



RANN

Real-time Artillery Network & Navigation

OPERATIONAL PROBLEM

Artillery operations require seamless OP-CP-Gun coordination. Current system Challenges:

- Delays in translating target data into fire orders
- Fragmented correction feedback loops
- Risk of friendly proximity errors
- Limited real-time battlefield visualization

This impacts firing accuracy and operational safety.

THE RANN SOLUTION

- Integrates OPs, CPs, and gun positions into one encrypted network
- Enables digital fire control and correction input
- Provides real-time situational awareness
- Streamlines and accelerates artillery workflow
- OODA loop compressed to 2-5 seconds for rapid awareness

CORE CAPABILITIES

OP End

- High-resolution map (5 decimal precision)
- Target acquisition via lat-long & distance
- Fall-of-shot correction input
- Editable digital pin system

Gun End

- Tablet-based firing data
- Integrated firing tables
- Shell & propellant data
- MET integration capability

Network

- MANET / WiMax compatibility
- MIL-standard messaging
- Encryption & frequency hopping
- Voice, text, short video support

OPERATIONAL ADVANTAGE

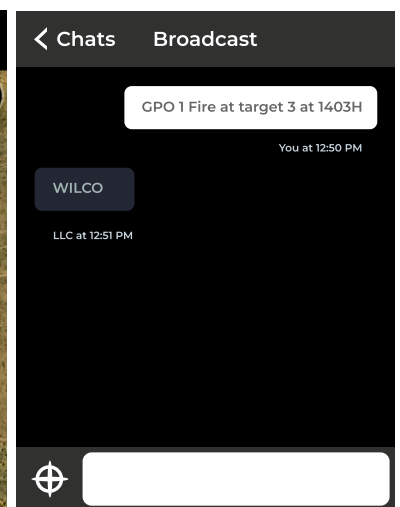
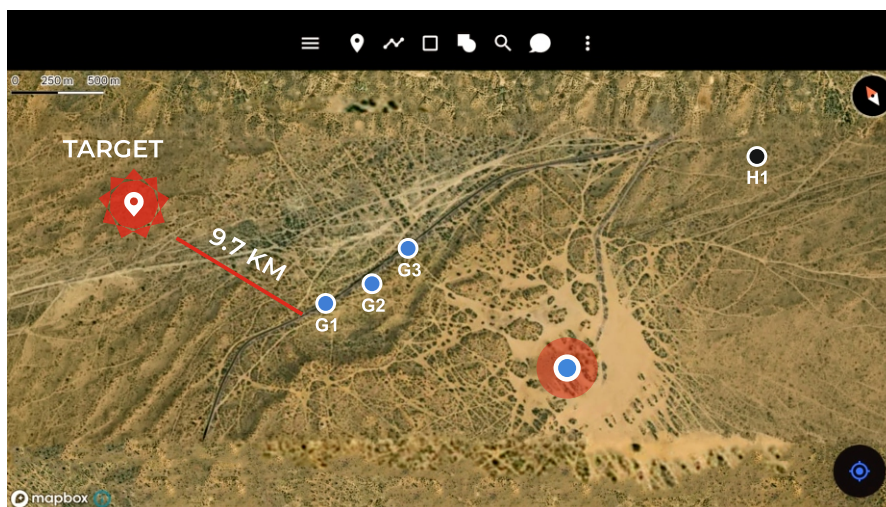
- Reduced sensor-to-shooter cycle time
- Improved firing accuracy
- Prevention of friendly fire proximity
- Complete operational picture across OP, CP and Gun



HOW THE SYSTEM WORKS

- Situational Communication System
 - Digital Radio Device + Android display + App
 - See live location of each other
 - Text to All OR 1 to 1
 - Send Tact symbols/Markers in Group / 1 to 1
 - Users: Armed forces, NSG, Spl Forces

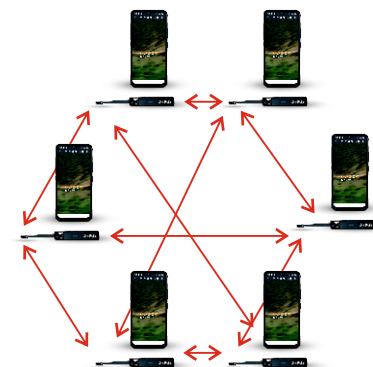
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MESH NETWORK

INDUCTED IN

- Northern Command • Western Command • Eastern Command • Special Forces (Para SF)
- Central Command • Cobra, CRPF • ARTRAC

1. Physical Characteristics

Connection with PDA: Situational Awareness App
Security: AES256 or higher
Data Transfer: Information overlay exchange for line diagrams, circles, symbols, and messaging within app
Map: Satellite map and map download
Protocol: Mesh Networking
Hop Limit: 6

Bluetooth Connectivity: BLE 4.0+ or higher
Weight (including battery): ≤ 100 gm
USB Port: Micro USB 2.0 or higher
Ingress Protection: IP68 or better

