MELTIN Announces the MELTANT-β Avatar Robot

MELTIN MMI (Head office: Chuo Ward, Tokyo, CEO: Masahiro Kasuya, hereinafter MELTIN) announces the “MELTANT-β” (Meltant-Beta) avatar robot.
MELTIN announced MELTANT-α in March of 2018. The alpha version was a concept model, developed using the company’s knowledge of cyborg technologies. MELTANT-β is an enhanced model that incorporates feedback from the company’s customers and partner firms. The new beta version is designed to be field tested in actual working environments.
The new model will be used for verification and testing purposes by private companies and government organizations who are considering utilizing MELTIN’s technologies in hazardous work environments. These could include temperature extremes, or environments containing dangerous chemical, biological, or radioactive substances.

▼ Promotion Video for MELTANT-β
https://youtu.be/Qe66afjYXpk

Overview of MELTANT-β

The MELTANT-α concept model used cable-driven operating mechanisms and was designed to draw attention to MELTIN's core technologies. MELTANT-β continues to use the same mechanisms but incorporates practical solutions aimed at working environments, including protection against dust and sparks. These improvements allow MELTANT-β to perform tool-based work processes.
There are significant enhancements between the two models. Improvements in the beta include increased mobility, haptics that allow for actual sensations to be felt (alongside the alpha model's pressure sensing), increased gripping strength and freedom of movement, and resistance to dust. Optimizations have also been made to the routing of cables to increase flexibility and reduce the chance of being caught by edges.

All of the above results in multifaceted improvements such as:

- Hand versatility (power, fluidity, freedom of movement, etc.)
- Robustness (dust and drip resistance, durability of materials, etc.)
- Mobility (omnidirectional movement, movement characteristics, speed, etc.)
- Operability (visual clarity when using VR interfaces, real-time operability, haptics)

Use Cases

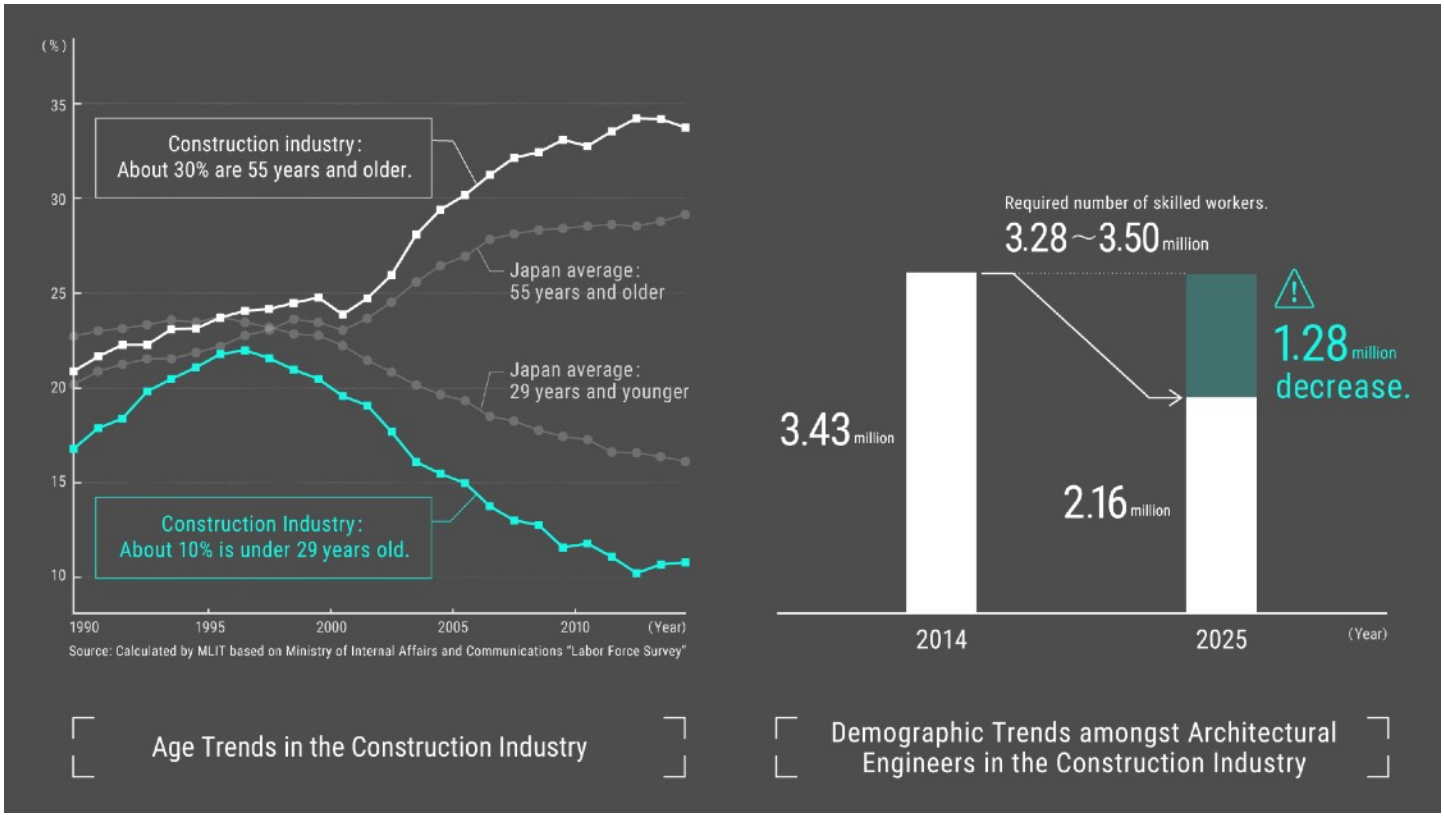
Resolving Labor Shortages in the Construction Industry

