NEX-G
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NEX-G AUTOMATION LLP

SOS RESCUE ALERT SYSTEM

Real-Time Industrial Emergency Response & Rescuer Mesh Coordination Platform

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Installation **Configuration** **Operation** **Integration** **Maintenance**

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1. Product Overview

The **Nex-G SOS Rescue Alert System** is a real-time emergency response software ecosystem engineered to link plant personnel with emergency rescue squads during critical incidents. Linking a centralized Web Admin Command Dashboard with native Android rescuer applications, the system utilizes Firebase Cloud Messaging (FCM) push notifications and native Android GPS APIs to broadcast high-priority panic alerts, stream live worker navigation telemetry, and trigger acoustic alarm buzzers across target rescuer terminals.

Core Software & Architectural Features:

- One-tap panic triggering from worker Android mobile terminals.
- Firebase Cloud Messaging (FCM) pipeline delivering sub-second alert broadcasts.
- Real-time GPS location streaming integrated into Google Maps vector routes.
- Critical acoustic buzzer override forcing loud audible sirens on rescuer clients.
- Persistent Android background service keeping emergency hooks active during device lock.

2. System Operating Guidelines

> **Emergency Operating Notice:** Rescuer mobile clients must grant persistent background location and high-priority notification permissions to bypass device battery-saver limits during crisis events.

- **Network Connectivity:** Ensure rescuer terminals hold active cellular (4G/5G) or plant Wi-Fi links to receive FCM push notifications.
- **Zone Assignment:** Administrators must structure plant sub-zones in the Web Admin Dashboard to route alerts to nearby rescue teams.
- **Audible Testing:** Conduct weekly acoustic buzzer test drills from the Web Admin console to verify client sound outputs.

3. Technical Specifications

Layer / Component	Specification Details	Notes
Web Admin Frontend	HTML5, CSS3, JavaScript, Bootstrap Dashboard	Centralized command deck interface
Admin Engine & DB	PHP Backend with MySQLi Relational Database	Secure incident logging and zone mapping
Rescuer Mobile App	Native Java / XML Android Mobile Framework	High-priority client application for response teams
Location Core Engine	Native Android GPS API & Google Maps API	Live position tracking and route navigation
Messaging Pipeline	Firebase Cloud Messaging (FCM) Data Channel	Sub-second encrypted push notifications
Background Execution	Android Foreground/Background Listener Threads	Maintains alert reception during app sleep or lock
Audio Alert Override	Acoustic Alarm Speaker Override Module	Forces high-decibel siren on target rescuer phone
Deployment Hosting	Centralized Enterprise Cloud Server Node	24/7 high-availability emergency hosting
Zone Management	Multi-Sector Plant & Squad Grouping	Configurable target response groups
Audit & Incident Records	Timestamped Crisis Profiles & Logs	Complete incident history for HSE auditing

4. Emergency Workflow & Incident Flow

Sequence from worker one-tap panic activation to coordinated site rescue dispatch:

01. One-Tap SOS
Distressed worker taps SOS button on Android app.

02. FCM Push
Firebase pipeline broadcasts alert to assigned rescue units.

03. Loud Siren & Map
Rescuer phone sounds acoustic siren; GPS map opens.

04. Rescuer Dispatch
Rescuers navigate directly to worker position.

5. Web Admin Command Dashboard Capabilities

Centralized administrative features accessible via browser-based command console:

Command Function	Operational Capabilities
Plant Zone Definition Desk	Structure operational sectors (e.g., Chemical Vaults, Furnace Floor) and map specific rescuer squads.
Live Incident Monitoring	View real-time active panic triggers on an interactive map vector display with live GPS updates.
FCM Routing & Token Rules	Manage device registration tokens, keep-alive ping cycles, and notification priority channels.
Crisis Incident Archiving	Export timestamped incident response profiles, response latency metrics, and audit logs to PDF/CSV.

6. Strategic Solution Advantages

Zero Dispatch Delay
Direct worker-to-rescuer FCM push bypasses manual call desks and phone operators.

Live GPS Routing
Pipes live worker coordinates directly into Google Maps vector navigation for fast orientation.

Acoustic Siren Override
Forces maximum volume alarm output on rescuer devices even when set to silent mode.

Background Watchdog
Native background service maintains emergency listener sockets while the phone screen is locked.

7. Frequently Asked Questions (FAQ)

- **What triggers an SOS alert?** A one-tap activation on the worker's Android mobile application interface.
- **How are notifications delivered to rescuers?** Via Firebase Cloud Messaging (FCM) high-priority push data streams.
- **How is the worker's location shared?** Through the native Android GPS API, rendering real-time maps on rescuer screens.
- **Does the app work when screen is locked?** Yes, a background Android service maintains continuous notification hooks.

8. Troubleshooting Guide

Symptom	Possible Cause	Recommended Action
FCM push notification delayed on rescuer phone	Battery optimization / Doze mode active	Disable battery optimization for the SOS Rescue app in Android OS settings.
Worker GPS coordinates inaccurate or missing	Location services disabled or indoor blockage	Enable High Accuracy Location mode in Android; test near windows or open plant zones.
No acoustic buzzer sound upon alert arrival	Do Not Disturb (DND) restriction	Grant "Override Do Not Disturb" permission to the SOS Rescue app in Android sound settings.
Rescuer app fails to receive zone alerts	Device unassigned in Web Admin	Verify rescuer account and device token are assigned to the correct plant zone in Admin UI.

9. Maintenance & Care

- Perform regular weekly test alerts across all plant zones to verify FCM token validity and siren outputs.
- Ensure Android rescuer phones are updated with the latest APK release and Google Play Services binaries.
- Maintain regular cloud database backups of incident logs via the Web Admin Dashboard console.
- Verify cellular SIM data plans and plant Wi-Fi access point coverage in high-risk plant sectors.

10. Support and Service Contact

For technical assistance, Firebase integration configuration, API setup, or deployment guidance, contact Nex-G Automation LLP:

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