Joint development between Fuji and Albert to create an AI system for multi-joint robots that require no programming

Fuji Corporation (headquarters: Chiryu, Aichi, Japan; president & CEO: Mr. Nobuyuki Soga; hereafter called "Fuji") and ALBERT Inc. (headquarters: Shinjuku, Tokyo, Japan; president: Mr. Takeshi Matsumoto; hereafter called "Albert") are collaborating to develop a multi-joint robot that does not require teaching or programming by applying AI and deep learning technology to Fuji's multi-joint robot "SmartWing".
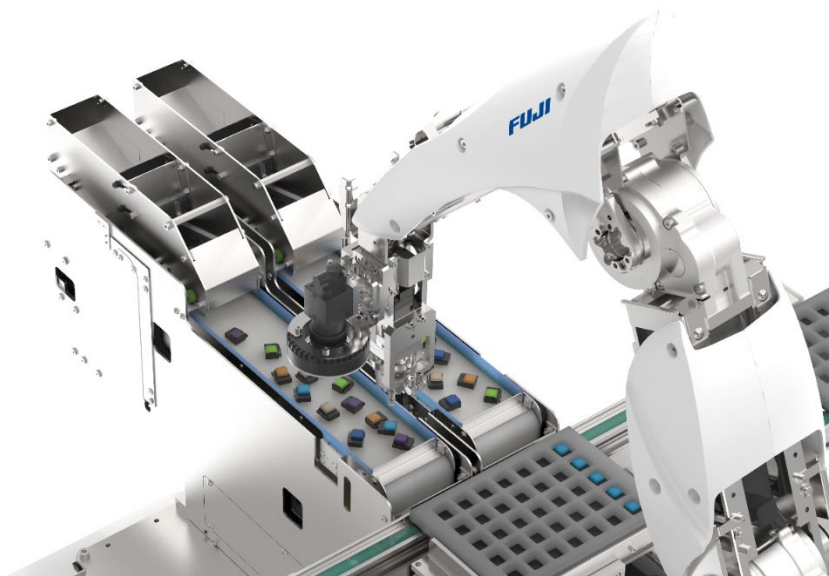
Compact multi-joint robot - SW-V1

Robots have recently been put to use in all kinds of areas within the manufacturing industry. The necessity for a multi-joint robot that can perform tasks while checking the shape of target objects using a camera is exceedingly high, as are the expectations for using such a robot in transporting and arranging parts, processing, and assembly.

Usually to be able to operate a robot using a camera requires programming for recognizing the shape of the target object and for the operation the robot is required to perform. However, such programming is complex and thus must be done by a skilled programmer. This can make it difficult to install robots to many locations.

The first stage of our joint development was to equip pre-trained models that employ AI and deep learning technology to the part recognition function for the SmartWing. The system was able to automatically recognize even those parts that were being seen for the first time using AI, making it possible to have part recognition without programming. This, coupled with SmartWing's existing technology that does not rely on

teaching, reduces the time it takes to ramp up SmartWing operation. It also allows for the flexibility to support changes in the product being manufactured. It has also become possible to have correct picking for the part stance by assuming the stance of the target object in 3D while using only a monocular camera. Because this makes the system less influenced by changes in the imaging environment such as in the tones and shadows, the robot can be used in various environments.

Fuji will be exhibiting a SmartWing with automatic part recognition at the 3rd RoboDEX Robot Development and Application Expo to be held at Tokyo Big Sight from January 16 (Wednesday) to 18 (Friday), 2018.

3rd RoboDEX Robot Development and Application Expo
Dates: January 16 (Wednesday) to January 18 (Friday), 2019 10:00 - 18:00 (17:00 on the final day).
Venue: Tokyo Big Sight, East Hall 1, (Booth: W5-10)
Free entry (prior registration required). Follow the link below to register.
https://contact.reedexpo.co.jp/expo/NWJ/?lg=en&tp=inv&ec=ROBO

Fuji, a company whose goal is to excite and inspire customers by continuing to provide world-class products and endeavor to deliver new-value in manufacturing, and Albert, a leading Japanese analytical data solutions firm focused on solving industrial problems through data solutions, are pooling their strengths and resources to propel the establishment of smart factories and bring innovation back into the manufacturing industry.

Fuji Corporation

Fuji has created many world-first and industry-first technologies, and contributes to the growth of many industries such as computing, mobile devices, automotive, and digital consumer goods through the provision of services and the development, manufacturing, and sale of SMT robots and machine tools. Fuji has also taken positive steps toward all-new fields with mobility support robots, locker delivery systems, and arm robots.

Company profile

Company name:	Fuji Corporation
Address:	19 Chausuyama, Yamamachi, Chiryu, Aichi Prefecture
Phone:	(+81) 566-81-2111, Fax: (+81) 566-81-8238
Established:	April 1959
Representative:	Nobuyuki Soga, President & CEO
Securities code:	6134 (Stock listed in the First Section of the Tokyo Stock Exchange and Nagoya Stock Exchange)
Business divisions:	Manufacturing and sales of SMT robots and machine tools
URL:	https://www.fuji.co.jp/e/

ALBERT Inc.

Albert provides optimal solutions within the field of big data analytics as a leading Japanese analytical data solutions firm (Note). Using the analytical technologies that are the company's core, Albert is aiming to become an even greater presence as a company by offering data solutions such as big data analysis, analysis consultation, AI algorithm development and system implementation, and other individual products that incorporate AI. With a lot of focus being placed on the use of AI across many fields, Albert is contributing to cultivating professionals who are proficient at handling data, and supporting up and coming data scientists using the knowhow Albert has built up over time.

Note: Professionals that create value from data to solve the challenges faced by businesses.

Company profile

Company name:	ALBERT Inc.
Address:	Shinjuku Nomura Building 15F 1-26-2 Nishi-Shinjuku, Shinjuku-ku, Tokyo, Japan 163-0515
Phone:	+81-3-5909-7525 / FAX: +81-3-5909-7569
Established:	July 1, 2005
Representative:	Takeshi Matsumoto, President
Securities code:	3906 (Stock listed in the Mothers of the Tokyo Stock Exchange)
Business details:	Data solutions

- Big data analysis
- Analysis consultation
- AI algorithm development
- Standalone projects using AI
- Data scientist education

URL:	https://www.albert2005.co.jp/english/

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