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Sommario/riassunto	This book covers vibroacoustic monitoring, inertial attitude systems,

and control system for device processing in complex objects. Modern approaches to the synthesis of algorithmic support for a strapdown inertial attitude system are considered. The general characteristics of navigation systems and the composition of their inertial measurement unit are given. The methods of initial alignment of the system on a stationary base are described. Particular attention is paid to the attitude kinematic parameters of the body frame and methods of their numerical integration. Picard's methods for integrating the Bortz and Poisson kinematic equations are shown. An algorithm for a strapdown inertial attitude system based on using real signals of high-precision laser gyroscopes is proposed. System simulation was carried out using the proposed algorithmic methods. The relevance of the control system created for the processing device parts in the conditions of automated manufacturing is substantiated. Theoretical studies are presented, and the relation between electrical signals, the level of tool wear, and the main reasons for generating electrical signals are identified. A mathematical model of cutting tool wear control was developed based on measuring the variable component of cutting electromotive force. A control system for processing device parts on computer numerical control machines in automated production conditions has been developed. It allows for recording critical wear and breakage of the cutting tool, performing its dimensional adjustment directly on the device, and carrying out its industrial approval in flexible production systems.