VoICE

Voice of Indian Commtech Enterprises

Newsletter-3

October - December 2023

VoICE and its members during October to December 2023
Activities, Awards, Achievements, Media Report
Continues to support
Atma Nirbhar Bharat and Make in India Domestic Stakeholders

VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES (VOICE)

SUPPORTING INDIA'S ATMA NIRBHARTA IN TELECOM

VOICE Members – 4G/5G

5G Radio Solution

Applications

- Workforce Management
- Industry Use Cases
- OSS/BSS
- Security
- NMS
- IMS
- IOT
- GeoAnalytics Platform
- NimbleVision

Core

Cybersecurity
Threat Intelligent, Threat Prevention, Visibility, SOAR

Network Programmability
- 5G API PLATFORM
- NEF

Intent-based Networking

- Service Management & Orchestration
- NWDAF
- RAN Intelligent Controller (RIC)

BTS Power Supply
(SMPS, CCU & BTS Smartgrid Power electronics for Telecom Tower Infrastructure)

- 3GPP compliant 5G Toolkit & Simulator
- HFCL WiSig VVDN
- 3D Maps
- 5G/ORAN Test and Analytics solution
  Emulators:
  - ORAN NF
  - gNB+UE
  - 5G/4G Core
- OCEAN MESH
- Fiber Inventory Management GIS System
- Signaltron

Edge Data Center (MEC)

5G SA Core

Wireless Backhaul

- CIENTRA
- N3IWF-gNB
- e-UE_Stack
- eSIM

Fiber Backhaul

- Wifi/ Lora 5G Gateway

ITI and TCIL can act as System Integrator for the projects.

VOICE and its members during October to December 2023
Activities, Awards, Achievements, Media Report
Continues to support
AtmaNirbhar Bharat and Make in India Domestic Stakeholders

EIGHT Consortium Solutions at IMC2023 27-29 October 2023

Captive private 5G networks or CNPN as defined in the Government policy is the future as every enterprise will require reliable, high performance, high bandwidth & low latency 5G networks that are devise, media and protocol agnostic.

Department of Telecom, Min of communication has focused on these CNPN networks and has supported development of a domestic ecosystem to build various subsystems of the private 5G networks. Govt recognized it as a large opportunity that can resurrect the domestic telecom manufacturers and as per a task force of DOT this market was estimated to be Rs 50000 Cr in 2026.

Various schemes like DCIS / TTDF & PLI were promoted by the ministry since 2021 to encourage development of various sub-systems for setting up CNPN. Recognizing that end customers will not buy subsystems. Dptt systematically encouraged integration of these subsystems by larger domestic companies to set up "end to end" solutions in consortium mode.

"Voice", (Voice of Indian Comtech Enterprises), a society of indigenous telecom design companies recognised the need that customer does not buy a RAN, IMS, NMS or an IOT or M2M device. Customer wants an end to end solution to meet its functional requirements. Customer wants a Common management of the network, Common provisioning of the network, Common facility for taking report of the entire network, Common billing or voice logging mechanism. Customer needs a user experience that is simple and user friendly for all the subsystems and a dashboard from where the entire network can be managed from a central location

VoICE took the initiative to integrate various subsystems developed by Indian Startups and SMEs to provide a complete end to end system that will open opportunities in Utility companies, Railways, Mines, Oil and Gas as well as Defense applications. Collectively, this would be a large market that can resurrect domestic telecom design & manufacturing industry.

The technology companies, supported by the experts from VoICE team in the system integration, have put on display entire "end to end", live platforms .

Some companies demonstrated their IOT devices. Highlight of the demonstration was that entire platform on display had products from various Indian companies where hardware and software control reside with domestic players. Apart from the live demo of Private 5G network, on display were standalone products, applications and chipsets from various domestic companies outside VoICE pavilion.

Voice claims that acting as a consortium, domestic companies can immediately deliver and meet requirements of setting up Enterprise / Private 4G networks immediately. Domestic industry claims that if they are supported well they would be able to commercially deliver 5G private networks in 12-18 months.

Today Domestic technology companies are marching forward with all the ingredients such as design ownership, IPRs aptly supported by a robust equipment manufacturing and R&D ecosystem. Indigenous technology companies have made significant strides and have showcased "use cases" for applications in Mines, Railways, Defense as well as for utility companies like airports & metro projects.

