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Sigma Labs Awarded PrintRite3D Upgrade Contract with Leading Industry Research Institute Fraunhofer IAPT

Early Adopter and Leading Institute for Development of Industrial Solutions in Additive Manufacturing to Upgrade to PrintRite3D Version 5.1

SANTA FE, NM / ACCESSWIRE / November 20, 2019 /[Sigma Labs, Inc.](#) (NASDAQ:SGLB) ("Sigma Labs"), a leading developer of quality assurance software for the commercial 3D printing industry, has been awarded a contract by the [Fraunhofer Research Institution for Additive Manufacturing Technologies](#) (IAPT), an additive manufacturing research innovator and early adopter of PrintRite3D®, to upgrade its current version PrintRite3D system to version 5.1.

Sigma Labs and Fraunhofer IAPT continue to strengthen their long-standing relationship and collaboration to establish PrintRite3D as the benchmark process monitoring system for the laser beam melting processes that have established Fraunhofer IAPT as a leader in the field. In an earlier announcement, Sigma Labs and Fraunhofer IAPT announced a collaborative research and development agreement to test and validate the use of the PrintRite3D's In-Process-Quality-Assurance suite to identify and quantify machine and process inconsistencies as well as to define in-process defect thermal signatures in the part formation process and correlate them to CT scan results.

The single-machine contract award will launch a series of software and hardware updates to upgrade the legacy PrintRite3D system to the current version 5.1 system. Sigma Labs is a member of the Fraunhofer IAPT-headed [Additive Alliance](#), a global research consortium to advance the development and implementation of additive manufacturing.

"Fraunhofer IAPT is an undisputed thought leader, advancing the additive manufacturing industry through the incredible research work it does every day," said John Rice, CEO of Sigma Labs. "Through the material progress accomplished in our relationship and its utilization of our latest PrintRite3D technology, I'm confident that together we will establish valuable industry relationships throughout Europe and create long-term value for our shareholders," concluded Rice.

Integrating inspection, feedback, data collection and critical analysis into a unified platform, PrintRite3D Version 5.1:

- Mines and identifies thermal signatures of melt pool disturbances and respective discontinuities using thermal emission spectroscopy;
- Harnesses Co-Axial Planck Thermometry to provide a verified thermal signature in both temperature and coordinates;

- Uses In-Process Quality Metrics™ (IPQMs®), Thermal Emission Density (TED™) and Thermal Emission Planck (TEP™) to analyze internal thermal signatures and melt pool disturbances;
- Contains a graphical user interface for real-time display of live part quality results and Automated Anomaly Detection on thermal mapping images providing location and anomalous region size;
- Collects data with fixed spatial resolution in the X/Y plane but variable resolution depending on layer height used during the manufacturing process; and
- Is platform-independent and available as a third-party add-on or retrofit package for existing machines.

PrintRite3D is Sigma Labs' patented in-process quality assurance software for the commercial 3D metal printing industry, providing real-time melt pool analytics. The software uniquely leverages thermal signatures to monitor the quality of each product part in the production process, layer by layer and in real-time, allowing operators to correct or stop production of a defective part - resulting in reduced error rates and higher yields. The software is currently being evaluated by tier-1 aerospace and OEM partners worldwide.

About the Fraunhofer IAPT Additive Alliance

The Additive Alliance of Fraunhofer IAPT is a leading network for additive manufacturing. Alliance members profit from the experience of the first industry and research network of its kind for additive manufacturing; combine knowledge from various fields of business and develop innovative solutions; find solutions along the entire process chain with more than 30 members contributing the necessary experience; get access to the online knowledge base of the Additive Alliance that contains the results and materials from all previous Additive Alliance events; and use the research possibilities of the network and actively design the collective research road map of the network.

About Sigma Labs

Sigma Labs, Inc. (NASDAQ: SGLB) is a leading provider of quality assurance software to the commercial 3D printing industry under the PrintRite3D® brand. Founded in 2010, Sigma is a software company that specializes in the development and commercialization of real-time computer aided inspection (CAI) solutions known as PrintRite3D® for 3D advanced manufacturing technologies. Sigma Labs' advanced computer-aided software product revolutionizes commercial additive manufacturing, enabling non-destructive quality assurance mid-production, uniquely allowing errors to be corrected in real-time. For more information, please visit www.sigmalabsinc.com.

Forward-Looking Statements

This press release contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (which Sections were adopted as part of the Private Securities Litigation Reform Act of 1995). Statements preceded by, followed by or that otherwise include the words "believe," "anticipate," "estimate," "expect," "intend," "plan," "project," "prospects," "outlook," and similar words or expressions, or future or conditional verbs such as "will," "should," "would," "may," and "could" are generally forward-looking in nature and not historical facts. These forward-looking statements involve known and unknown risks,

uncertainties and other factors which may cause the Company's actual results, performance or achievements to be materially different from any anticipated results, performance or achievements. The Company disclaims any intention to, and undertakes no obligation to, revise any forward-looking statements, whether as a result of new information, a future event, or otherwise. For additional risks and uncertainties that could impact the Company's forward-looking statements, please see the Company's Annual Report on Form 10-K (including but not limited to the discussion under "Risk Factors" therein) filed with the SEC on April 1, 2019 and which may be viewed at www.sec.gov.

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