SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+'
Grade Approved by AICTE, New Delhi & Affiliated to Anna University,
Chennai

DEPARTMENT OF AEROSPACE ENGINEERING

19ASZ301– ROBOTICS & AUTOMATION IN SPACE

III YEAR VI SEM

UNIT 5 –ROBOTIC APPLICATIONS IN SPACE

TOPIC - COBOTS IN AVIATION INDUSTRY

INTRODUCTION TO COBOTS IN AVIATION

Cobots (Collaborative Robots):

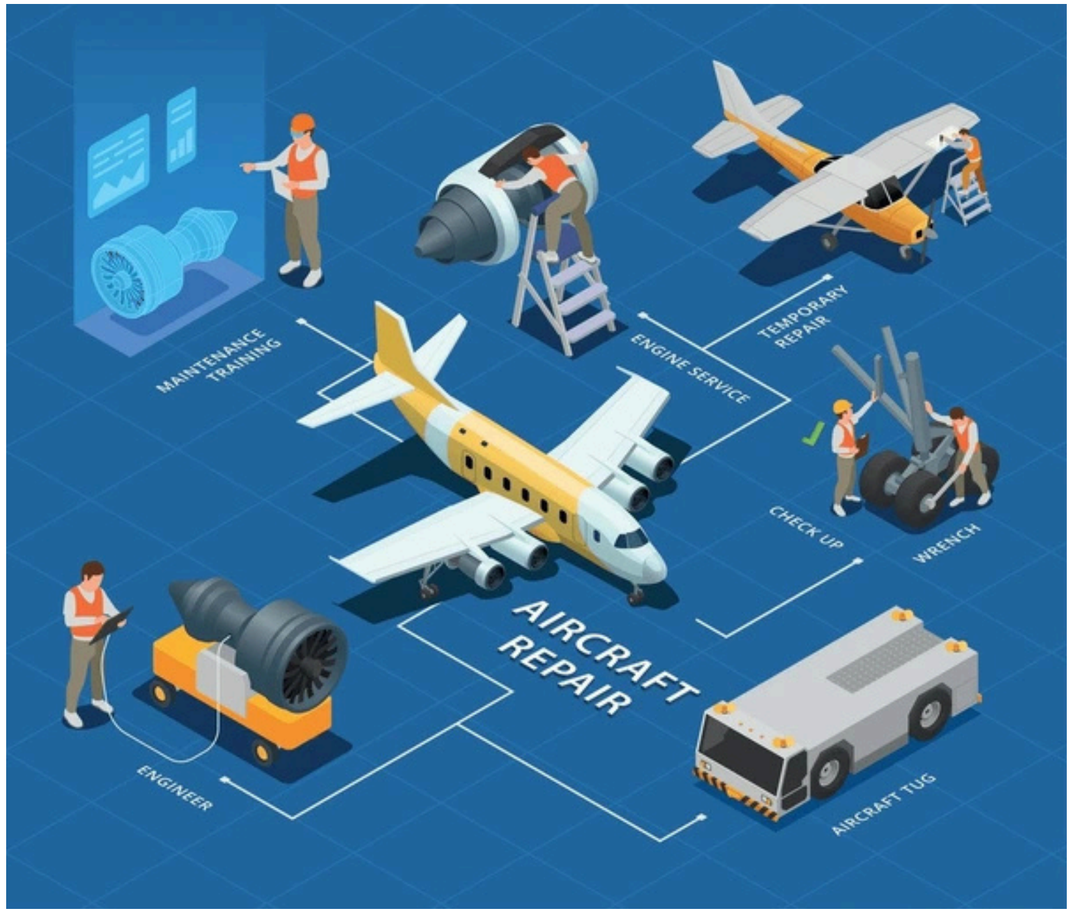
- Designed to work safely alongside humans in shared environments, unlike traditional industrial robots that operate in isolation.

Why Cobots in Aviation?

