

Use Case

PHARMACEUTICAL TRANSPORT

CHALLENGES

→ **Temperature-sensitive product degradation**

Pharmaceuticals, especially vaccines and biologics, can lose their effectiveness if exposed to temperatures outside the required range.

→ **Unnoticed temperature violations**

Lack of real-time alerts often leads to undetected temperature deviations during transit. It causes irreparable damage to sensitive products.

→ **Monitoring issues during deliveries**

Maintaining temperature consistency becomes challenging when goods are frequently loaded and unloaded during deliveries.

→ **Regulatory compliance issues**

Adhering to stringent regulatory standards like Good Distribution Practices (GDP) requires maintaining detailed temperature logs, which is time-consuming.

SOLUTIONS

→ **Live monitoring with threshold alerts**

The software tracks real-time temperature data and sends instant alerts when deviations occur. It enables immediate corrective actions.

→ **Automated temperature logging**

Automatically records temperature data throughout the journey. These logs can be easily exported for audits. It ensures compliance with GDP and other standards.

→ **Multi-stop temperature consistency checks**

Monitors temperature conditions at every delivery point. It ensures that the required range is maintained during loading and unloading.

High Temperature : 28°C
Sensor : BLE 1
Vehicle : UT250 Reefer
Time : 10-05-2023 01:24
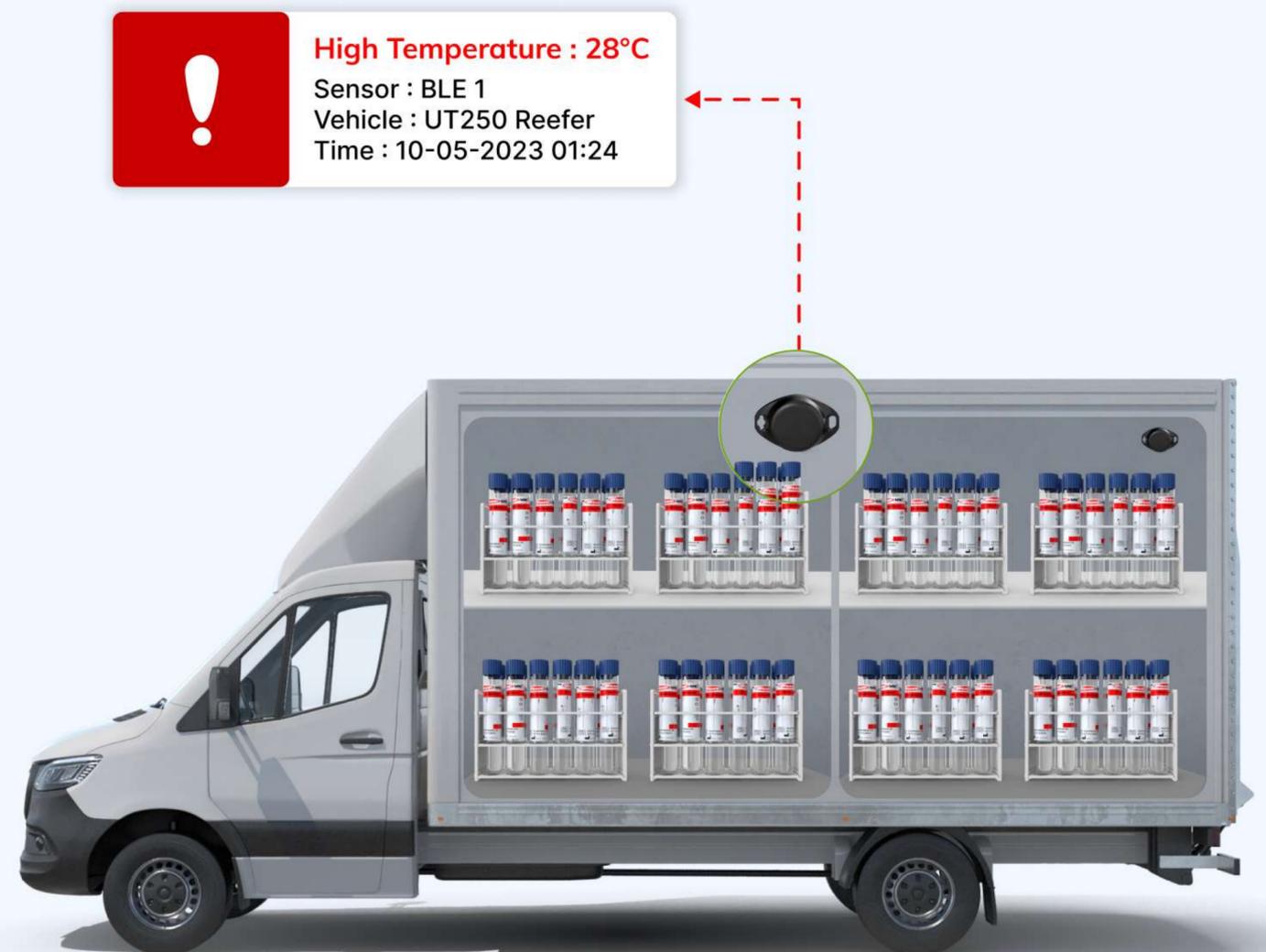
RESULTS

