Creating medicine related industries based on the robot, IT and VR technology of the Gifu/Ogaki area

Overview

In the Robotics Advanced Medical Cluster Vision, the purpose of this project is to build a technology innovation cluster to integrate medicine and engineering. This will be done by exploiting the high research potential of Gifu Prefecture's IT and robot technology, and conducting R&D on sophisticated medicine and health support systems.

Cluster Headquarters

- ○ President ························ Kinjo Toshio (President, Gifu Research and Development Foundation)
- ○ Project Director ·················· Satoshi Nishimura
- ○ Chief Scientist (CS) ··············· Takashi Yasuda (Director, Gifu University)
- ○ Deputy Chief Scientist (CS) ········· Masakatsu Fujie
- ○ Science and Technology Coordinators Nobumasa Tsutsui, Akihiko Takiguchi

Core Organization

Gifu Research and Development Foundation

Participating Research Organizations
(Bold: Core Research Organizations)

Industry···Hitachi, Ltd., SANYO Electric Co., Ltd., TOSHIBA MEDICAL SYSTEMS CORPORATION,
Konica Minolta Medical & Graphic, Inc., Canon Inc., Sega Corp.,
CMC Technology Development Co., Ltd., TAK Co., Ltd., Mold Planning Hanada Ltd.,
Sumi Medical Equipment Ltd., and others

Academia···**Gifu University, Waseda University,** Keio University,
Gifu National College of Technology

Government···Gifu Prefectural Research Institute of Manufacturing Information Technology,
Gifu Prefectural Ceramics Research

New Industries Based on Medicine, Health and Welfare

Project Director
Satoshi Nishimura

The purpose of this project is to conduct research on distinctive, new medical technologies (employing engineering technologies like robot technology and information processing technology), and to develop state-of-the-art medical equipment like surgery robots, image diagnosis equipment, medical information systems, medical education systems and medical sensors. At the final stage, we are expected to create new industries mainly concerning medicine, health and welfare, in Gifu and its suburbs, on the basis of high technology which will be produced through the project. This field of industry is expected to grow, but in order for these new industries to win out in the severe international competition of the future, we must build a technical foundation with high potential. From those at Universities and research institutions, we ask for high quality R&D on a world class level. Finally, it is the hard work of the corporate side which will determine whether the project succeeds. Once new businesses are up and running, industry, academia and government must maintain strong ties and "align their vectors", adopting a common philosophy over the long term until the new businesses are established. An important part of my work as the Project Director is to focus and direct these vectors.

Satoshi Nishimura is a former R&D Lab manager of the Multimedia Company at SANYO Electric Co., Ltd. He was also an engineering adviser of EIZO NANAO CORPORATION and a technical adviser of the Technology R&D Headquarters at SANYO Electric Co., Ltd.

Outline of the Joint Research by Industry, Academia and Government

In this Project, we shall develop system technologies, ranging from medical education to on-site clinical applications, through the participation and teamwork of relevant corporations within and outside the area. This shall be done based on the outstanding research potential of the area in fields like robot technology, VR technology and IT technology. More specifically, the core areas of R&D will be: "minimally invasive and microsurgery support systems" which aim to alleviate the burden on patients, "medical diagnosis support systems" whose aim is greater precision and speed in medical diagnosis, and "virtual medicine and education/training systems" which aim to improve the skills of medical personnel. By deploying this R&D project, we aim to create a " Robotics Advanced Medical Cluster".

●Minimally invasive and microsurgery support systems

In order to reduce hospital time after surgery and otherwise reduce the burden of patients, we shall build minimally invasive and microsurgery support systems to treat the affected area while minimizing laparotomy (opening of the abdomen) during surgery.

●Medical diagnosis support systems

We shall develop medical diagnosis support systems for automatically abstracting out medically useful information from medical images like CT scans, and other audio and image information collected during examinations.

●Virtual medicine and education/training systems

To improve the efficiency of medical learning by medical students and paramedics, we shall develop robots to support chest and abdominal surgery and education/training.

Gifu/Ogaki Robotics Advanced Medical Cluster

The various research topics converge around high-reliability, high-precision, minimally invasive microsurgery systems.