



Product Proposal

People Tracking & Safety System

Nex-G Automation LLP

28/08/2025

Www.nexgautomation.com

1. Introduction

The steel industry presents a challenging work environment with high safety risks, including exposure to harmful gases, risk of falls, and isolated working conditions. Nex-G Automation's **People Tracking & Safety System** provides a complete solution to monitor worker location, health, and safety through **wearable devices** and **wireless nodes**. This system ensures real-time alerts and local alarms in case of hazardous conditions, helping industries improve workplace safety and emergency response.

2. System Components

2.1 Worker Wearable Device

The **Wearable Safety Tracker** is a compact device worn on the worker's waist belt.

- **Power Supply:** Rechargeable 3.7V, 2100mAh Li-ion battery
- **Operation Time:** Designed for a full work shift (8–10 hours typical)
- **Key Features:**
 - **SOS Panic Button** – Worker can manually raise an emergency alarm
 - **Accelerometer Sensor** – Detects **fall events** and **idle (no movement) conditions**
 - **On/Off Button** – User-controlled power management
 - **Charging** – External charging supported (charger provided in kit)
- **Alert Mechanism:** Sends wireless alert signals to nearby Wireless Nodes when events are detected

2.2 Wireless Node Units

Wireless Nodes are deployed strategically across the steel plant for **environmental monitoring** and as communication relay points.

- **Gas Sensing:**
 - **O₂ Sensor** – Detects oxygen deficiency
 - **CO Sensor** – Detects harmful carbon monoxide levels
- **Display:** 1.3-inch OLED screen to show:
 - Device status
 - O₂ and CO levels
 - Alarm conditions
- **Local Alarm:**
 - Built-in buzzer/siren triggered during:

- Low oxygen levels
 - High CO levels
 - Panic button activation from worker wearable
 - Worker fall or idle condition detected
- **Power & Charging:**
 - Each node can be charged separately with a **dedicated charger** (supplied in kit)

2.3 Charging & Storage Case

- **Aluminium Toolbox** provided with each system kit
- Integrated with **inbuilt multi-slot charging** dock for wearable devices
- Separate chargers supplied for wireless nodes
- Ensures easy storage, charging, and transportation

3. System Operation

1. Workers wear the safety tracker on their belt.
2. Wireless nodes are placed in operational areas to monitor gas levels and receive worker alerts.
3. In case of:
 - **SOS Button Pressed**
 - **Fall Detected**
 - **Idle/No Movement Detected**
 - **Abnormal O₂/CO Levels**
 - **Alarms are triggered locally on wireless nodes** for immediate awareness.
4. Alerts help supervisors respond quickly to emergencies, ensuring worker safety.

4. Applications in Steel Industry

- Monitoring worker safety in confined or high-risk areas
- Gas hazard detection in furnace, rolling, or chemical sections
- Fall/idle detection for lone workers
- Quick panic alerts for accidents or emergencies

5. Technical Specifications (Summary)

Wearable Device

- Battery: 3.7V, 2100mAh Li-ion (Rechargeable)
- Sensors: Accelerometer (Fall + Idle detection)
- Controls: SOS button, On/Off button
- Alerts: Wireless transmission to nodes
- Charging: Supported via inbuilt dock

Wireless Node

- Sensors: O₂ and CO Gas Sensors
- Display: 1.3-inch OLED
- Alerts: Buzzer/Siren for abnormal gas or worker alert events
- Charging: Individual dedicated charger

Toolbox

- Aluminium construction
- Integrated wearable charging dock
- Storage and portability solution

6. Disclaimer

Important Note: The O₂ and CO gas sensors used in this system are **non-compliant and uncertified**. They are intended for **indicative monitoring only** and must not be considered as replacements for certified industrial gas detection systems. Nex-G Automation LLP does not accept liability for any incidents arising from reliance solely on these sensors for critical safety decisions.

7. Conclusion

The **People Tracking & Safety System** offers industries a cost-effective, practical solution to enhance worker safety by integrating **wearable tracking, environmental monitoring, and emergency alerting** into one system. While the gas sensing feature is indicative, the combined use of panic button, fall detection, and idle monitoring provides a strong layer of worker protection in high-risk steel industry environments.