MELTANT-β's practical utility can be seen through the progress MELTIN has made with partnerships in the construction industry.
As a whole, society is facing major issues such as laborers shifting from secondary to tertiary industries, as well as worker shortages due to declining birthrates and aging populations. The construction industry, in particular, is facing many serious issues related to these shortages, including:

1) Fewer recruits due to harsh working environments (dust, noise, vibration, physical effects of high heat/humidity/heat stroke, risk of injuries or accidents, etc.)
2) Experienced workers with advanced knowledge and skillsets growing older and retiring

Working at a construction site requires the ability to make detailed confirmations and flexible decisions. A high level of experience is also needed. Robots that can only repetitively perform tasks they are certified for are not suitable for these situations. We believe that MELTANT-β will be able to supplement the labor shortages faced by the construction industry, improving productivity. MELTANT-β provides the following, specific solutions to this issue:

1) The ability to work from a safe and comfortable environment, reducing the threshold for entering the industry, and easing labor shortages.
2) As physical strength is not required to operate avatar robots, it opens up these roles up to elderly specialists which also allows them to train and educate new employees.
3) The ability to switch between avatars in several environments ensures optimal use of resources, allowing one operator to work in multiple areas.



Strategy

Development and Market Entry of a Mass Production Model

MELTIN plans to use the results of field tests performed with MELTANT-β to develop a practical mass production model, which will be gradually introduced into the market. The company is constructing a business model that allows for swift responses to customers' needs. This model will use MELTIN-developed designs as a base that can be customized for a variety of purposes. MELTIN's strategy for developing a practical mass production model and introducing it to the market is as follows:

1. Maximizing Costs vs. Benefits

There are numerous difficulties involved in introducing traditional robots to the market. These difficulties include manufacturing and maintenance costs, as well as the relatively low capabilities of these robots. The MELTANT series utilizes MELTIN's technologies and focus on remote operability. MELTIN remains aware of the social backgrounds of differing industries, while focusing on general-purpose work performance and creating improvements that enable mass production and easy maintenance. All of these aspects will contribute to maximizing costs versus benefits for customers.