VoICE CONSORTIUMS IN IMC2023

1.	DISASTER MANAGEMENT, HOMELAND SECURITY Co nsortium
2.	MOBILE NETWORKS DESIGNED FOR RURAL
3.	RAILWAYS 4G/ 5G NETWORK
4.	MOBILE INTEGRATED NETWORK
5.	THEATERISATION OF BATTLE FIELD
6.	TYPICAL 4G 5G CONVERGED NETWORK
7.	4G 5G MINING
8.	5G TESTING TOOLS, Ocean & Fishing, Financial Tech, Automobile, Logistics

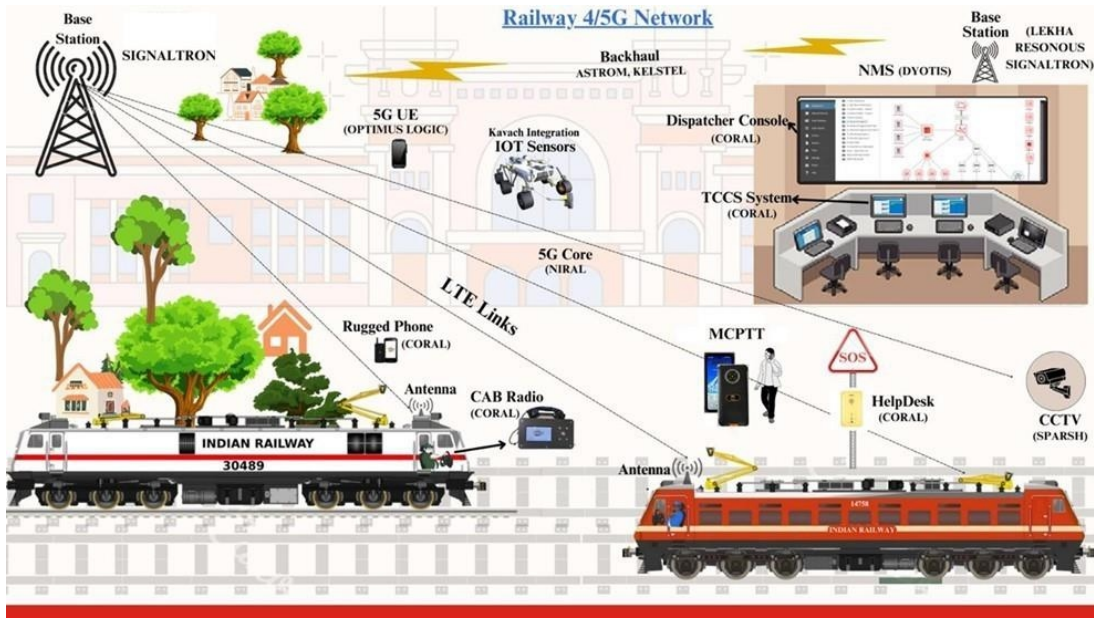**BRIEF EXPLANATION OF EACH CONSORTIUM**

1. **DISASTER MANAGEMENT and MISSION CRITICAL (PTT)**

Names of VOICE consortium companies involved in above solution are mentioned below in the document in the layout tables.

Disaster management plays very important role in keeping the community safe by planning, response, or recovery from emergency situations. Technology empowers the team to perform their functions effectively and seamlessly. Real time data from IOT sensors, r eal time videos of affected area and robust alert/announcement systems are some of the technological requirements that enable Disaster Management teams to ensure safety to the citizens. Disaster and homes security solutions cover distant geographic locations and Indian ecosystem can deliver extensive applications working on different technologies & protocols, necessary to have reliable robust and resilient network. VOICE consortium of Indian 4G / 5G stack can help build reliable core and robust field deplo yment solutions that can be the backbone for any disaster management requirement.

MCX **Push to Talk (PTT**) and **Push to Video (PTV)** mission critical Application, allows the users to set up audio or video call to one or many users simultaneously. MCX allows multicast and broadcast service that work with minimal switching time and also ensure optimal use of network resources. MCX PTT allows for use of network resources only in the direction of transmission from the user who controls the floor while resource utilization is nil in the reverse direction. Resources are critical in wireless networks hence its importance. These MCX phones running on high speed low latency Private 5G Network also ensure reliable connectivity for voice and Video that follow the 5QCI (QoS Class Identifier) mechanism that determines the quality of bearers selection and setup priority for the MCX equipment to ensure appropriate carrier traffic in an optimized environment.

