

DRONES

Journey from First to Fifth Generation and Beyond

Authors:

Kaushik Kumar, Birla Institute of Technology Mesra, India

Arzu Eren Şenaras, Bursa Uludağ University, Turkey

Chikesh Ranjan, National Institute of Technology Rourkela, India

Onur Mesut Şenaras, Bursa Uludağ University, Turkey

Unmanned aerial vehicles (UAVs), or drones, are among the most transformative technologies of the 21st century, reshaping defense, industry, research, and everyday life. This comprehensive volume offers a global, interdisciplinary examination of drone technology, charting its progression from early radio-controlled aircraft to today's intelligent, autonomous systems.

Across nine concise chapters, the book delivers a clear, step-by-step understanding of UAV evolution, core engineering principles, and real-world applications. It spans the full arc of the drone revolution—from manually controlled prototypes of the early 1900s to fifth-generation, AI-driven swarms that define modern aerospace innovation. Each chapter integrates historical context, technical foundations, and forward-looking insights.

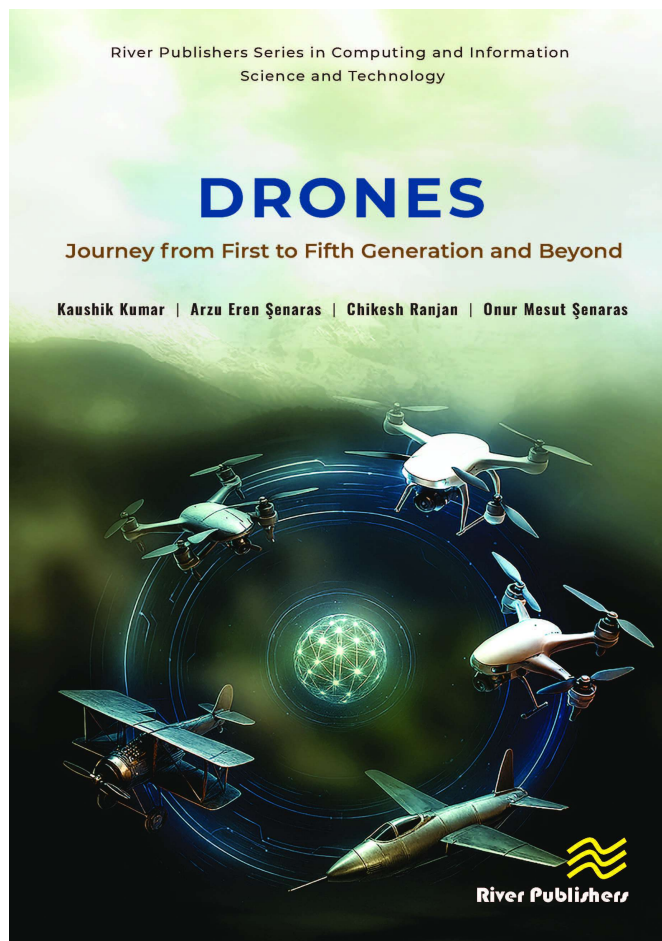
Key topics include:

- A chronological overview of UAV generations and their defining capabilities
- Aerodynamics, propulsion, control systems, and sensor integration
- Applications in defense, agriculture, logistics, environmental monitoring, and smart cities
- Advances in autonomy, artificial intelligence, swarm coordination, and quantum navigation
- Global perspectives on policy, ethics, sustainability, and emerging research.

Drawing on contributions from leading international experts, this book serves as a valuable reference for engineering students, researchers, UAV designers, policymakers, and industry practitioners. Authoritative and forward-thinking, it captures not only how drones have transformed the skies, but how they continue to shape the future of mobility, security, and sustainable technology.

TABLE OF CONTENTS

- Overview of Drone Technology
- First Generation Drones
- Second Generation Drones
- Third Generation Drones
- Fourth Generation Drones
- Fifth Generation Drones
- Key Challenges in Drone Evolution
- Evolutionary Impacts of UAVs on Modern Systems
- Future of Drones



River Publishers Series in Computing and Information Science and Technology

ISBN: 9788743812395

e-ISBN: 9788743812401

Available From: July 2026

Price: € 118.85

KEYWORDS:

Unmanned aerial vehicles (UAVs), drone technology and applications, autonomous and intelligent systems, aerial robotics and control engineering, artificial intelligence and swarm autonomy, smart cities and urban air mobility (UAM), defense, agriculture, and environmental drones, sustainable and emerging aerospace technologies.



www.riverpublishers.com
marketing@riverpublishers.com