- Enhance precision and repeatability in manufacturing
- Reduce human fatigue and errors
- Improve safety and efficiency in complex tasks

Key Characteristics:

- Lightweight and compact
- Equipped with force sensors, vision systems, and AI
- Designed for safe human interaction



APPLICATIONS OF COBOTS IN THE AVIATION INDUSTRY

Application Area	Cobot Task	Benefit
Aircraft Assembly	Precision drilling, fastening, riveting	Reduces misalignment and rework
Inspection & Testing	Visual inspection using vision-enabled arms	Increases consistency and data logging
Maintenance	Assisting in engine/component inspection	Reduces technician workload
Surface Treatment	Sanding, painting, sealing	Uniform finish with minimal waste

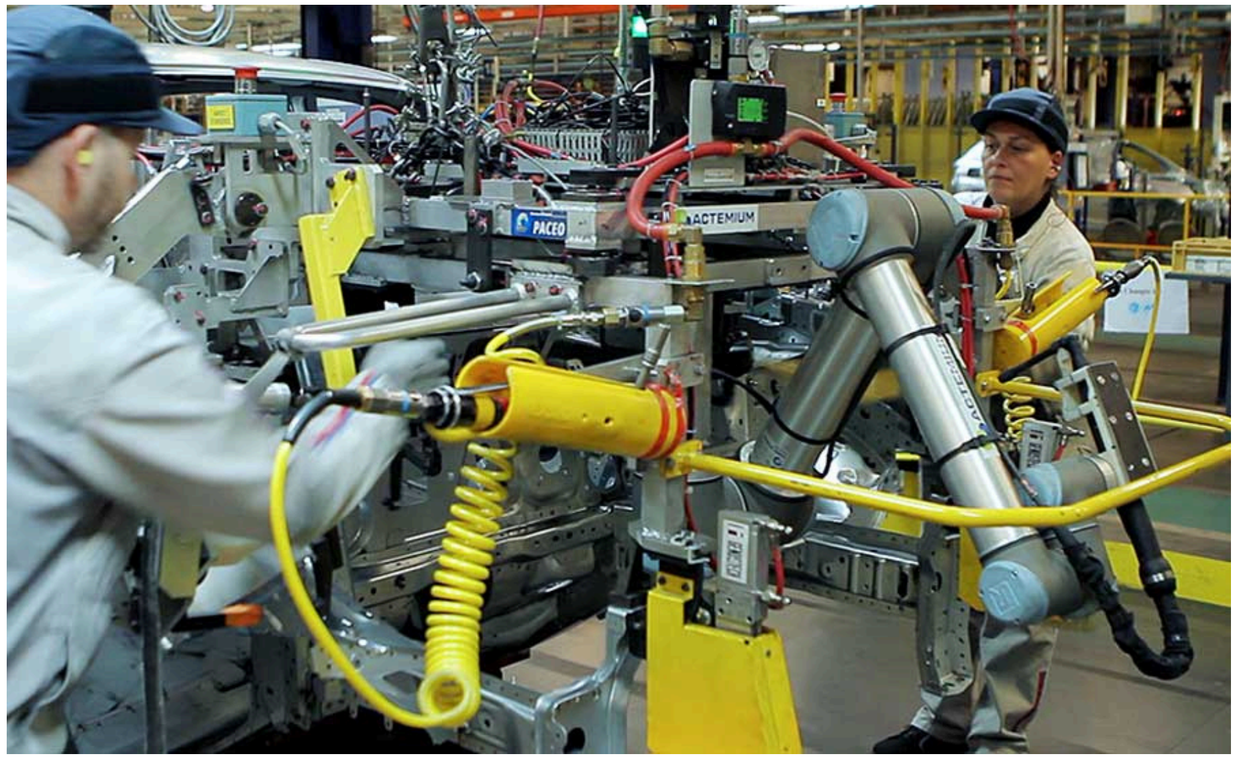
ADVANTAGES AND FUTURE OUTLOOK

Advantages of Cobots in Aviation:

- Increased productivity and safety
- Enhanced flexibility in multi-task operations
- Reduced training time and operational costs
- Ease of programming for low-volume, high-mix tasks

Future Prospects:

- Integration with AI and Digital Twins for predictive maintenance
- Swarm cobots for simultaneous task execution on large aircraft surfaces
- Real-time human-cobot cooperation for adaptive assembly lines



Thank You