

Group 4

National institute of Technology  
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Theme 2 Manufacturing use

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# 産業用ロボットはどう使われているか？ What kind of field does industrial robot use ?

- Car and Related parts (自動車、自動車部品)
- Electronics and Mechatronics (電子・電気機械)
- Medical industry (薬関係)
- Cosmetic industry (化粧品)
- Food industry (食料品関係)

# Types of Industrial Robot 1

## Articulated robot

- The most famous industrial robot
- Mainly with 4~6axes
- Also with 7axes robots
- Use for carrier system of large casting and mold



## Selective Compliance Assembly Robot Arm

- Developed by Prof. Makino (Yamanashi Univ.) in 1980s
- assimilable for Horizontal error
- Use for assembling work of electronic circuits etc.



# Types of Industrial Robot 2

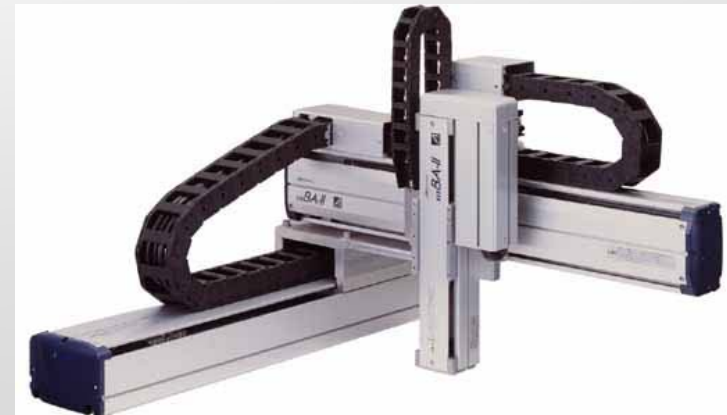
## Delta robot (Parallel manipulator)

- It overcome articulated robot's weakness
- High output and high precision
- Very quick!