2. **4G 5G MOBILE NETWORKS DESIGNED for RURAL**
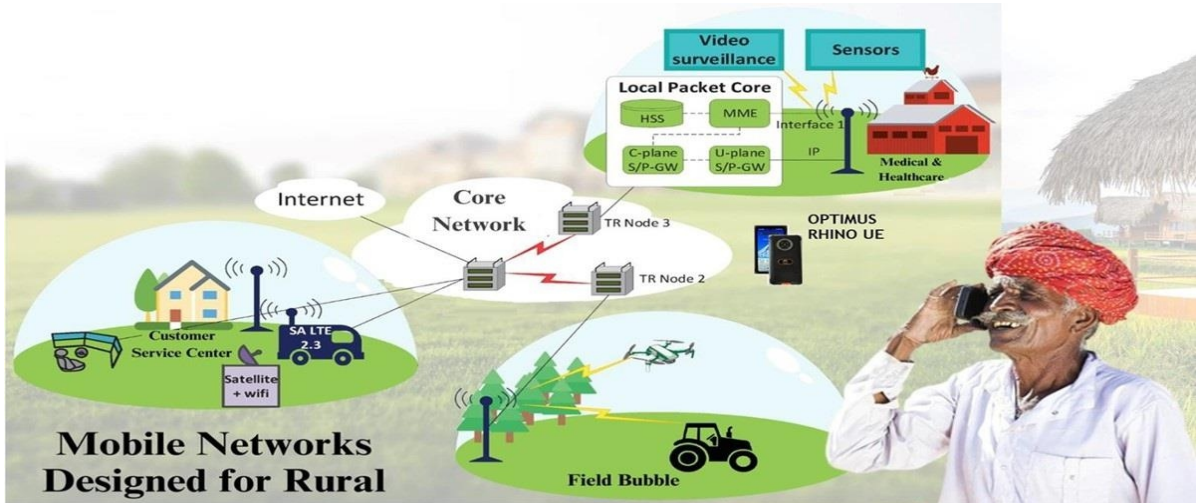
Mobile Networks Designed for Rural

 Names of VOICE consortium companies involved in above solution are mentioned below in the document in in the layout tables.

Rural and remote areas in developed or undeveloped countries around the world are facing the challenge for unavailability of unreliable high-quality Internet connectivity. Many IOT and smart applications have been developed around requirements of rural areas but challenge of availability of reliable, high-speed network with wide coverage to run these applications still exist; "Field Bubble" is the solution for requirement of communication in remote and in accessible areas that can be connected over various communication technologies like Satellite, Gigabit backhauls to connect the unconnected. Indian designs can create high speed and reliable network bubbles to run various applications in rural areas like Medical & Healthcare Facilities, Agriculture, Customer Service Centres. VOICE domestic 4G & 5G stack has developed and can provide end to end solution for the Rural Communication.

3. **RAILWAYS 4G 5G NETWORK**

Indian railway is one of the largest Rail Network in the world and seamless communication is the backbone to run such a large Network. Different communication devices are used in Indian Railways that works on different Media, Network, Protocols an d Applications such as FXS Landlines, IP Phones, Cab Radios, MCX devices, Dispatcher consoles and 4G/5G Phones. Domestic solutions for robust and seamless communication across disparate devices is of great importance and Indian solutions converging legacy devices with VOICE domestic 4G & 5G stack have demonstrated the power of innovative start-ups; Railway's converged network solutions developed by Indian companies can be adopted globally that not only saves cost of deployment but also caters to resilience required in developing economies

