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Titolo	State Estimation and Control for Low-cost Unmanned Aerial Vehicles / / by Chingiz Hajiyev, Halil Ersin Soken, Stk Yenal Vural
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Soggetti	Aerospace engineering Astronautics Automatic control Signal processing Image processing Speech processing systems Aerospace Technology and Astronautics Control and Systems Theory Signal, Image and Speech Processing
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction to Unmanned Aerial Vehicles -- Equations of Motion for the UAV -- Navigation Systems for UAV -- Estimation of the UAV Dynamics -- Estimation of the UAV Dynamics -- Estimation of the UAV Dynamics in the Presence of Sensor Faults -- Estimation of the UAV Dynamics in the Presence of Sensor/Actuator Faults -- Fault Detection, Isolation and Data Fusion for the UAV Air Data System -- Stability Analysis for the UAV -- Classical Controller Design for the UAV -- LQR Controller Design -- Fuzzy Logic Based Controller Design.
Sommario/riassunto	This book discusses state estimation and control procedures for a low-cost unmanned aerial vehicle (UAV). The authors consider the use of

robust adaptive Kalman filter algorithms and demonstrate their advantages over the optimal Kalman filter in the context of the difficult and varied environments in which UAVs may be employed. Fault detection and isolation (FDI) and data fusion for UAV air-data systems are also investigated, and control algorithms, including the classical, optimal, and fuzzy controllers, are given for the UAV. The performance of different control methods is investigated and the results compared. State Estimation and Control of Low-Cost Unmanned Aerial Vehicles covers all the important issues for designing a guidance, navigation and control (GNC) system of a low-cost UAV. It proposes significant new approaches that can be exploited by GNC system designers in the future and also reviews the current literature. The state estimation, control and FDI methods are illustrated by examples and MATLAB® simulations. State Estimation and Control of Low-Cost Unmanned Aerial Vehicles will be of interest to both researchers in academia and professional engineers in the aerospace industry. Graduate students may also find it useful, and some sections are suitable for an undergraduate readership.