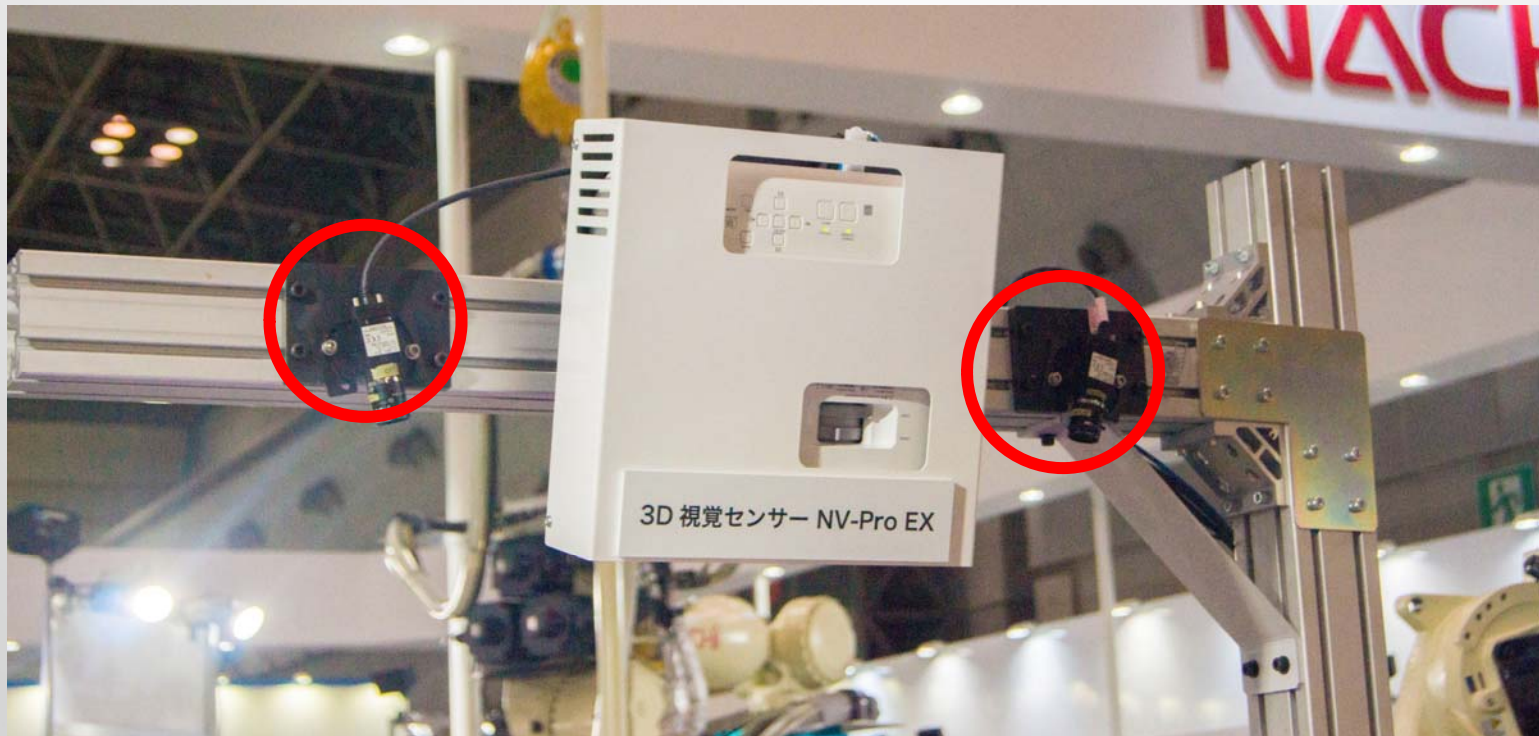
## Cartesian coordinate robot

- Consist of orthogonal 2 or 3 slide axis
- Manufacture of Semiconductor , medication

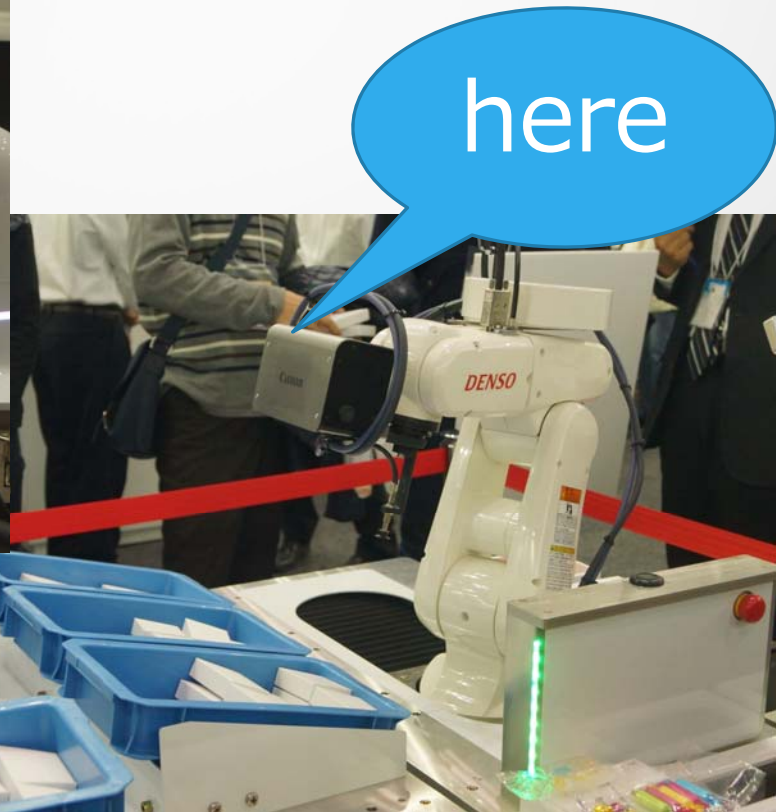


We found something in common!

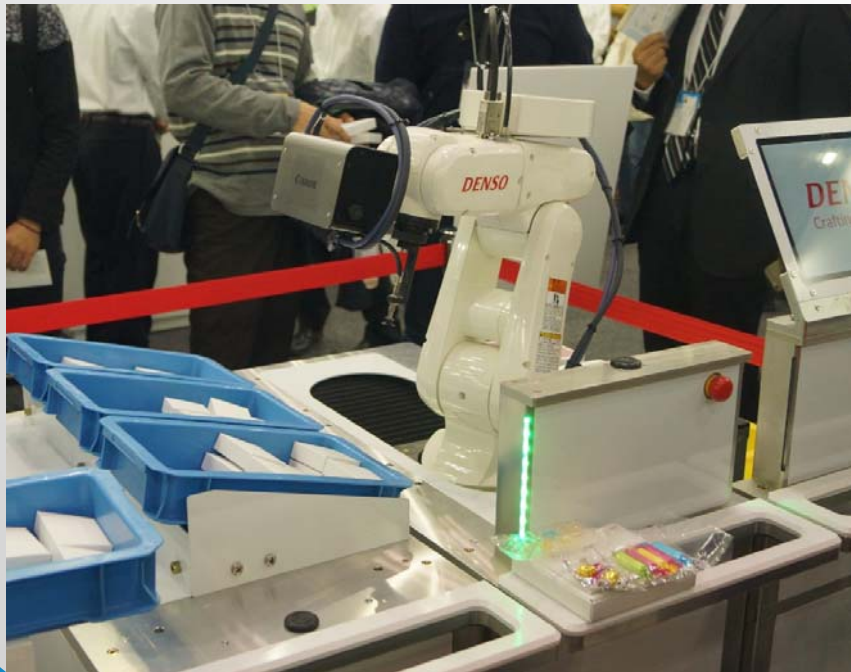
Most industrial robots have cameras!



