Autonomous Indoor Robotic Blimps (#7136)

An autonomous indoor robotic blimp with the ability to interact with humans

Researchers have developed a miniature autonomous blimp for use with research in the areas of human robot interaction, swarming, and environmental mapping and education. The blimp is comprised of an envelope with a saucer shape for stabilization along the two axes of rotation. The blimp also involves a gondola with four propellers and is driven by four motors to control the vertical and horizontal motion. The gondola harbors the electronics and electrical components including a processor, wireless communication module, camera, IMU (inertial measure unit), a battery and a sensor. The modular design of the blimp allows for various type of sensor attachments including range, light, humidity, sound, CO₂ etc.

Benefits/Advantages

- Miniature size and low cost
- Flight duration of more than 3 hours
- Safe interaction with humans
- Outstanding stability and maneuverability

Potential Commercial Applications

- Aerial Internet of Things (IoT) sensing platform
- Human robot interaction- facial recognition and recognizing human gestures
- Personal shopping aid in a supermarket
- Guiding groups in large public facilities
- Environmental mapping
- Surveillance, inspection of structures, and videography
- Scientific research and education

Background/Context for This Invention

Robotic platforms are an integral part of research and development in the field of autonomy, particularly with the advent of highly maneuverable and simple multi-copters (aerial vehicles). Limited flight time and safety of the personnel around multi-copters are the major concerns and limit the applications to mostly outdoors use of approximately 30 minutes. There is a need for technology with longer flight time and is safe for interaction with human beings.

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For more information about this technology, please visit:
https://industry.gatech.edu/technology/autonomous-indoor-robotic-blimps