



Press release

June 15, 2017

CYBERDYNE, Inc.  
MIRAISENS, Inc.

CYBERDYNE, Inc. and MIRAISENS, Inc. form a business and capital alliance  
~ Utilization of 3D Haptics Technology in Cybernics to promote realization of "Society 5.0"

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CYBERDYNE, Inc. (Head office: Tsukuba, Ibaraki, JAPAN, President and CEO: Yoshiyuki Sankai, hereinafter referred to as "CYBERDYNE") and MIRAISENS, Inc. (Head office: Tsukuba, Ibaraki, JAPAN, CEO: Natsuo Koda, hereinafter referred to as "MIRAISENS") have formed a business and capital alliance (CYBERDYNE invests in MIRAISENS) to jointly develop applications of 3D Haptics Technology in the field of Cybernics\*<sup>1</sup>.

Through this alliance between the two companies, they will comprehensively collaborate to apply MIRAISENS's world's first 3D Haptics Technology that was made possible by controlling ingeniously cognitive processing of human being, in CYBERDYNE's innovative Cybernic technology, not only to advance the existing systems but also to create various cutting-edge devices that realize realistic user experience in virtual space, and to promote their social application, in various fields such as medicine, care service and living support (including labor support). Based on Cybernic technology, fusion of the cyberspace (virtual world) and physical space (real world) created by the use of 3D Haptics Technology will lead to the realization of "Society 5.0"\*<sup>2</sup>. There, even if the society faces the progress of hyper-aging society, people can overcome various physical limitations and live vigorously and comfortably by the support of technology.

Cyberdyne will continue to provide support to startup companies hold good technologies and prospect, such as MIRAISENS, in R&D, clinical researches, process to obtain various certifications, applications for insurances, strategies on intellectual properties, financing, IPO and business development in global scale and others, which the company has accumulated know-how on, so that "Society 5.0" can be realized.

\*1 Cybernics: A new academic field that is centered around human, robots and information systems. Targeting medicine, welfare and living support fields (including labor support) as its main industries,. It fuses and combines the functions of humans, robots and information systems, realizing interactions



between physical-information-vital systems. Cybernetics is championed by Dr. Yoshiyuki Sankai, a professor at the University of Tsukuba (he is also the President and CEO of CYBERDYNE) and the technology is thought to be one of the core technical domain that drives the movements to realize “Society 5.0”. Cybernetic technology means practical application of Cybernetics

\*2 Society 5.0: a concept of super-smart society of the future, promoted by the Japanese government. It is the fifth society after “hunter-gatherer society (Society 1.0)”, “agricultural society (Society 2.0)”, “industrial Society (Society 3.0) and “information society (Society 4.0)”. It is a new image of a society brought by science and technological innovation, where technologies such as artificial intelligence (AI) and Internet of Things (IoT) will be fully implemented into the society. It was stated in the 5<sup>th</sup> Science and Technology Basic Plan that Japan is going to start their endeavor ahead of other countries to realize this society. As Japan was the host of the G7 Meeting that was held in May 2016, Japanese government projected this concept to the world as the ideal future society where humans and technology coexist. As one of the major power force driving the endeavors to realize “Society 5.0”, CYBERDYNE contributed to the G7 Science and Technology Ministers’ Meeting that was held in Tsukuba, Ibaraki, Japan as CEO Yoshiyuki Sankai presented a keynote speech as well as a speech addressing the ministers at the meeting. CYBERDYNE also hosted a group of representatives from the G7 countries to visit CYBERDYNE’s headquarters.

#### <About CYBERDYNE, Inc.>

Since CYBERDYNE, Inc. was established as a venture company from the University of Tsukuba in 2004, the company has promoted the comprehensive development of various Cybernetic systems (Cybernetic devices, Cybernetic interfaces, etc.) that utilize Cybernetic technology from research and development to social implementation, aiming to tackle the various issues facing society. The company has developed business in the fields of medicine, welfare and daily living (including the work environment), and its main product robot suit HAL® is widely distributed not only in the medical and welfare fields but also in care support and labor support fields. In addition, new products such as Transport Robots and Cleaning Robots equipped with artificial intelligence and environment recognition functions, HAL (Lumbar Type) that reduces the load and stress on the lower back, smaller-sized HAL (Single-Joint Type), vital sensors for detecting arteriosclerosis and arrhythmia measurements, etc. are continuously being developed.

For more details, please refer to the following website: [www.cyberdyne.jp](http://www.cyberdyne.jp)

#### <About MIRAISENS, Inc.>

MIRAISENS was established as the world’s first “Experiencing Business” company and a spin-out startup from National Institute of Advanced Industrial Science and Technology (“AIST”), in April, 2014. MIRAISENS, Inc. bases its business on 3D Haptics Technology (30 patent applications have been filed worldwide and 19 of the patents have been accepted), developed as an outcome of over 15 years of individual and original research of Dr. Norio Nakamura, Senior Research Scientist, AIST. Research and development have been conducted with the support of AIST, leading to the practical application of innovative “3D Haptics Technology” that could represent touch sensation, weight and resistance sensation of virtual object on flat-panels, in the mid-air etc., as if they are really there. Furthermore, MIRAISENS works on their original haptics devices (actuators), micro-controllers, implementing technologies and various surrounding



technologies. These developments allow MIRAISENS to offer new ways to enjoy the digital contents by fusing the virtual world and real world.

Major business line of MIRAISENS is to research and develop 3D Haptics Technology as well as to provide integrated solutions such like middleware, data-base and authoring tools to accelerate the developing of various haptics products, contents and services. The possibility of practical applications is absolute infinite, which spreads over wide variety of fields such as VR, AR, video games, mobile, IoT, electric appliances, vehicle equipment, robotics, medicine, welfare and next generation of remote communication. MIRAISENS will promote this cutting edge world-wide “Experiencing Business” in global scale.

For more details, please refer to the following website: <http://www.miraisens.com/>

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