

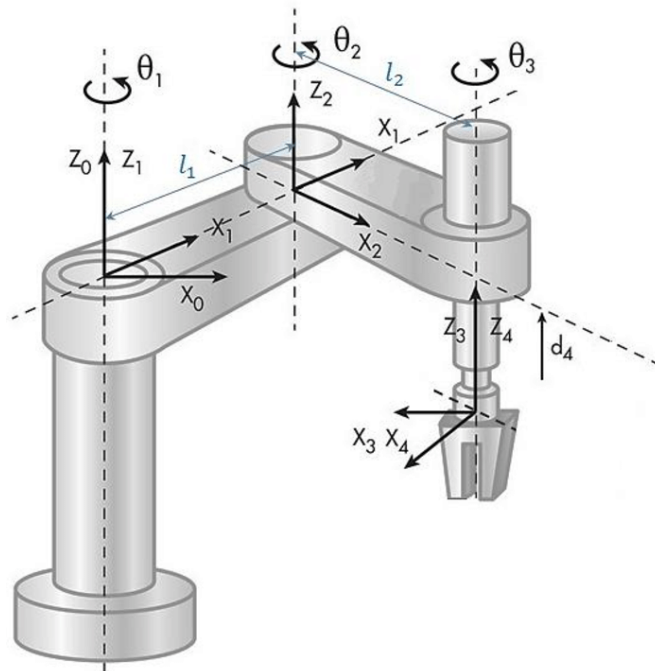
# Elec 391 - 2021

Project Description

Jan –Apr 2022

## SCARA Robot

Selective  
Compliance  
Assembly  
Robot  
Arm



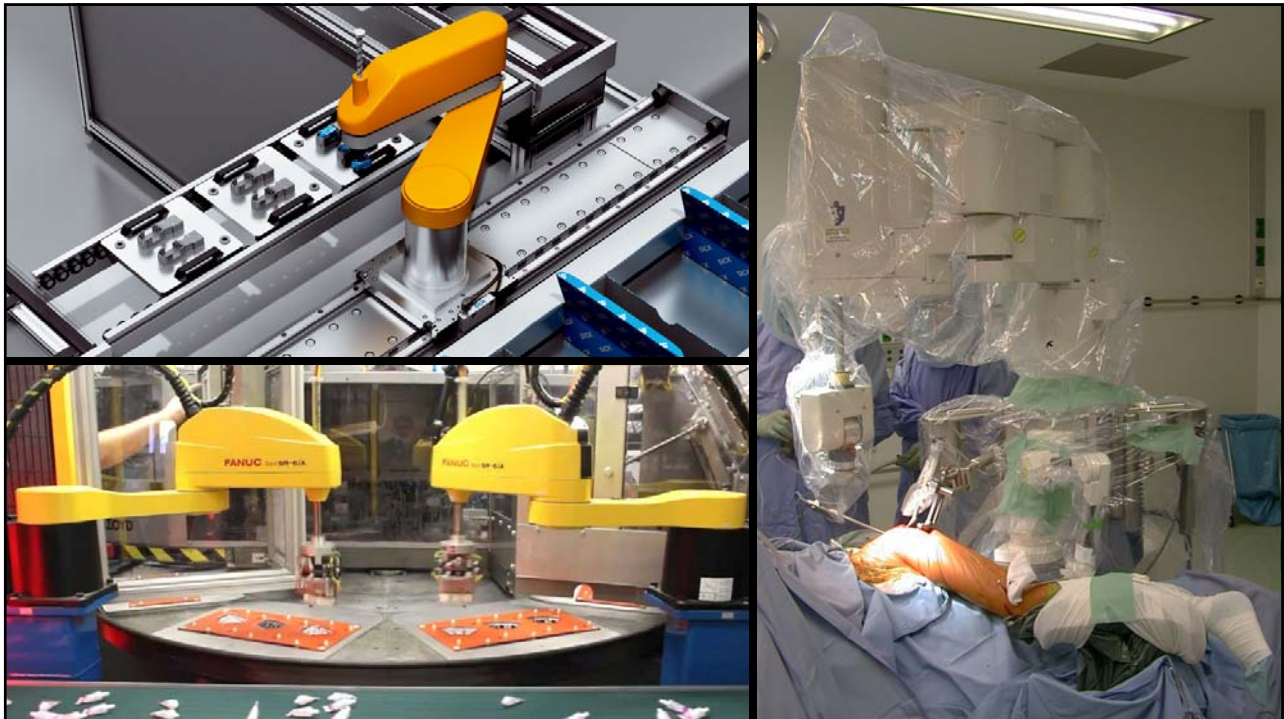
# SCARA

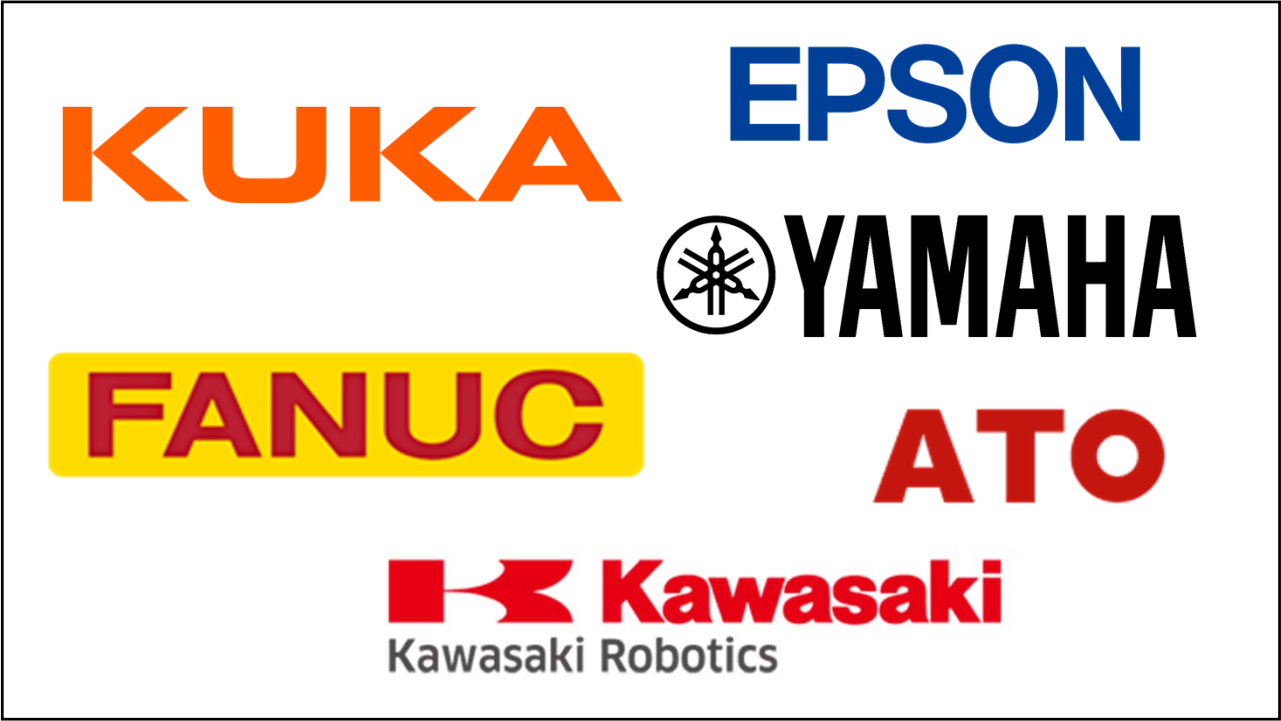
## Used For

- Assembly
  - Pick & Place
  - PCB stuffing
  - PCB soldering
  - Welding
  - Machining
  - Medical Robots

## Why


- 2-DOF  $\rightarrow$  6-DOF
- Fast
- Safe
  - Gravity






### SCARA Robots


With more than 300 models, including the T-Series, G-Series, LS-Series and RS-Series, Epson has the SCARA robot for your automation application.



#### YK-XG Series



#### Orbit type SCARA robots YK-TW



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PRODUCTS BY TYPE

☐ Robots (25)

ROBOT TYPE

☐ SCARA (25)

ROBOT SERIES

☐ SCARA G-Series (12)

☐ SCARA LS-B-Series (8)

☐ SCARA RS-Series (2)

☐ SCARA Syntha T-Series (2)

W/LOAD (MAX)

☐ Under 3kg (2)

☐ 3 - 5kg (7)

☐ 6 - 9kg (7)

☐ 10 - 14kg (5)

☐ 15kg + (4)


ARM LENGTH / REACH

☐ Under 500mm (8)

☐ 500 - 799mm (10)

☐ 800mm + (6)

CYCLE TIME




#### G1 Mini SCARA Robots - 175mm

G1 Mini SCARA robots are perfect for small footprint, tight payload applications where high precision, high speed, and high performance are required. Available 175 and 225mm arm lengths.

[Learn More](#)

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#### G1 Mini SCARA Robots - 225mm