Most industrial robots have cameras



# Practical example part 1



- Robot has a sucker in the tip
- AI calculate the center of gravity by using camera
- Robot take the sucker there

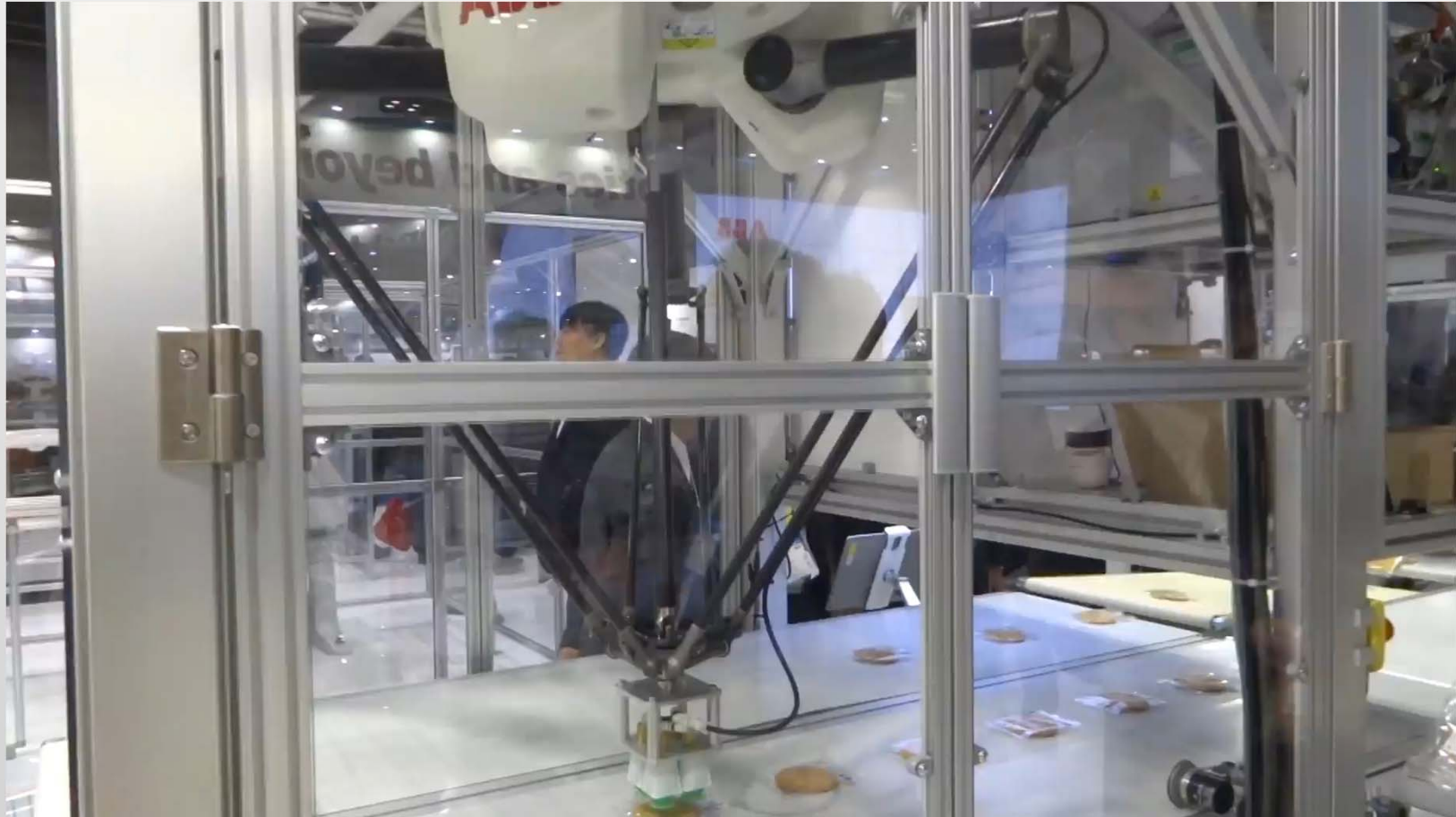
# Practical example part 2



- Robots are used as transporting method in the factory
- Cameras are also used for recognition of products



# Movie 1



# Practical example part 3



- Robot supports hard labor instead of human
- HMD(Head Mount Display) can share robot's vision
- Robot is able to trace human action in real time

# Movie 1




# Summary

- It is necessary to satisfy many requirements (multiplicity of use) for industrial robots
- Therefore, most of robots have articulated system, camera and AI
- We learned and found that the forefront and leading technology consist of these equipment at this iREX2017

# Acknowledgements



- We wish to express to our thanks to everyone concerned for giving us this opportunity



Thank you for listening