1

Reduced product losses

Minimizes spoilage rates by up to 40% through real-time monitoring and proactive alerts for temperature deviations.

2

Enhanced compliance efficiency

Reduces the time spent on regulatory reporting by up to 50% with automated data logging and easy-to-generate reports.

3

Improved customer trust

Maintains product integrity throughout the supply chain. This ensures safe delivery of pharmaceuticals and strengthening client relationships.

COLD CHAIN MONITORING

CHALLENGES

→ **Temperature fluctuations during transit**

Maintaining consistent temperature across long distances is challenging. It leads to spoilage or reduced shelf life of perishable goods.

→ **Unnoticed equipment failures**

Failures in refrigeration units often go undetected. It causes temperature deviations that compromise product quality.

→ **Inadequate real-time monitoring**

Manual monitoring or delayed data updates result in missed opportunities to take timely corrective actions.

→ **Compliance with industry regulations**

Cold chain operations must adhere to strict standards like HACCP and ISO. It requires detailed and accurate temperature records.

SOLUTIONS

→ **Real-time temperature monitoring with alerts**

Provides live tracking of temperature data and instant notifications for deviations. It enables immediate corrective measures.

→ **Equipment health monitoring**

Tracks performance of refrigeration units and sends alerts for potential malfunctions to ensure uninterrupted cooling.

→ **Automated reporting for compliance**

Records temperature data throughout the journey and generates detailed compliance reports for audits and certifications.

→ **Centralized data visibility**

Offers a dashboard to monitor temperature data across all stages of the cold chain. It ensures end-to-end transparency.

☑ Humidity

Time	: 22-11-2024 08:17:10
GPS	: On
Temperature	:17 ˚c

BLE Temp1

RESULTS

1

Improved product integrity

Ensures consistent temperature maintenance, reducing spoilage by up to 35% during transit.

2

Enhanced operational efficiency

Saves up to 20% on operational costs through energy-efficient route planning and timely equipment maintenance.

3

Streamlined compliance

Cuts compliance preparation time by 50% with automated reporting and centralized data records. It ensures smooth audits.

DAIRY PRODUCTS TRANSPORTATION

CHALLENGES

→ **Temperature sensitivity of dairy products**

Dairy products such as milk, yogurt etc require precise temperature control to prevent spoilage and maintain quality during transit.

→ **Risk of bacterial contamination**

Even slight temperature fluctuations can promote bacterial growth, posing health risks and leading to product rejection.

→ **Long-distance transportation challenges**

Extended transit times and varying climatic conditions make it difficult to maintain consistent cooling across the journey.

→ **Inefficient manual monitoring**

Relying on manual checks often leads to delays in identifying temperature deviations. It increases the risk of product loss.

SOLUTIONS

→ **Real-time temperature tracking with alerts**

Continuously monitors temperature levels during transit and sends instant alerts for any deviations. It allows swift corrective actions.

→ **Temperature threshold settings**

Allows users to define safe temperature ranges. It triggers the alarm when readings go beyond acceptable limits to safeguard product quality.

→ **Route optimization for perishable goods**

Plans the most efficient routes to minimize transit times and reduce exposure to temperature variations.