2. Expansion of Functionality

Future development will focus on strengthening functions that provide the following practical benefits:

1) Mobility on uneven surfaces
2) Ability to cope with dust, contaminated water, mud, etc.
3) Ability to cope in environments with weak transmission signals
4) Ability to deal with dangerous situations, including heat, explosions, and radiation
5) Further improvements to power and speed

3. Mass Production

The following actions will allow for mass production to be realized :

1) Acquisition of partners for verification tests and expanded use cases
2) Deeper connections with businesses that possess manufacturing technologies and production facilities
3) Planning and testing for mass production
4) Selection of suitable materials for mass production and ensuring quality control

4. Business Benefits

Businesses can expect the following benefits when introducing mass-production models:

1) Reduced direct employment costs
2) Reductions in recruiting and training costs
3) Reduced labor risks
4) Reduced need for workers to be present in dangerous environments
5) Reductions in physically demanding work processes, leading to an increase in applicants
6) Reduced time/employment costs relating to remote work

5. Partnerships

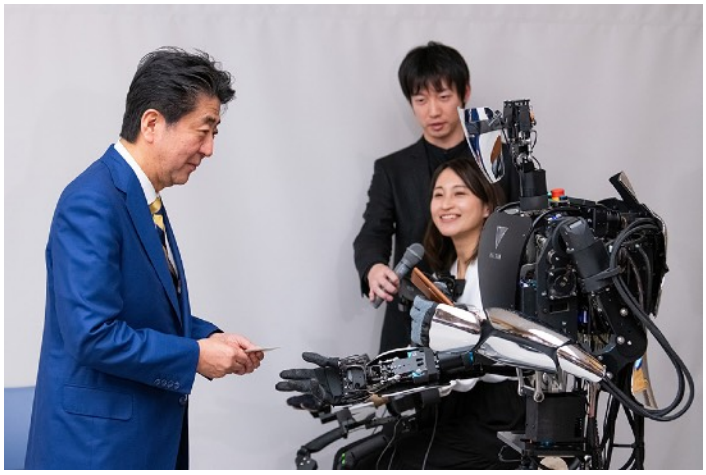
Over the past year, MELTIN has conducted demonstrations at major events such as the G20 Osaka Summit, the Moonshot International Symposium, and the Council for Science, Technology and Innovation held at the Prime Minister's official residence (See "MELTIN's One-Year History" below for details). The positive feedback we received from many government officials and industry leaders makes us feel that MELTANT's applications will bring about fundamental changes to the concept of "labor," leading to the creation of a new economic system.

MELTIN is searching for partners who need to perform general-purpose work in hazardous environments/remotely, and who can perform on-site verifications using our technology. We are also aiming to create new value through promoting partnerships with businesses/groups facing difficulties that only MELTANT can solve.

MELTIN's One-Year History

1) Participated in "The Rise of the Robots 2019" a Japan/US event held in Silicon Valley (June 18, 2019)
2) MELTARM was exhibited at the "JAPAN INNOVATION LOUNGE - SOCIETY × INNOVATION" held as part of the G20 Osaka Summit (June 28, 2019)
3) A dynamic exhibit of MELTANT-α was held at "GITEX Technology Week 2019" (October 10, 2019)
4) The MELTANT-α avatar robot was present at the "Moonshot International Symposium" (December 20, 2019)
5) MELTIN and Mitsui Sumitomo Insurance begin joint efforts to develop "Avatar Robot Insurance" (December 27, 2019)
6) The avatar robot MELTANT-α makes an appearance at the Prime Minister's official residence (January 23, 2020)

4) The MELTANT-α avatar robot was present at the “Moonshot International Symposium” (December 20, 2019)



6) The avatar robot MELTANT-α makes an appearance at the Prime Minister’s official residence (January 23, 2020)

MELTIN MMI Co., Ltd. (MELTIN)

MELTIN aims to create advances in bio-signal processing and robotics through the research and development and commercialization of medical devices and avatar robots. One of our primary goals is the realization of cyborg technologies such as artificial bodies and brain-machine interfaces. MELTIN’s vision is the creation of a world where humans can overcome the limitations of their bodies through these technologies, allowing for everyone to realize their dreams.
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Inquiries

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