Names of VOICE consortium companies involved in above solution are mentioned below in the document in the layout tables.
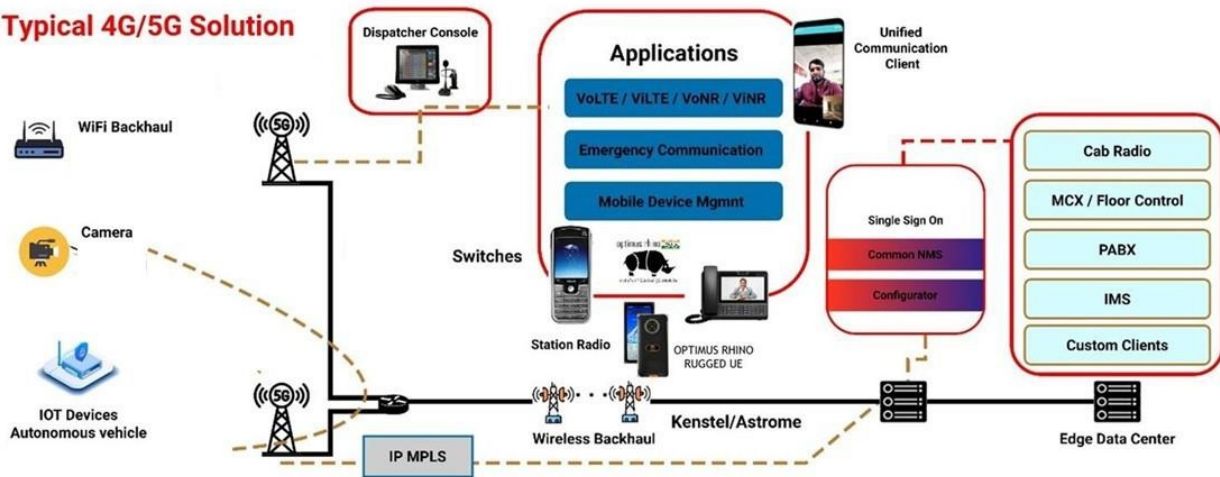
4. MOBILE INTEGRATED NETWORK
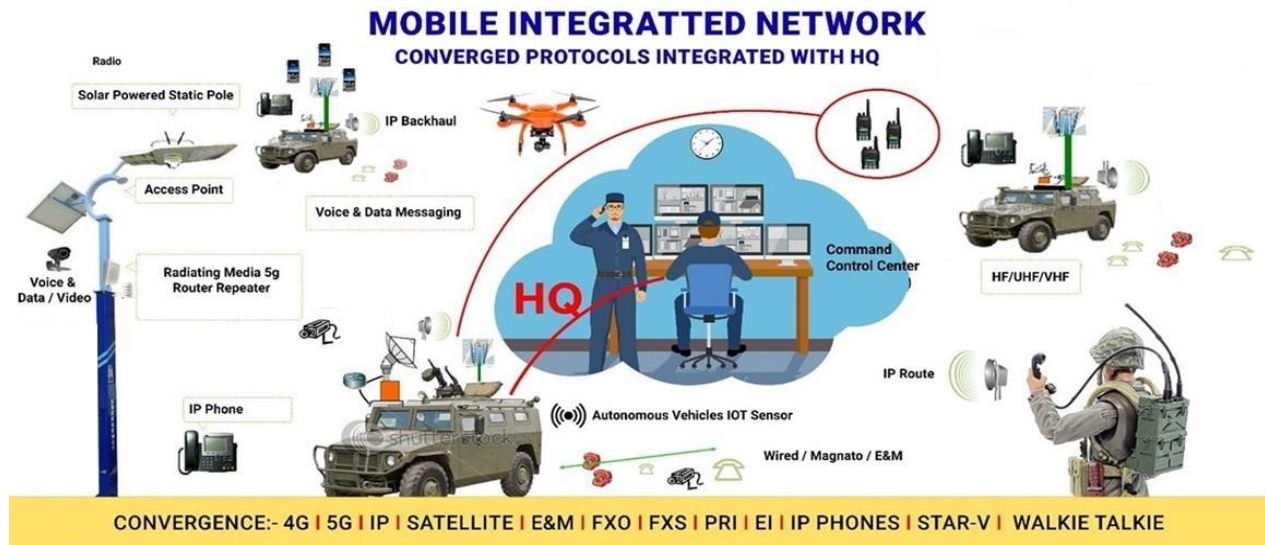
Names of VOICE consortium companies involved in above solution are mentioned below in the document in the layout tables.

Converged Private Network Solution for Defense and Tactical Applications is inherently open, flexible, and future- proofed to take advantage of the rapidly developing 4G/5G technologies. Private wireless networks include the latest generation of 4G/5G that help to revolutionize mission-critical applications, connectivity can foster significant improvements, from safety to efficiency and productivity to better sustainability. Operations can be optimized by collecting and analyzing tracking data on the real-time location and performance of vehicles, equipment, and soldiers. A single infrastructure enables fast, reliable, and secure data, wide coverage, low latency, and assured quality of service (QoS). Converged Evolved Packet core (EPC)

for 5G/4G networks can converge Voice, Data, IOT & M2M communication within the same enterprise network and opens a plethora of applications to address diverse requirements. The system allows seamless connectivity between mobiles (4g/5G), VF/UHF, IP Phones, Push to Talk (PTT) a s well as legacy wired devices such as FXS Analog Phones through a common management and provisioning interface

5. THEATERISATION OF BATTLE FIELD

Names of VOICE consortium companies involved in above solution are mentioned below in the document in the layout tables.

Indian Army is the pride of the nation that plays a very crucial role in fighting insurgents and protect homeland security. Domestic companies have designed solutions that can keep real -time track of our soldiers and our assets in the Battle Field. Solutions for Battle field theaterisation maintain central command and control in the most inhospitable terrains while facilitating communication on the move. Domestic solutions facilitate not only Geolocation map based communication but c an also send alerts in a zone or to specific individuals as encrypted voice or text messages. The system allows real -time updates of enemy locations and activities. The system running on reliable captive 4G/5G network can be suitable application for Armed Forced. VOICE consortium of companies can provide end to end solution from 4g/5g connectivity, converged communication, Real time Geolocations and Alert Mechanism.

6. TYPICAL 4G 5G SOLUTION

Massive digitalization wave taking place across industries with rel iable and secure With high performance, low-latency private 4G/ 5G networks different Industries are taking leverage of better connectivity, converged communication and Industrial IoT (IIoT) to meet challenges and unprecedent analytics. 4G/5G Cellular networks are cost effective and scalable, while providing superior coverage. Cellular network provide increased performance and reliability, high -resolution video drones and automated guided vehicles (AGVs) can easily perform surveillance tasks with maximum pr ecision and accuracy. VOICE with consortium of companies provides End to End 4G/5G Network Solutions developed in India for different Industries.

