AEye Achieves Significant Milestone, Extends LiDAR IP Leadership With More Than 100 Patents Filed Globally

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Patents Uniquely Span Intelligent System Architecture, Modular Hardware, and Software Underlying AEye's Adaptive LiDAR System

DUBLIN, Calif.--(BUSINESS WIRE)--Sep. 21, 2021-- AEye, Inc. (NASDAQ: LIDR), the global leader in adaptive, high-performance LiDAR solutions, today announced it has now filed more than 100 patents spanning four continents and more than 10 countries. AEye's latest patents and its extensive claims cover several groundbreaking concepts that uniquely expand new intelligent data collection, data quality, and extend AEye sensors to deliver optical communication networking. Recently granted patents also include a first-of-its kind optical data networking patent which enables AEye to use the sensor laser as a secure data carrier, opening up new business opportunities leveraging integrated agile, reliable laser-based sensing, and communications.

AEye's unique, software-driven, intelligent LiDAR system, dubbed iDAR™ (Intelligent Detection and Ranging), is an adaptive platform that moves complexity from hardware to software. The high performance, low cost system has a modular design and adapts through software, enabling it to be easily optimized for any market.

AEye's patent portfolio can generally be organized into four groups:

1. Intelligent Modular Architecture

This group of patents relate to AEye's intelligent modular bistatic architecture, system design, and its solid-state performing MEMs-based agile LiDAR. While many other LIDARs process in a linear or serial manner, AEye parallel processes using a bistatic architecture. This approach allows AEye to transmit and receive light out of separate paths, enabling the delivery of its iDAR™ perception system and adaptive capabilities that power itsindustry-leading range, resolution, refresh rates, agility and intelligence. Equally important, AEye's design allows for flexibility in hardware packaging and vehicle placement options, unlike some LiDAR sensors that are limited to roof placement. These patents include protection of the overall architecture, of feedback techniques to keep the scanning where desired during vehicle vibration and temperature variation, as well as the ability to control detection pulse width and receiver bandwidth.

2. Open System and Extended Data Capabilities

A second group of patents focus on AEye's software definable AI technology and iDAR's ability to integrate other existing sensors, such as radar, cameras, and IMUs. These patents address AEye's unique co-boresighted design, wherein an HD camera and LiDAR receiver share the same optical axis, creating true color point clouds which enhance classification capabilities and eliminate the need for post-processing parallax correction. By co-boresighting the camera with the LiDAR receiver, AEye moves intelligence into the sensor. This enables the sensor to detect and immediately request additional data about objects and anomalies, then issue "fast path" priority message alerts to inform the motion planning system. By pushing detected threats to the top of the data stack under consideration by the motion planning system, AEye reduces central processing burdens, and speeds time to reaction.

3. Enhanced Data Quality

The third group encompasses innovative features such as scan agility, which enables the sensor to "acquire" pre-classification attributes useful in accelerating perception systems. For example, AEye is able to pinpoint intra frame velocity by capturing both radial and lateral velocity, where most threats occur while driving. These patents build a software-defined layer upon the bistatic platform, and include the ability to optimize shot lists as a function of scenes and environment, novel tracking schemes, and tracking the horizon during car motion. The latter is an important aspect of agility and intelligence, as it reduces the required vertical scan field of view, and therefore reduces frame to frame time. iDAR's ability to enable software-defined frames and dynamic scan patterns and the platform's ability to deploy adaptive energy control on a pulse-by-pulse basis enables both the dynamic adjustment of scan patterns and the ability to adapt the laser energy for each pulse for complete interference mitigation.

4. Optical Data Networking

The fourth group enables AEye to expand the capabilities of the AEye sensor to enable the laser to communicate information. This groundbreaking feature is uniquely enabled by AEye's adaptive LiDAR, in which the laser can be directed with precision. Pulsed message packets enable data to be transferred via line-of-sight. By using optical communications via the LiDAR system, AEye sensors can leverage a readily available, secure and reliable communications channel, which does not compete with the congested bandwidth of WiFi, cellular, and/or satellite communications, to transmit, receive, and/or transceive data.

"We set out to build a flexible architecture that could be expanded and adapted over time, adding new innovations. Our IP strategy, we believe, places us years ahead of others building single use hardware," said Dr. Allan Steinhardt, chief scientist at AEye. "We will continue to push forward aggressively with developing and protecting competitive intellectual property to advance AEye's technological leadership. We are creating a thorough and rigorously defensible patent portfolio covering the architecture and software that underlie our solution."

AEye's iDAR™ system has been independently verified to have significant range, resolution, and speed performance advantages, and is software-configurable to serve multiple markets, including automotive, industrial, and mobility, with the same platform and supply chain. The company has recently announced technology and/or manufacturing partnerships with NVIDIA, Sanmina, Continental, Benchmark, and TuSimple, as well as its expansion into the Japanese and Korean markets as it prepares for volume production.

