(Fiscal Year 2004-2008)

Life Sciences IT Environment Nanotech/Materials

Gifu/Ogaki Robotics Advanced Medical Cluster

Gifu/Ogaki

Creating medical and care-related industries based on well-known technologies of robotics, information technology, and virtual reality in the Gifu and Ogaki regions

Cluster Vision

Japanese medical care in the 21st century requires quality and safety from the patient perspective, while viewpoints from the medical perspective and those of the Japanese national government are for increased effectiveness and reduced cost of medical care.
In fulfilling the vision that inspires the Robotics Advanced Medical Cluster, we engage in actualizing advanced medical diagnoses, sophisticated medical devices, and quality medical care. We pursue the research and development of medical education and training systems that are effective in disaster response and prevention, including health, welfare, and nursing care support systems. It is our aim to establish a technical innovation cluster by integrating fields of medicine and engineering, based on the technological capabilities of industries located in the Gifu and Ogaki regions related to robotics, information technology, and medical education.

Project Overview

Companies both within and from outside the area have gathered and participated in this project using the area's prominent research potential, potential as a core, including robotics, virtual reality technology, information technology and other relevant capabilities, in order to promote the research, development, and commercialization of systems ranging from medical education to practical medical and nursing care applications.

(1) Establishing a system to promote cooperation among industry, academia, and government in order to construct an integrated cluster
In addition to promoting the sophistication and accumulation of robotics-related industries in Gifu Prefecture, we have been proactively establishing a system that supports cooperation among industry, academia, and government.
Working primarily with the Gifu Prefecture Robotics Industry Promotion Council that aims to construct area seedbeds (robotic clusters) to create the next-generation robotics industry that is expected to realize significant future growth, we have continued to support systems for commercialization among 49 relevant companies within and outside the area, and establish a network of cooperation featuring industry, academia, and government via study groups for businesses providing support for life and care, and of medical and welfare devices.

(2) Promoting commercialization and forming ventures with the purpose of establishing business clusters foundation
By setting goals for commercialization based on medical and nursing needs, and promoting the joint study of medicine with engineering and industry with academia using commercialization road maps, we have promoted speedy technology transfers, successfully commercialized innovations, and proactively promoted the creation of business ventures in universities.

(3) Establishment of the internationally superior integration of intelligence
By promoting research and development, mainly involving cooperation between wide-ranging fields of medicine and engineering, we have achieved results in sophisticated, advanced research and development of myriad study themes, and promoted the establishment of the internationally superior integration of intelligence.

Project Director
Satoshi Nishimura

Satoshi Nishimura is a former R&D Lab Directing Manager of the Multimedia Company at SANYO Electric Co., Ltd.

New Industries Based on Medicine, Health, and Welfare

Based on core technologies in the Gifu and Ogaki regions and thanks to the massive efforts and support from many companies, universities and research institutions, municipal governments, and related government offices, the Robotics Advanced Medical Cluster of the Gifu and Ogaki regions, which aims to create a new industry of advanced medical devices, has made great efforts and will soon complete its first stage.
Following are some results of this cluster project:
(1) Establishment of a system of cooperation in this area featuring industry, academia, and government, such as study groups and networks aiming to develop future clusters.
(2) These study and development results have guided many businesses (25 cases) and ventures under university research initiatives (8 companies), and established a foundation for future business development.
(3) The study and development results have accumulated in the form of integrated intelligence of internationally superior high technology, such as patents (258 applications) and expertise that have become a technical foundation for the development of future businesses.
In addition to these achievements, further effort is required by us in order to ensure this cluster becomes entrenched in the area and propagated as a new industry. The achievements and technological seeds that have been cultivated in this cluster will be succeeded by the City Area Program (currently in the development stage). We expect that the Advanced Medical Cluster of the Gifu and Ogaki regions will be promoted further by these activities.

