

Group7

National institute of technology
Toyota College

Presenter

○Koh Ohno
○Toshiki Mimura
Yu Yamauchi
Hayato Yokota
Akihiro Okita

Supervisor

Toko Sugiura

Theme 2

Relation between applications of
robots and their performance

1) Manufacturing use.

Back Ground of Searching

Today every automation is developed to make production efficiencies higher in food, medical and cosmetics industry.

Multi-axis manipulators might not fit for those industries because of the its working speed.

And now the parallel link robot –that can move really fast and accurate– is attracting a lot of interests.

Thus we decided to research in the specs of parallel link robots to get how it act in future.

Typical types of industrial robots



Vertical articulated robot



SCARA (Horizontal articulated robot)



Parallel link robot

Typical types of industrial robots

- **Vertical articulated robot**
 - Wide range of moving
 - Large of weight capacity
 - Easy to control
 - high versatility by an individual
 - Many companies develop hard
- **SCARA (Horizontal articulated robot)**
 - Wide range of moving
 - Large of weight capacity
 - Small size
- **Parallel link robot**
 - High speed
 - Good ability for repetition
 - Small size
 - Easy to get teaching
 - High durability
 - Low electricity consumption

Parallel link robots give faster speed and higher rigidity.

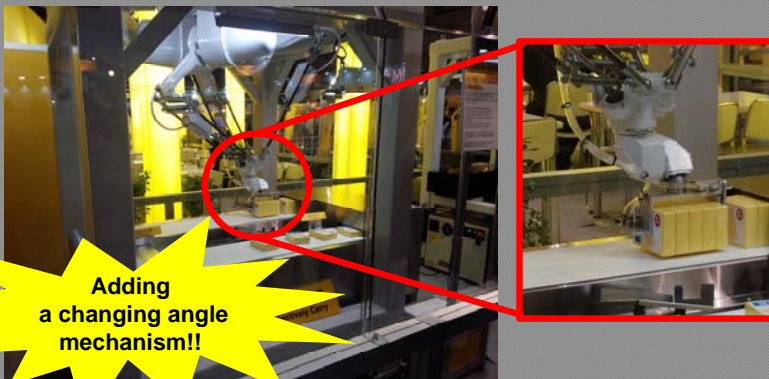
Learn more about Parallel-link robot



- Moves really fast.
- A large acceleration.
- Motion error is small.
- High maintenance.
- A simple structure.
- Needs of motor power isn't high.

Example:1

• Medical industry



Adding a changing angle mechanism!!

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Example:2

• Cosmetic industry



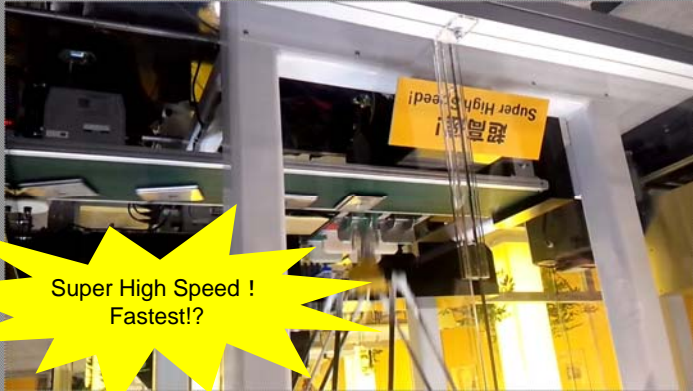
Adding changing angle

- ❑ Get packing work in accumulation device
- ❑ Load the arm that can catch five products at one time
↓
- ❑ It can deal with 500 products at one minutes
- ❑ Reduced setting space about 75%
- ❑ Packing potential improved 500%

Yaskawa electrical machinery & NIKKO Rotary Feeder

Example:3

• Food industry



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Example:4

- Cooperation of production line with IS systems.
- Fitted design for each products.
- Using stainless steels for to avoid insanitation problem.
- Structures for easy maintenance and washability.



Kawasaki heavy Industry:YF003N

Introduction of parallel-linked robots might be provide useful solution for a weak points of all vertical-robots in near future.

END

Thank you for your attention!