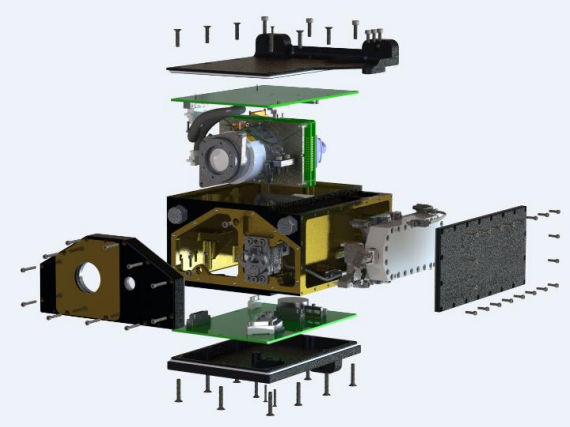
Advanced Scientific Concepts LLC.
135 East Ortega Street, Santa Barbara, CA 93101 . PH. 805-966-3331 . FX. 805-966-0059

ASC Supporting Boeing's CST-100 Starliner



Vision-Based Electro-Optical Sensor Tracking Assembly (VESTA) system, including the Light Detection and Ranging (LIDAR) Sensor developed by Advanced Scientific Concepts LLC., a supplier on Boeing's CST-100 Starliner.

Credit: Advanced Scientific Concepts, LLC.

Advanced Scientific Concepts, LLC. (ASC)

Description:

Headquartered in Santa Barbara, CA, Advanced Scientific Concepts, LLC. (ASC) was founded by Dr. Roger Stettner in 1987 to focus on emerging technologies in enhanced imaging applications.

Support for Boeing's CST-100 Starliner Program:

- In support of Boeing's Commercial Crew Transportation System (CCTS), called the CST-100 Starliner, ASC produces the Laser Detection and Ranging Sensor

    - The system captures both range and intensity, which allows for a wide range of use models. It will help guide the Starliner spacecraft toward the International Space Station, allowing it to rendezvous and dock to the orbiting laboratory with a crew on board for NASA missions.

General Capabilities:

The company's focus is 3-D Flash LIDAR™ technologies and cameras. Today, unique 3-D video cameras, built on ASC's patented technology, collect full frames (128x128 pixels) of 3-D point cloud data per single laser pulse (Flash LIDAR), up to 30 frames per second.

Its accurate 3-D representation of the scene includes range and intensity measurements displayed in real-time video imagery through any lighting conditions, day or night, with ranges from 5cm to 5km. The "framing camera" nature and real-time 3-D video output makes LIDAR ideal for moving-vehicle solutions, such as non-commercial autonomous vehicle, marine, aviation and spaceflight, as well as object capture, identification and mapping applications.

Interesting Facts:

- ASC's 3-D cameras have the equivalent of 16,384 range-finders on each sensor chip, allowing the sensor to act as a 3-D video camera with functionality well beyond just range finding.
- The 3D flash LIDAR system captures an entire frame of data from a single pulse of light, therefore, platform motion and vibration will not affect the real-time capture and measurements.
- 3D flash LIDAR requires no moving parts. It is smaller, lighter, requires less power, and is more rugged than scanning LIDAR cameras.
- 3D flash LIDAR is capable of mapping a half a million points per second with little external processing to generate the 128x128 range maps at 20Hz.
- ASC has demonstrated single-pulse 3-D Flash LIDAR imagery with a sensor capable of such a wide range of ranges from centimeters to kilometers.
  3D flash LIDAR has multiple wavelength options for its self-contained laser including an eye-safe wavelength (1.5 um).

- 3D Flash LIDAR has the ability to image through dust, fog, smoke and other obscurants.

Background:

- Founded 1987
- Privately Owned Small Business
- Approximately 50 employees

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Contact:

Michael Dahlin
Director of Business Development
Advanced Scientific Concepts
Office: +1 805-966-3331 Ext 105
MDahlin@asc3d.com

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