Typical 4G/5G Solution

Names of VOICE consortium companies involved in above solution are mentioned below in the document in the layout tables.

7. 4G 5G Automation of Mines
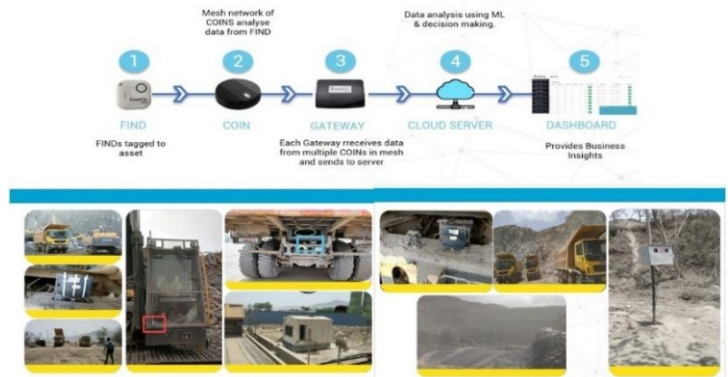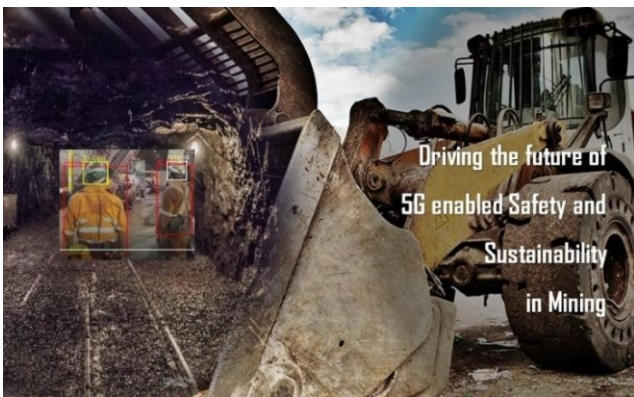
Names of VOICE consortium companies involved in above solution are mentioned below in the document in the layout tables.

Automation is not easy in the mining industry, digging deeper into the earth for wired connectivity makes operations risky, increases chances of equipment failure and makes connectivity difficult; Private 5G's increased throughput and low latency supports even the most advanced applications to enable smart mining. Various applications that can run on Private 4G/5G Network and help in automation of Mines by real time access to videos, data and voice.

Safety led comprehensive Anti-Collision Early Detection Solution between vehicles and humans addresses the safety requirements in civil, commercial and industrial construction industries, logistics and warehouses and overcomes the Industry challenges of worker safety, object detection and collision prevention, PPE detection and timely alerts.

In Mining Industries, maintaining the record of trip count manually was difficult. Asset Tracking solution, we could help the mining industry by solving all these problems along with benefits like, Reduced manual entry of the trip counts & data fetching at any point of time. Loading & unloading time of the trucks could be easily identified

8. **5G TESTING TOOLS, Ocean/ Fishing, FinancialTech, INDUSTRIAL IOT (Coal/ Automobile), Logistics**
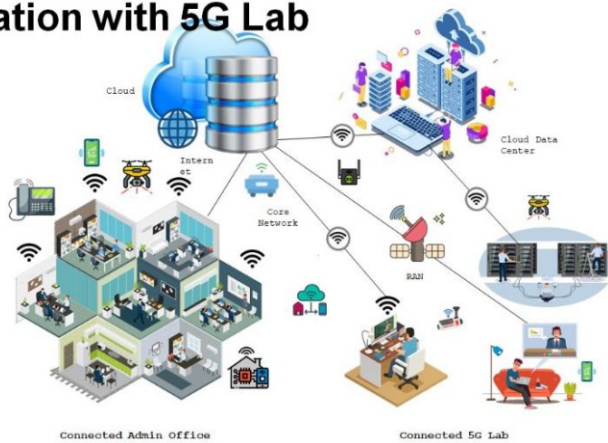
Personalized 5G Learning Paths using ABotEdu:
•Implement !I -driven algorithms to analyze user data and preferences to create personalized learning paths
•Interactive and Engaging Content:
•Develop high-quality content that includes interactive elements like quizzes, simulations, and multimedia to keep learners engaged.
Collaborative 5G Use Case Testing & Learning Opportunities:
•Create a 5G community where users can collaborate on projects for specific use case testing, share knowledge, and engage in discussions.
Real-World Application in a 5G Knowledge:
•Focus on practical, real-world 5G MEC/ User application of skills and knowledge.