→ **Automated temperature logging**

Records temperature data throughout the journey, ensuring accurate and reliable logs for food safety compliance.

High Temperature : 21°C

Required Temperature : 15 °C to 17 °C
Time of Initial Temperature Drop : 11.23am
Location : 14, Stevens Street

RESULTS

1

Reduced product spoilage

Maintains ideal temperature conditions, decreasing dairy spoilage by up to 40% during transportation.

2

Enhanced food safety compliance

Simplifies audits by automating data collection and generating detailed compliance reports. It reduces preparation time by up to 50%.

3

Operational cost savings

Optimizes delivery routes and prevents spoilage-related losses. It saves up to 20% in overall transportation costs.

FOOD AND BEVERAGE TRANSPORTATION

CHALLENGES

→ **Maintaining diverse temperature requirements**

Different food and beverage items (e.g., frozen foods, fresh produce, and beverages) require varied temperature ranges. It makes consistent monitoring complex.

→ **Risk of spoilage during transit**

Extended transportation times and exposure to external environmental conditions increase the likelihood of spoilage.

→ **Cross-border transportation issues**

Delays at customs or border crossings often result in prolonged exposure to unsuitable temperatures. This compromises product integrity.

→ **Compliance with food safety regulations**

Following the international standards such as HACCP and FSMA requires accurate temperature monitoring and detailed reporting throughout the supply chain.

SOLUTIONS

→ **Live monitoring with threshold alerts**

Tracks temperature conditions for each shipment and provides instant alerts for deviations. It enables corrective actions during transit.

→ **Multi-temperature compartment monitoring**

Monitors temperature in multiple sections of a vehicle to ensure varied product categories are maintained at their required conditions.

→ **Cross-border monitoring with historical data**

Provides continuous temperature tracking, even during delays. It also generates historical data for audits and customer reassurance.

→ **Automated compliance reporting**

Records temperature data for each shipment and generates detailed reports for easy adherence to food safety standards.

Low Temperature : -21 °C
Limit : (-29°C to -23°C)
Time : 10-05-2023 01:24
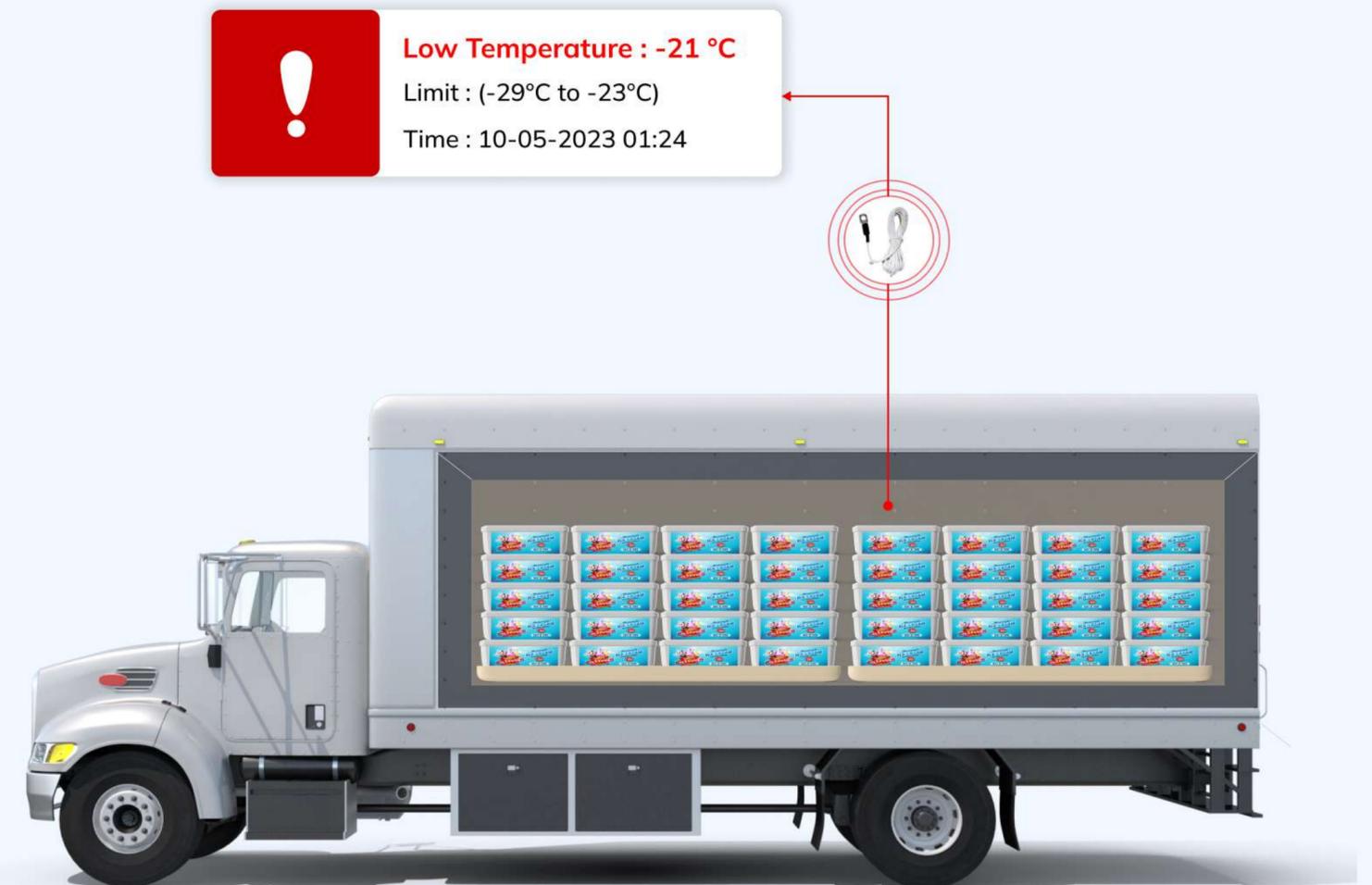
RESULTS

