Special Issue

Autonomous Navigation Systems for Unmanned Aerial Vehicles

Message from the Guest Editors

Autonomous navigation is a fundamental necessity for any application involving unmanned aerial vehicles (UAV). The global positioning system (GPS) and inertial measurements units (IMU), or their fused variant, the inertial navigation systems (INS), represent the most common approaches for addressing the problem of UAVs navigation. Nevertheless, cluttered, and GPS-denied, environments still pose a considerable challenge. Moreover, GPS-based navigation can be unreliable in several scenarios where precision maneuvers are required. Also, to control and navigate, UAVs require the use of several critical on-board sensors that can generate data enough to perform those tasks. The reading, treatment, processing, and understanding of this data in real time will be covered by this Special Issue. Finally, depending on the UAV usage, specific sensors and actuators will be needed to carry out the operation of the UAV. With these specific sensors and actuators, UAV can be used for many real applications, not only to carry cameras and taking pictures or movies. The proposal and use of new actuators on-board is of great interest in the robotics community.

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Deadline for manuscript submissions

closed (30 November 2021)

Electronics

an Open Access Journal by MDPI

Impact Factor 2.6
CiteScore 6.1

mdpi.com/si/25051

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