5G Use Cases Lab for Banking and Financial Sector

IDRBT with the first 5G use case lab of India started its set up activities in July 2020 as a joint project by DoT, DFS and IDRBT. The Lab has guided, supported and facilitated Fintechs selected through Hackathon to carry out pilots with Banks, roll out in novative outcomes and implement in various Banks. The solutions of some engaged startups such as Easiofy, Kaizen Secure Voiz, Imaginate, Finaara and Reverie have been demonstrated earlier in IMC as well as CISO Forum, CIO Forum, RBIH Board, DFS and DoT etc. The OAI 5G Private Network with MEC set up and 5G Secure Network Slice for BFS works in the Lab have been well appreciated.

VoICE Consortium Solution Team at IMC2023

1. Chipspirit
2. INNOGLE
3. FINAARA
4. MENTHOSA
5. NIMBLE VISION
6. SENSEGIZ
7. ASTROME
8. MATRECOMM
9. SENSORISE
10. LivNSense
11. QuNU Labs Pvt Ltd
12. Rebaca Technologies
13. BIG CAT WIRELESS
14. CORAL
15. ECHELON
16. INDIO NETWORKS
17. INFINITY LABS
18. NIRAL NETWORKS
19. SIGNALTRON
20. SOOKTHA
21. SPARSH
22. NAV WIRELESS
23. VELMENNI
24. NUBEWELL
25. PRIYARAJA
26. UTL (Sharing with Priyaraja)
27. AVALON
28. LINKEZ
29. IDRBT

USE CASE PLACEMENTS : 4 USE CASES in Consortium Area 1

Coral	Sparsh	LivNSense	Rebaca	Sensegiz	Sensorise	Signaltron
Niral	Sensorise	Astrome	Chipspirit	Innogle	Finaara	IDRBT

Companies above

Companies above

PRIYARAJA	4G 5G MINING	5G TESTING TOOLS, INDUSTRIAL IOT (Ocean, FinTech, Others), LOGISTICS
AVALON	DISASTER MANAGEMENT HOMELAND SECURITY	RAILWAYS 4G/ 5G NETWORK

Companies below   Companies below

Coral (Menthosa)	Echelon	Sensorise	Infinity Labs	Coral	Sparsh	Big Cat Wireless
	Sparsh	Sooktha	Velmenni	Nav Wireless	Indio Network	Signaltron

4 Use Cases in Consortium Area 2

Astrome	Coral	Nav Wireless	Signaltron	Rebaca	Velmenni	LINKEZ
Sparsh	Indio Networks	Sooktha	Echelon	Sparsh	Astrome	Nimblevision

Companies As above   Companies as above

MOBILE NETWORKS DESIGNED FOR RURAL	MOBILE INTEGRATED NETWORK
THEATERISATION OF BATTLEFIELD	TYPICAL 4G 5G CONVERGED NETWORK

Companies below   Companies below

Big Cat Wireless	Coral	Indio Network	Infinity Labs	Nubewell	Sooktha	QuNU Labs
Signaltron	Sparsh	Sensorise		Indio Network	Infinity Labs	Coral	Sparsh

9

LivNSense™ proudly unveiled its groundbreaking innovation at the India Mobile Congress 2023: the world's FIRST AI Platform for the Mining Industry (GreenOps™); This cutting-edge platform harnesses the power of 5G and AI technology to drive future safety and sustainability within the mining sector. LivNSense has established fruitful partnerships with key players in the VOICE consortium ecosystem, 5G innovators - Niral Networks and Coral Telecom, to employ Private 5G technology for mining sector.

Many other product launches were there during IMC2023 involving VoICE members

VoICE Members at MWC, Las Vegas, USA

Indian 4G and 5G VoICE members had participated at MWC at Las Vegas and showcased capabilities of Indian 4G and 5G stack.

RIP and Replacement Program in USA

India's VoICE Consortium along with TCS and Reliance Jio Consortiums offered their services for Rip and Replacement program covering 4G Chinese deployments in USA.

VOICE at Bangalore Tech Summit 29 Nov, 30 Nov & 1 Dec 2023

VOICE TEAM that can provide Complete End-to-end Solutions in Consortium and independent mode in India and at Global level

S. No.	Company that participated
1	CENTRE FOR DEVELOPMENT OF TELEMATICS (CDOT)
2	GALORE NETWORKS PRIVATE LIMITED
3	INNOMINDS
4	ITI
5.	LEKHA WIRELESS SOLUTIONS PVT LTD
6	LivNSense
7	LYNK AmbuPod Pvt Ltd
8	OPTIMUS LOGIC SYSTEMS INDIA PRIVATE LIMITED
9.	PRIYARAJA ELECTRONICS LIMITED
10.	UTL
11	RESONOUS TECHNOLOGIES PRIVATE LIMITED
12	Sanchar Tele Systems
13	VoICE
14	Follow Global Private Limited
15	Sigworks Research Lab
16	TelcoLearn
17	XTEN NETWORKS

