

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

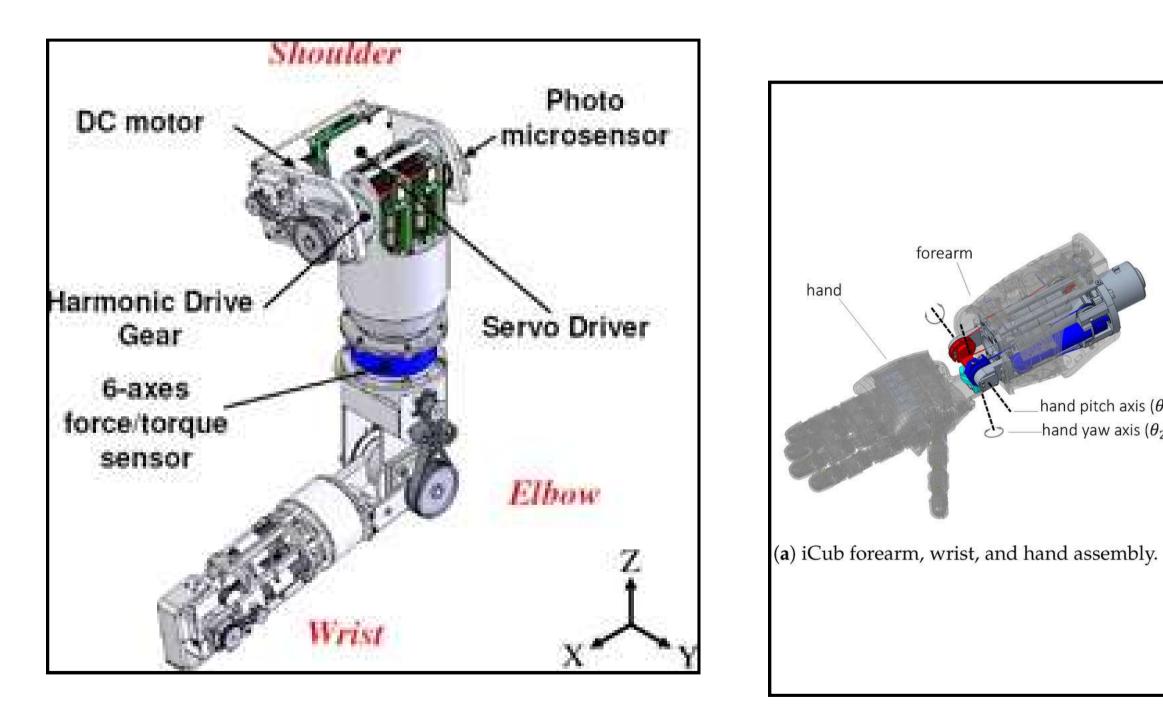
UNIT 2 – INTRODUCTION TO ROBOTICS

TOPIC - WRIST CONFIGURATIONS



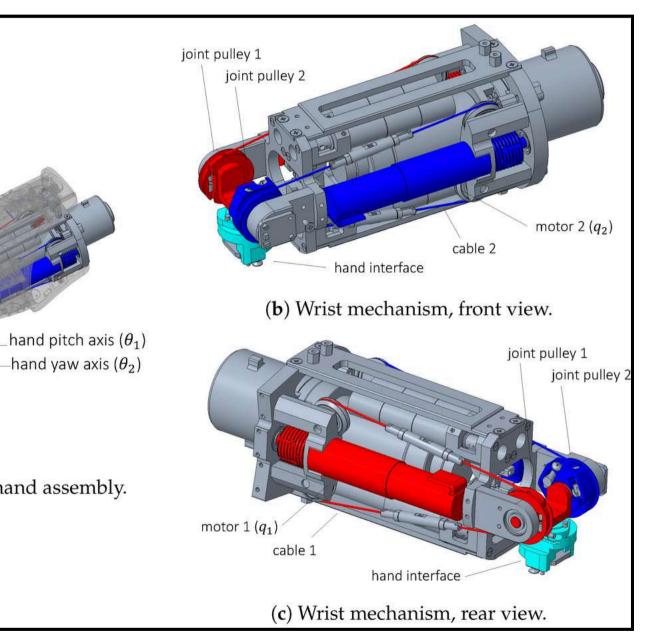


DIAGRAMS



INTRODUCTION TO ROBOTICS/19ASZ301 ROBOTICS AND AUTOMATION IN SPACE/RAMESH M/AERO/SNSCT



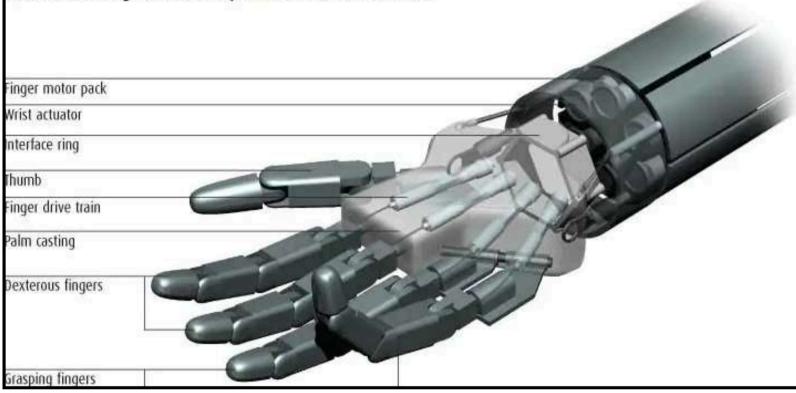




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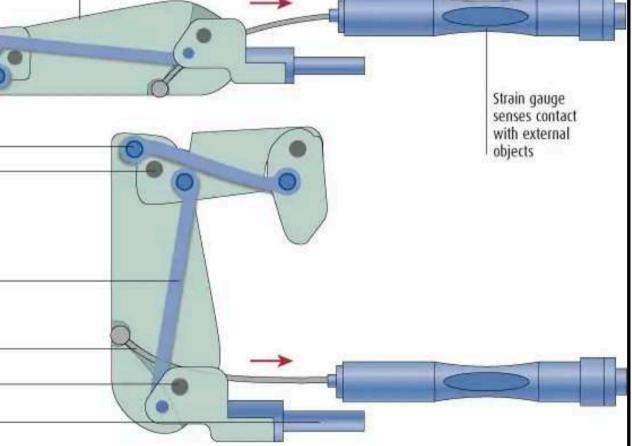
ANATOMY OF A ROBOT HAND

NASA's Robonaut is the world's most dextrous machine. Its human-size hand boasts 43 sensors and 12 independent directions of movement. Each finger is controlled by a different motor in the forearm



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Linkage pivots	
Position sensors track joint angles	
Internal linkages	
Finger drive cable	
Finger pivots Finger mount	







WRIST CONFIGURATIONS

Wrist Type	DOF	Motion Axes	Applications
Roll–Pitch–Yaw (Spherical wrist)	3	Rotation in all 3 axes	Welding, painting, precise manipulation
Roll–Pitch	2	Rotation in two axes	Assembly, less complex tasks
Roll only	1	Simple rotation	Conveyor alignment, positioning
Offset Wrist	3	Spherical, but offset from arm	Avoids collisions in tight spaces
Inline Wrist	3	All axes aligned with forearm	Simplifies programming, good for long reach

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Thank You

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