1

Reduced spoilage rates

Maintains ideal temperature conditions, decreasing food and beverage spoilage by up to 35% during transit.

2

Improved regulatory compliance

Simplifies compliance with food safety standards by automating temperature data recording and report generation. It saves up to 50% in preparation time.

3

Cost-effective transportation

Optimizes logistics processes, reducing transit costs and minimizing spoilage-related losses. It saves up to 20% on transportation expenses.

Use Case

CHEMICAL PROCESSING AND STORAGE

CHALLENGES

→ **Temperature fluctuations in storage chambers**

Inconsistent temperature control in chambers can lead to compromised chemical quality and safety.

→ **Manual monitoring inefficiencies**

Monitoring temperature across multiple chambers manually is time-consuming and prone to errors.

→ **Delayed response to temperature deviations**

Without real-time alerts, deviations go unnoticed, leading to spoilage or hazardous situations.
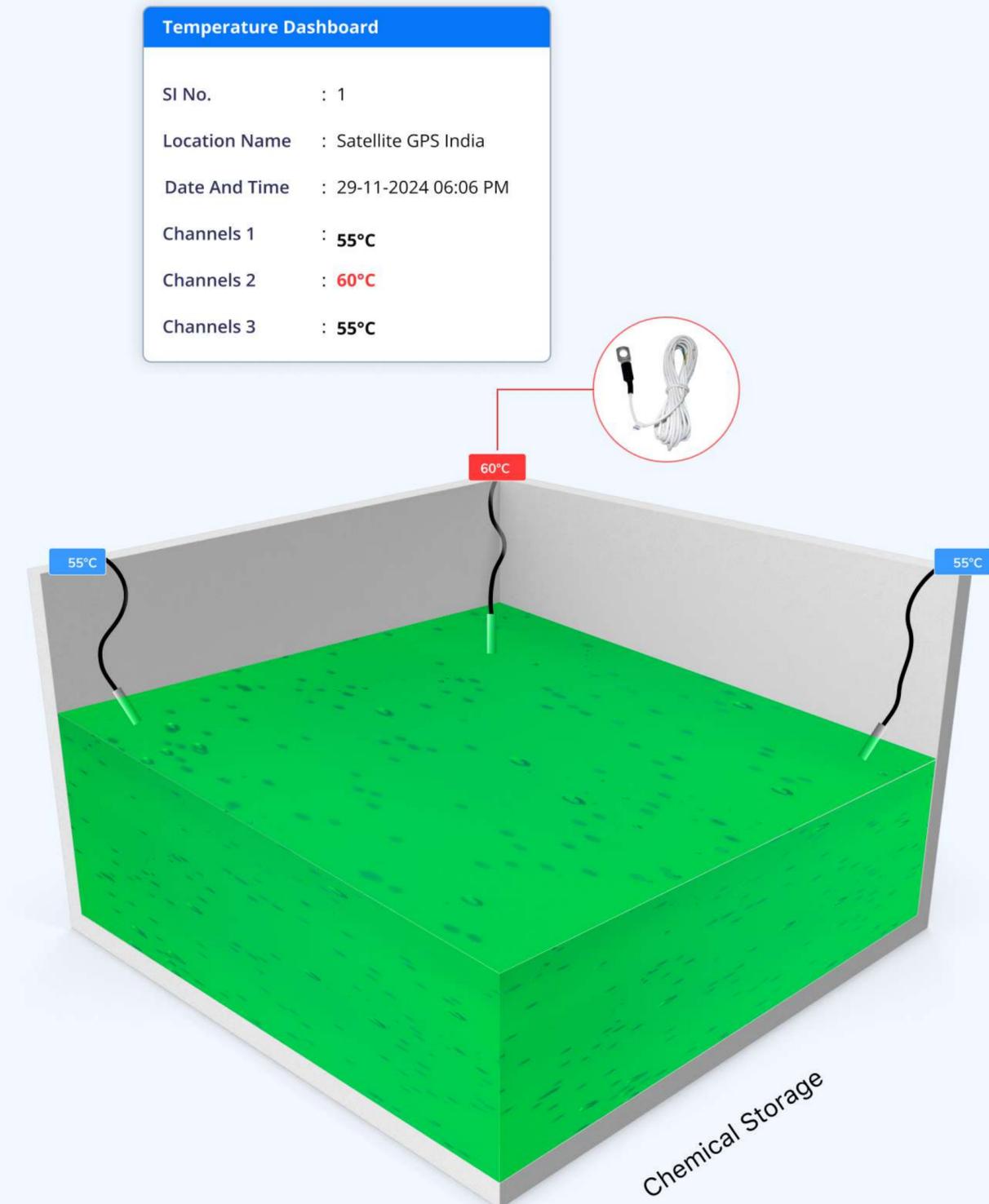
→ **Compliance with safety regulations**

Adhering to strict regulatory requirements for chemical storage demands accurate and timely temperature monitoring logs.