Other Date Wise Reportings by VoICE Members

https://telecom.economictimes.indiatimes.com/news/telecom-equipment/nokia-launches-compact-5g-private-wireless-solution-for-small-industrial-sites/104157539

VoICE members responded with

    i.   A5G can provide solution.

    ii.   WiSig have demonstrated a Private 5G solution in MWC Las Vegas, we were the only one there this year showcasing an oDU+oCU and oRU bundled solution. This solution has been built in consortium mode with C-DOT and VVDN as partners

Many VoICE members can provide 5G Enterprise Networks as other Consortium combinations involving our VoICE members can cover multiple verticals but they need orders to survive. Many of them have successfully implemented pilot projects even in BSNL A reminder on E Band Radio option was also suggested. We can compete against Nokia, Ericsson and the best in the world but need to survive also and should get some market access and share as well. We need better support from Govt companies but at times they feel that domestic players are their competitors and go on supporting MNCs and non-domestic solutions even if they are available and being supported by Government based initiatives. One arm of Government can be seen opposing the Government policy.

Happy to be in Top 30 innovations globally in water conservation with IoT and AI. This award is convened by the Continental Africa Water Investment Programme, K-water, the World Bank and the Global Water Partnership (UN). https://waterchangemakers.org/2023-finalists/

India is desperate to position itself as a key manufacturing destination for telecom equipment makers. Yet manufacturing in India continues to cost up to 13% more than it does in more established markets like China. That's one of the findings of "Recommendations on Promoting Networking and Telecom Equipment Manufacturing (NATEM) in India," issued by the Telecom Regulatory Authority of India (TRAI).

    https://www.lightreading.com/optical-networking/india-too-expensive-for-telecom-gear-makers-trai

VoICE letter to the Government also had flagged this issue.

https://www.linkedin.com/posts/sensorise-smart-solutions_sensorise-sensoriseindia-congratulations-activity-7117114899368939520-fhsi?utm_source=share&utm_medium=member_ios

Sensorise shared the announcement on Mr. Ankit Mahajan (VP - Technical & Operations) getting recognition for the excellent achievement in Outstanding Technic al Contributions Award for FY 2022-23 by TSDSI, India's Telecom SDO , recognizing the efforts and granting the privilege of receiving the distinguished award .

10.10.2023
Space Application Centre ISRO sign MOU with NAV Wireless Technologies for Optical Wireless Communication

- ¾ https://timesofindia.indiatimes.com/city/ahmedabad/sac-startup-tie-up-for-optical-wireless-communication/articleshow/104299424.cms?from=mdr#:~:text=An%20Ahmedabad%2Dbased,communication%20in%20space
- ¾ https://www.cxotoday.com/press -release/sac-isro-signs-mou-with-nav-wireless-technologies-for-optical-wireless-communication-lifi-fso-quantum-key-technologies/
- ¾ https://analyticsindiamag.com/isro-to-use-lifi-for-satellite-communication/

Visited Echelon

Ashwini Vaishnaw and Telit CEO Inaugurates VVDN's New SMT Line for 4G/ 5G Manufacturing Connectivity Modules
https://www.vvdntech.com/newsroom/pressrelease/ashwini -vaishnaw-and-telit-ceo-inaugurates-vvdn-new-smt-line-for-manufacturing-connectivity-modules-335

11.10.2023
VoICE Letter to the Government on proposed Rs. 1,38,000 Crore Investment covering ,40,000 villages

News item covers OFC standards, construction & laying practices based on interview with DG, VoICE.
https://www.financialexpress.com/business/industry -fiber-cable-quality-standards-in-work-for-telcos-isps-3270091/

Honored to share the exciting news that **Amantya Technologies** has emerged as the winner in the "Top Educational Network Deployment in Private Network" category at the Private and Hybrid Networks Industry Leaders Awards presented by TeckNexus!

As we proudly align with the vision of "Aatmanirbhar Bharat", our unique position as the only indigenous company on this esteemed list highlights our commitment to excellence and innovation in the realm of private networks globally.

Indio Networks is thrilled to announce that it has received a global award from WiFiNOW - an independent event and advisory company in field of WiFi technology. Indio received this award for affordable connectivity category - project to bring WiFi internet access to remote regions of Africa and Asia using satellite broadband. We would like to thank all our well wishers and partners who have helped us over the years to build cutting edge connectivity solutions in India.

https://startupstorymedia.com/insights-livnsense-secures-funding-from-pavestone-for-greenops-growth-round/

https://www.financialexpress.com/healthcare/news-healthcare/health-min-launches-platform-to-boost-domestic-medical-devices-industry/3347233/lite/

https://www.financialexpress.com/business/industry-bidding-to-kick-off-in-few-months-bharatnet-tejas-and-tcs-seek-fair-shot-3352113/

The above story in Financial Express captures many submissions made by VoICE in last 2 weeks to the Government in support of AtmaNirbhar bharat and trusted portal on-boarding etc.