Cluster Headquarters

○President……Toshio Kinjo
(Professor Emeritus, Gifu University)
○Advisor……Hideki Mori
(President, Gifu University)
○Project Director……Satoshi Nishimura
○Chief Scientist……Hirofumi Takemura
(Professor, Gifu University)
○Deputy Chief Scientist……Masakatsu Fujie
(Professor, Waseda University)
Yasutomi Kinosada
(Professor, Gifu University)
○Science and Technology Coordinators…Akihiko Takiguchi, Shuji Yanase, Hiroshi Asai

Core Organization

Gifu Research and Development Foundation

Participating Research Organizations (Bold: Core Research Organization)

Industry…MICRO DIGIT Co., Ltd., SHINKO OPTICAL Co., Ltd., TALKENG Co. Ltd., TYK Corp., CMC Technology Development Co., Ltd., ASKA Corp., MIYASAKA RUBBER Co., Ltd., Kyoto Kagaku Co., Ltd., iXs Research Corp., SEGA Corp., Sumiiryouki Co., Ltd., Sakamoto Model Corp., Medical ai, Ltd., Simulation medical education Co., Ltd., Koshin Planning Co., Ltd., Jemsis Corp., Urimina LLC, Electric Sheep Co., Ltd., Mould Planning HANADA, CLINICAL SUPPLY CO., Ltd., EBM Co., Ltd., TOKI Corp., TAK Co., Ltd., KOWA Co., Ltd., ALOKA Co., Ltd., KONICA MINOLTA MEDICAL & GRAPHIC, Inc., SANYO Electric Co., Ltd., InfoFarm Co., Ltd., Densan System (DSK) Co., Ltd., Shouei Electronics Industry Corp., NIHON KOHDEN Corp., Takou Co., Ltd., Parama-Tech Co., Ltd., ESP Planning Co., Ltd., RIKEN-SANGYO Co., Ltd., Encephalon Co., Ltd., Industrial arts FUYOU Co., Ltd., Activelink Co., Ltd., Man-Machine Synergy Effectors Co., Ltd., MIZUNO TECHNICS Corp., Marutomi Seiko Co., Ltd., Uchida Alumi Ind. Co., Ltd., Asahi Roentgen Ind. Co., Ltd., Ecchandes Inc., D-Art Co., Ltd., IWATA MFG. CO., Ltd., Revast Co., Ltd., Leaf Inc., Kitani Co., Ltd.,
Academia…**Gifu University, Waseda University,** Nagoya Institute of Technology, Ritsumeikan University, Asahi University, Shiga University of Medical Science, University of Shiga Prefecture
Government…Gifu Prefectural Research Institute of Information Technology, Gifu Prefectural Research Institute for Human Life Technology

Main Results

1. Twenty-five cases of commercialization, such as stereo fundus camera systems
We have commercialized 25 business cases, including the following: stereo fundus camera systems for the early detection of glaucoma; Venus-Alpha, osteoporosis test equipment that ultrasonically measures bone mass; Doctor Trainer, a medical simulator to train doctors to interview patients; Virtual Anatomical Modeling, which allows viewing of the internal parts of the human body in three-dimensional form using an adjustable surface projection display; YOUCAN, a coronary artery model for angiostomy training to perform coronary artery bypass surgery; a highly efficient electronic medical records system having input guidance functions; MARO, a meal-support robot, which can also be prepared for liquid diets, and assists people with upper limb disabilities while eating; and many more innovations.

2. Establishment of eight venture companies under university research initiatives
The following venture companies have been established: Encephalon Co., Ltd., which supports the manufacture and sales of auditory function support systems; Man-Machine Synergy Effectors Co., Ltd., which supports the manufacture and sales of power-assisted nursing care equipment; Koshin Planning Co., Ltd. and Urimina LLC, both of which design and distribute medical training systems; Jemsis Corp., which designs and distributes local medical support electrical systems; Medical ai, Ltd. and Simulation medical education Co., Ltd., which produce and distribute medical imaging digital content; and EBM Co., Ltd., which manufactures and distributes surgical skill training systems.

3. The recipient of many awards with our advanced study and development technology
"Vascular Surgical Skill Training Systems" received the Technology Award and the Minister of Education, Culture, Sports, Science and Technology Award in the 2005 Campus Venture Grand-Prix
"Diagnostic Imaging Support Systems" received the Uchida Best Thesis Award of Medical Imaging and Information Sciences and the Certificate of Merit Award of the RSNA (Radiological Society of North America, Inc.)
As these two cases demonstrate, our technologies have been evaluated highly in Japan and overseas, and have received various awards.