Chemical Storage
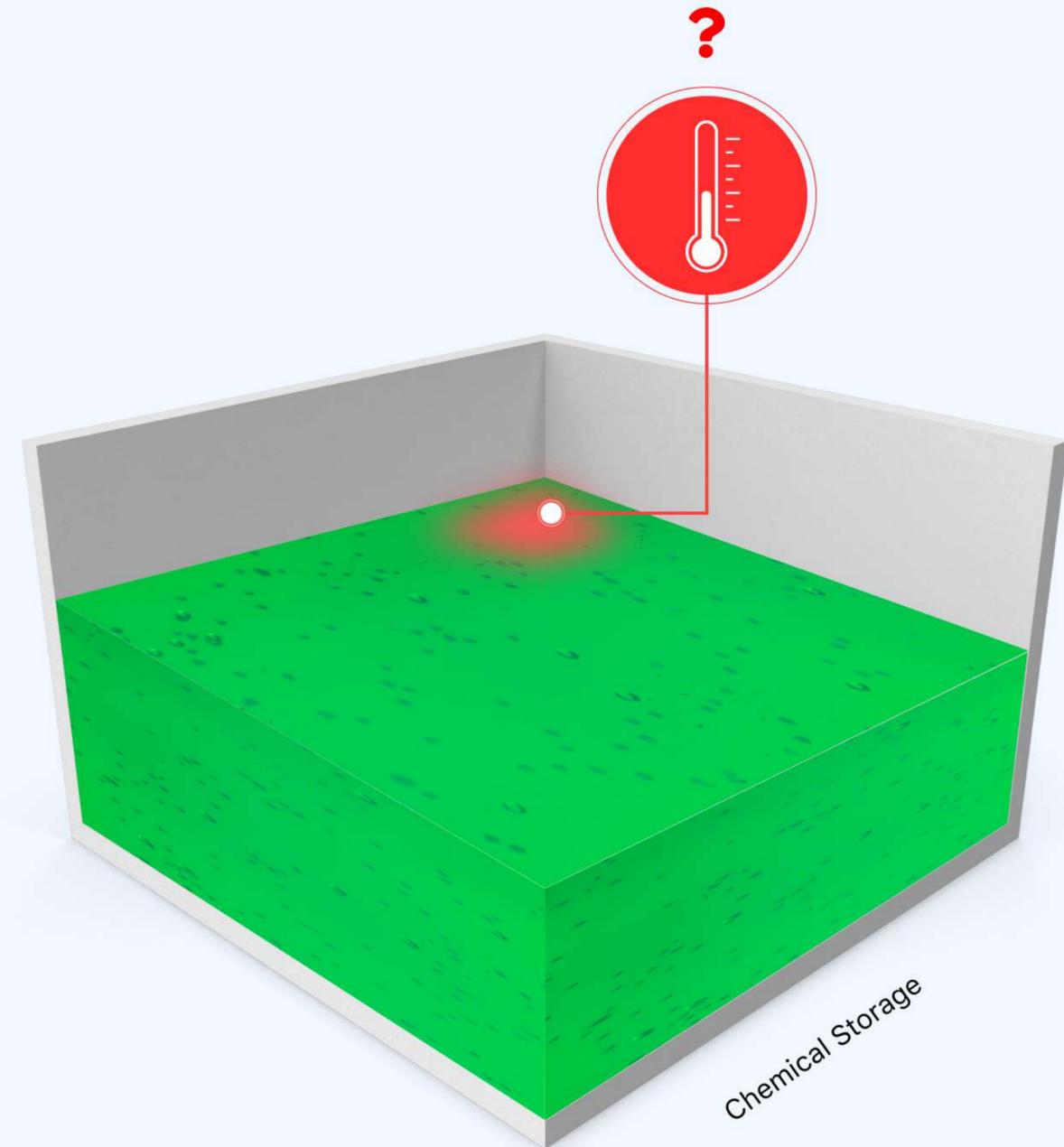
SOLUTIONS

→ **Dashboard for temperature monitoring**

Offers a unified view of all chambers' temperatures in real-time. This eliminates manual monitoring efforts.

→ **Automated alerts for threshold breaches**

Sends immediate notifications when temperature deviates from the preset range. This ensures timely corrective action.

→ **Historical data logging for audits**

Automatically records and stores temperature data to support compliance with regulatory standards.

→ **User-friendly interface for plant supervisors**

Provides accessible insights and reports to supervisors, enabling quick decision-making and reduced downtime.

Temperature Dashboard

SI No.	:	1
Location Name	:	Satellite GPS India
Date And Time	:	29-11-2024 06:06 PM
Channels 1	:	**55℃**
Channels 2	:	**60℃**
Channels 3	:	**55℃**

55℃   60℃   55℃

Chemical Storage

RESULTS

1

Improved operational efficiency

The centralized dashboard reduced manual monitoring efforts. It enables the HO to oversee all plant locations effectively.

2

Enhanced compliance

Real-time alerts ensured timely corrective actions. It helps the client to maintain compliance with temperature regulations and prevent spoilage.

3

Better data accuracy

Limiting the dashboard to relevant chambers reduced clutter and provided precise insights, improving decision-making.

KEY TAKEAWAYS FOR EFFECTIVE TEMPERATURE MONITORING

Here's what you've learned about temperature monitoring and how it benefits fleet operations:

✅ Real-time temperature monitoring helps ensure goods are kept in safe conditions during transit.

✅ Alerts notify managers of any temperature deviations, enabling quick corrective actions.

✅ Detailed reports provide insights for better planning and decision-making.

✅ Accurate temperature monitoring reduces the risk of spoilage and loss.

✅ Ensures compliance with safety standards, protecting goods and maintaining trust.

Notes

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