G1 Mini SCARA robots are perfect for small footprint, tight payload applications where high precision, high speed, and high performance are required. Available 175 and 225mm arm lengths.

[Learn More](#)


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#### G3 SCARA Robots - 250mm


As the compact SCARA leader, Epson G3's are our 3rd generation of compact SCARA robots. High rigidity, high speed, and high flexibility are the trademarks. Epson compact SCARA's G3's are available in 200, 300 and 350mm arms. CleanESD also available.




Orbit type




Tiny type




Small type




**NEW** LOW COST HIGH PERFORMANCE SCARA ROBOT




Medium type



Large type



Wall-mount / Inverse



Dust-proof / Drip-proof

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## 75% → 2-Axis SCARA Arm

### Specifications

- Taken from commercial model
- Design competitive product

### Components

- Maxon motors
- McMaster Carr fasteners & OTS parts
- SolidWorks structural parts
- SolidWorks covers & custom plastics
- Integrated PCB
- Self-Contained with wall plug

### Design & Simulation

- SW parts & assemblies
  - Explosions
  - Animations
- Circuits & PCBs
  - Test Signals
- Matlab controller & SX
  - 10-step process
  - Step & Impulse response

## 25% → 1-2-Axis Distal Stage(s)

### Specifications

- Open ended
- Specify intended use

### Options

- Linear Stage (up/down)
- Rotary Stage (yaw)
- Both

### Time Mis-Use Penalty

- Negative marks for any work done without complete & working SCARA.