New Festo Brochure Reveals the Secrets of eMotionSpheres – an Autonomous Motion, Guidance, and Monitoring System

There are so many physical and computer integrated motion and tracking innovations described in the new brochure, it's a wonder there are only six pages and not sixty.

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HAUPPAUGE, NY, June 25, 2014 — The helium-filled beach-ball-sized eMotionSpheres performing a choreographed ballet above an atrium floor in a Festo video demonstrates a first-of-its-kind autonomous motion, guidance, and monitoring system.

A new six-page brochure details the underlying innovations of the Festo eMotionSpheres, including: indoor GPS tracking, three dimensional motion guidance, autonomous motion, physical and computer motion integration, energy saving alternatives to present systems, and an innovative adaptive propeller modeled after the wing of a dragonfly.

These Festo advancements may one day be applied in factories for safe and intuitive interaction between people and machines.

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The innovations may also be used for the guidance of autonomous vehicles in logistics and fulfilment applications. eMotionSpheres technology may be adapted to guide people through airports, convention centers, and other venues.

The eMotionSpheres demonstration system

The eMotionSpheres demonstration system consists of eight propeller-driven helium filled spheres, each 37.4 inches (95 cm) in diameter. Using the eMotionSpheres, Festo shows how several objects can be coordinated without colliding in a three-dimensional space due to multifaceted networking.

Ten cameras installed in the demonstration area record the location of the spheres via active infrared markers (infrared LEDs), embedded in each sphere, and pass on the position data to a central master computer. The calculated actions are sent back to the spheres, where they are implemented locally by motor-driven propellers. On the computer there are pre-programmed paths that specify the spheres' flight paths when flying in formation.

Additional stored behavior patterns enable the spheres to move autonomously through the space. There are no collisions even in chaotic situations. In one scene of the video, for example, an assistant holds onto a sphere and charges at the others, all of which move out of the way.

The knowledge gained in 2013 from work on the BionicOpter – bionic dragonfly – went into the design of the adaptive propellers. The propellers supply the same efficient thrust in both the forward and reverse direction. The spheres can be steered in any spatial direction to an accuracy of .4 inches (1 cm). In terms of power, the spheres regularly and autonomously dock at a charging station. They can be used as flying objects for several days without a person having to intervene.

For more information on the eMotionSpheres, including the video and brochure and other Festo Bionic Learning Network projects, call Festo at 800-993-3786 and visit http://www.festo.us.

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About Festo

Festo is a leading manufacturer of pneumatic and electromechanical systems, components, and controls for process and industrial automation. For more than 40 years, Festo Corporation has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment.

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