

# Department of the Navy SBIR/STTR Transition Program

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ONR Approval #43-8628-21

Topic # N182-133

Advanced Battlefield Communications System in Operations and Training  
Li Creative Technologies, Inc. (LCT)

## WHO

**SYSCOM:** ONR

**Sponsoring Program:** ONR

**Transition Target:** Manufacture the AI Headset for military use and/or license intellectual property (IP) to prime contractors (3M, Gentex) and leverage their distribution channels.

**TPOC:**

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**Other transition opportunities:**

Hearing protection market – first responders and workers in mining, oil fields, manufacturing, construction, and transportation who are routinely exposed to high noise levels.

**Notes:** AI Headset is enabled by artificial intelligence, to replace existing military headsets and to enhance situational awareness and hearing protection. The core technology has already in use commercially. LCT had two Phase III awards. Deliverables are in DoD/NGA daily operations.



U.S. Marine Image:

<https://www.marines.mil/Photos/igphoto/2001962773/igsearch/headset/>

## WHAT

**Operational Need and Improvement:** Warfighters rely on their hearing to detect, identify, and localize sound sources and thus potential threats. The DoD seeks new technologies to improve communications, localization, and auditory preservation for combat and training scenarios. To this end, LCT is developing a new AI Headset to enhance human hearing capability for situational awareness and provide better hearing protection.

**Specifications Required:** Enhanced hearing, artificial intelligence (AI) enabled situational awareness, digital signal processing (DSP) enabled noise cancellation > 30 dB; fit in existing helmet

**Technology Developed:** LCT invented a next-generation military headset based on AI and advanced DSP. LCT is designing and building the AI Headset with advanced technologies.

**Warfighter Value:** Warfighters' situational awareness and hearing protection will be significantly improved with the new technology. Warfighters will experience enhanced hearing, lower environment noise, easy to locate sound source and type, and clearer communication. Overall, warfighters' reaction time will be reduced, combat safety will be improved, and hearing will be better protected.

## WHEN

**Contract Number:** N68335-21-C-0198 **Ending on:** March 22, 2023

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Hardware design	Low	PCB and enclosure are working	4	3rd QTR FY22
Algorithm research	Low	Algorithms are tested and satisfied with datasets	4	4th QTR FY22
Software development	Low	All developed software works with hardware	5	1st QTR FY23
Prototypes are ready	Low	AI Headsets pass LCT testing and are shipped to PM	6	2nd QTR FY23

## HOW

**Projected Business Model:** License IP to prime contractors that manufacture military headsets, or manufacture the AI Headset in house.

**Company Objectives:** Be the technology leader in electronic hearing protection devices. Design and manufacture leading-edge AI Headsets. Leverage all opportunities for commercialization, including marketing, sales, and recruiting more business partners.

**Potential Commercial Applications:** The AI Headset is intended to replace existing military headsets for all armed forces to reduce hearing loss and improve situational awareness and is compatible with standard military helmets. The new headset is also applicable to first responders and workers in high-noise industries, including mining, oil and gas, construction, and transportation. The global electronic hearing protection devices market was valued at US\$ 441.2 million in 2019 with a compound annual growth rate (CAGR) of 8.0% over the forecast period 2019-2027 (Source: Coherent Market Insights).

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