24

VoICE

Voice of Indian Communication Enterprises
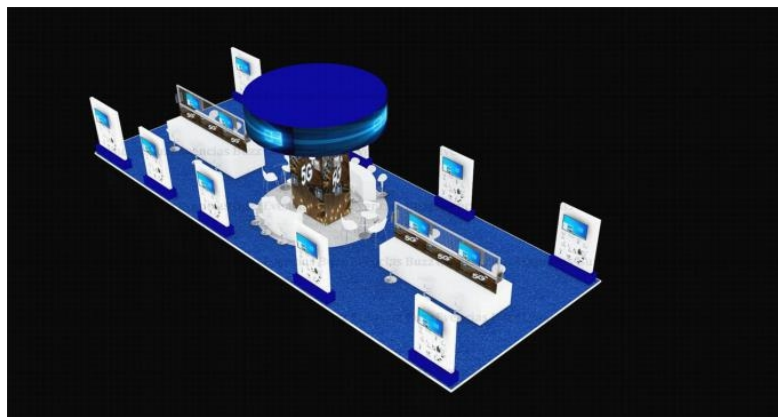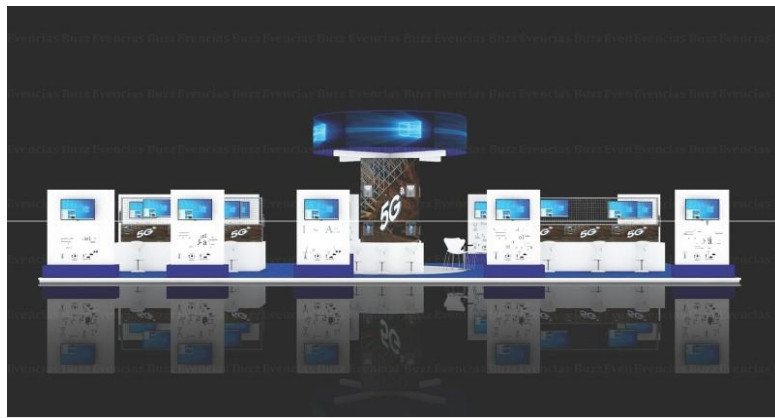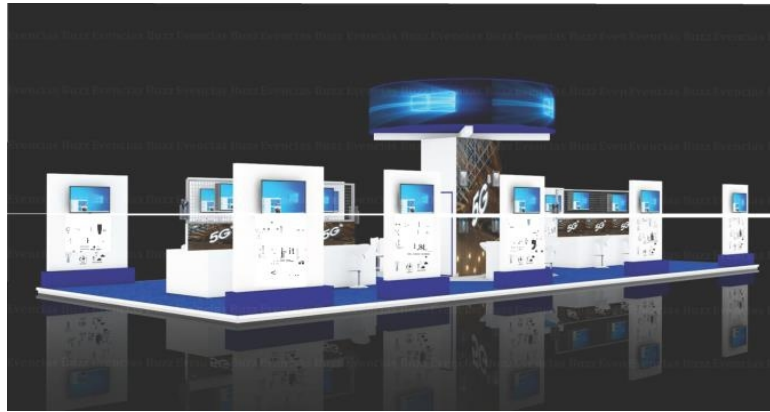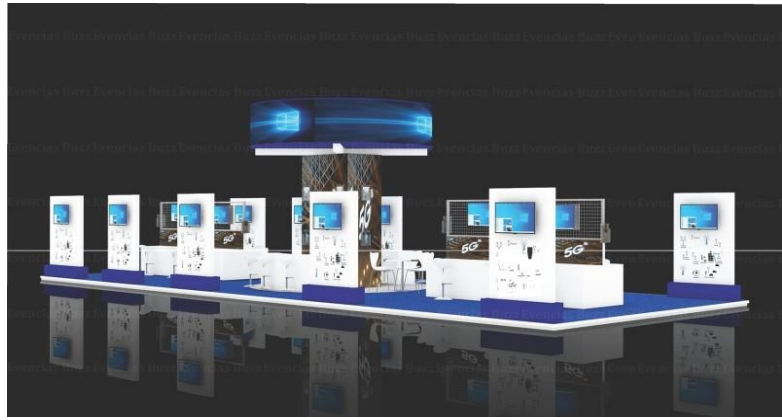
Contact:
Rakesh Kumar Bhatnagar
Director General
Voice of Indian Communication Technology Enterprises (VoICE)
E-mail : rkbhatnagar.dg.voice@gmail.com
Mobile : +91 9350836103