2. Tech Specification

A) Receiver

Frequency:

UHF 445 to 480 MHz (User selectable)

Channel Spacing:

7.28 KHz, 11.8 KHz (User selectable)

Frequency Stability (-30°C to +60°C):

2.5 ppm or better

Digital Sensitivity (1% BER, 6.25 KHz):

-116 dBm or better

Sensitivity (1% BER, 25 KHz):

-107 dBm or better

(B) Transmitter

Power Output: 0.5W to 5W (27dBm, 30dBm, 37dBm) – User selectable

Digital Modulation: 4GFSK or better

(C) Environmental Specification

Operating Temperature: -20°C to +35°C

(D) Battery

Type: Lithium Based

Backup (Standby): 30 hours or higher

Backup: Up to 9 hours or higher

Capacity: 450 mAh, 3.51 Whr or higher

Charging Time: Minimum 3.5 hours

Battery Bank: Minimum 20000 mAh

(E) SAS-PDA

Display: 1080 × 2408 pixels (6.6 inches), PLS LCD

RAM: Minimum 4 GB

Weight: Less than 200 gm

Battery: Minimum 4000 mAh

OS: Android 12 or above

CPU: Octa-core

Internal Memory: Minimum 64 GB

Camera: Minimum 50 MP

Connectivity Support: WiFi, Bluetooth & LE

Charger: Type-C & Micro USB support

Additional Sensors: Accelerometer & Compass

(F) Deployment Box

Weight (Empty): Maximum 12 kg

Function: Storage & charging of 30 radio sets

Battery

Backup: Minimum 1.5 hours

(20 fully discharged radio sets)

Charging Time: Max 10 hours

Type: Lithium based

Power Input: 110/220V AC

Auxiliary Input: 10–18V DC (Car charger port)

Additional Features

Display: Minimum 7" (Touchscreen)

Resolution: 1280 × 720 or better

Capabilities:

- Config & issue of soft frequencies
- Encryption key generation
- Team location tracking
- Messaging
- Device status
- Distance tracking (commander to team member)
- Overlay lines/objects sharing

USB Ports: Minimum 3

Internal Storage: Minimum 32 GB

External Storage: Micro SD slot

Connectivity: WiFi

(G) Additional Specification

Mesh Networking Protocol: Aspen Grove

Hop Limit: Minimum 6 or higher

Jamming Resistance: Highly resistant within its band

Spectrum: Built-in spectrum

Graphical UI: Displays graphical image on PDA

GPS: PDA has GPS information

SW Color Coding: Color coding for users (IFF identification)

Compatibility: Compatible with Indian Army radios (Harris, StarsV, etc.) for data transmission & screen recreation

OUR OTHER PRODUCTS

Expanding the Tactical Ecosystem

INFANTRY : **SIVAS (Situational Intelligence Visualization & Awareness System)**

A secure, infrastructure-independent battlefield communication and awareness platform. Designed for real-time asset tracking, encrypted team coordination, and tactical visualization, it delivers resilient performance in contested, remote, and GPS-denied environments.

INTELLIGENCE : **NETRA (Networked Electronic Tactical Reconnaissance & Awareness)**

A covert, infrastructure-independent communication and tracking system designed for intelligence and surveillance operations. NETRA enables secure team coordination, real-time asset visibility, and low-signature data exchange through resilient mesh networking, ensuring reliable performance in denied, urban, and high-risk environments.

SPL FORCES : **NISAN (Networked Intelligence Situational Awareness & Navigation)**

A low-signature tactical coordination system for special operations forces. NISAN delivers real-time team tracking, encrypted communication, and structured threat awareness in denied and high-risk environments, ensuring secure mission execution without infrastructure dependence.

ENGINEERS : **LEGS (Logistics & Engineering Geo-navigation System)**

A terrain intelligence and logistics-support system designed for combat engineering units. LEGS enables real-time hazard marking, route validation, material tracking, and stores management, improving safety, efficiency, and operational control in complex environments.

ARMoured/MECH : **RANA (Real-time Armoured Navigation & Awareness)**

An integrated mobility and vehicle-status platform built for armoured and mechanized formations. RANA provides real-time fleet tracking, geofencing alerts, command synchronization, and vehicle health visibility, ensuring coordinated manoeuvre and operational readiness.

EME/ASC : **ARV-SAS (Armoured Recovery Vehicle – Situational Awareness System)**

A dedicated recovery and sustainment platform for armoured formations, ARV-SAS enables real-time tracking of disabled vehicles, coordinated recovery operations, and seamless integration with EME and TRAC units. It enhances battlefield resilience by ensuring rapid recovery, efficient repair workflows, and continuous operational readiness in contested environments.

SPECIAL SOLUTIONS

CONVOY : **CLASS (Convoy Loc Awareness & Situation Status)**

A hybrid convoy intelligence and resilient communication system designed to eliminate dead-zone vulnerabilities. Class ensures continuous fleet visibility, formation integrity, and long-range HQ connectivity through infrastructure-independent deployment.

