TACTILINK – Tactical Voice Intelligence Platform White Paper

Prepared For:
United States Army, Headquarters, Department of the Army (HQDA)
DAMI-CD Initiative Div

United States Army, Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S), Program Manager Biometrics

TACTILINK – Tactical Voice Intelligence Platform
Proposal & White Paper

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1. EXECUTIVE SUMMARY

TACTILINK is an advanced platform enabling real-time voice intelligence and integration between legacy radio networks and modern digital systems. It transforms tactical communication into actionable data, bridging voice streams with digital command systems.

2. OBJECTIVES

- Convert radio voice streams to text for analysis and logs.
- Detect operational keywords for instant alerting.
- Enable voice-controlled automation of mission hardware.
- Integrate seamlessly with networked systems through secure APIs.

3. TECHNICAL REQUIREMENTS

- Speech-to-text engine (e.g. Whisper STT)
- Edge computing on NVIDIA Jetson hardware
- RESTful APIs for data integration
- AES-256 encryption for stored and transmitted data

4. SYSTEM ARCHITECTURE

Secure Serial Communication Layer

- RS-232C-based communication for legacy radios.
- Error detection and secure logging.

API Integration Layer

- Converts serial data into JSON for external systems.
- Supports WebSocket and MQTT communications.

Voice Intelligence Engine

- Transcribes voice to text in real time.
- Triggers actions based on spoken commands.
- Stores encrypted logs for auditing.

5. TECHNICAL PROPOSAL OVERVIEW

TACTILINK merges proven communication technology with modern AI speech capabilities, providing:

- Real-time voice transcription
- Automated event recognition from keywords
- Voice-activated control for connected devices
- Integration with modern mission systems

6. OPERATIONAL ADVANTAGES

- Faster situational awareness from voice traffic
- Reduced operator workload
- Enhanced mission responsiveness
- Secure integration into broader digital ecosystems

7. DEVELOPMENT TIMELINE

Stage	Task	Duration
1	Requirements Analysis	2 weeks
2	Speech-to-Text Development	4 weeks
3	Serial Communication Integration	3 weeks
4	API Layer Implementation	3 weeks
5	UI Development & Testing	3 weeks
6	System Validation	2 weeks
7	Documentation & Training	2 weeks
Total Duration		**19 weeks (~5 months)**

8. ROM COST ESTIMATE

Cost Category	Amount (USD)
Speech-to-Text Development	$100,000
RS-232C Communication Module	$50,000
API Design and Integration	$55,000
Edge Hardware Integration	$40,000
UI/UX Development	$30,000
Cybersecurity Compliance	$25,000
Documentation & Training	$15,000
Year-1 Optional Support	$20,000

Cost Category	Amount (USD)
Estimated Total	**$335,000**

9. CONCLUSION

TACTILINK delivers a tactical advantage by transforming traditional voice channels into digital intelligence, enabling rapid, secure decisions in dynamic environments.