To get the latest AEye news and technology, sign up for the company newsletter at aeye.ai/updates-sign-up/ or to see these many of these latest innovations in action and to experience iDAR's record-breaking performance in real-time, visit aeye.ai/demo-the-4sight-m.

About AEye

AEye is the premier provider of intelligent, next generation, adaptive LiDAR for vehicle autonomy, advanced driver-assistance systems (ADAS), and robotic vision applications. AEye's iDAR™ (Intelligent Detection and Ranging) system leverages biomimicry and principles from automated targeting applications used by the military to scan the environment, intelligently focusing on what matters most, enabling faster, more accurate, and more reliable perception. iDAR is the only software configurable LiDAR with integrated deterministic artificial intelligence, delivering industry-leading performance in range, resolution, and speed. The company was founded in 2013 and is based in the San Francisco Bay Area.

Forward-Looking Statements

Certain statements included in this press release that are not historical facts are forward-looking statements within the meaning of the federal securities laws, including the safe harbor provisions under the United States Private Securities Litigation Reform Act of 1995. Forward-looking statements are sometimes accompanied by words such as "believe," "continue," "project," "expect," "anticipate," "estimate," "intend," "strategy," "future," "opportunity," "predict," "plan," "may," "should," "will," "would," "potential," "seem," "seek," "outlook," and similar expressions that predict or indicate future events or trends, or that are not statements of historical matters. Forward-looking statements are predictions, projections, and other statements about future events that are based on current expectations and assumptions and, as a result, are subject to risks and uncertainties. These statements are based on various assumptions, whether or not identified in this press release. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as and must not be relied on by an investor as a guarantee, an assurance, a prediction, or a definitive statement of fact or probability. Actual events and circumstances are very difficult or impossible to predict and will differ from the assumptions. Many actual events and circumstances are beyond the control of AEye. Many factors could cause actual future events to differ from the forward-looking statements in this press release, including but not limited to: (i) the risks that any patent application that is filed by the Company will result in an issued patent; (ii) the risks that any issued patent will offer the intellectual property protection anticipated by the Company, or any protection at all; (iii) the risks that other patent holders may hold patents or have filed patent applications in similar technology areas, in similar or other geographies; (iv) the risks that any new business opportunities will be available to the Company as anticipated or at all; (v) the risks that the adaptive nature of the iDAR platform will be accepted in the marketplace as anticipated by the Company, or at all; (vi) the risks that the modular design will provide the high performance anticipated by the Company; (vii) the risks that the cost targeted by the Company can be achieved so as to be acceptable by the marketplace; (viii) the risks that the Company's products can be optimized for its target markets, or any market; (ix) the risks that the Company's flexible architecture can be expanded and adopted over time as anticipated by the Company; (x) the risks that the Company will successfully develop competitive intellectual property in the future; (xi) the risks that AEye will be unable to achieve the necessary minimum levels of quality and reliability required by the Company's target markets and customers; (xii) the risks that the Company will be unable to rapidly scale manufacturing and meet the volume production needs required by the Company's target markets and customers; (xiii) the risk that lidar adoption occurs slower than anticipated or fails to occur at all; (xiv) the risk that the Company's singular LiDAR system can be optimized effectively and efficiently for multiple markets; (xv) the risks that the Company will be unable to optimize its products for both performance and cost within a reasonable time, or at all; (xvi) the risk that AEye's products will not meet the diverse range of performance and functional requirements of AEye's target markets and customers; (xvii) the risk that AEye's products will not function as anticipated by AEye or by AEye's target markets and customers; (xviii) the risk that AEye may not be in a position to adequately or timely address either the near or long-term opportunities that may or may not exist in the evolving autonomous transportation industry; (xix) the risk that laws and regulations are adopted impacting the use of lidar that AEye is unable to comply with, in whole or in part; (xx) changes in competitive and regulated industries in which AEye operates, variations in operating performance across competitors, and changes in laws and regulations affecting AEye's business; and (xxi) the risk of downturns and a changing regulatory landscape in the highly competitive and evolving industry in which AEye operates. These risks and uncertainties may be amplified by the COVID-19 pandemic, which has caused significant economic uncertainty. The foregoing list of factors is not exhaustive. You should carefully consider the foregoing factors and the other risks and uncertainties described in the "Risk Factors" section of the registration statement on Form S-4, that includes a definitive proxy statement/prospectus, that AEye (formerly known as CF Finance Acquisition Corp. III) filed with the U.S. Securities and Exchange Commission (the "SEC") and other documents filed by AEye or that will be filed by AEye from time to time with the SEC. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made.

Readers are cautioned not to put undue reliance on forward-looking statements; AEye assumes no obligation and does not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. AEye gives no assurance that AEye will achieve any of its expectations.

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