

R&D of Technologies for Conversion to High-sensitive and Systematized MEMS Sensor Devices

<Program for Fostering Regional Innovation (Global Type) >

Project Team

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Enterprises

SAKAMOTO ELECTRIC MFG.CO.,LTD.
Toshiba Corporation Semiconductor Company
Ishikawa Metal Finishing Co., Ltd.
NIHON Dempa Kogyo Co.,LTD.

Purpose of the Research

- We will make the sensors hypersensitive and systematize them by studying and developing the MEMS package technology.
- We will develop a highly sensitive and portable odor sensor by a combination of the thin film modification technique based on molecular recognition and a MEMS integration technique.
- We will develop a diagnosis system for diseases.

Summary of the Research

1) We will establish a technology to improve and systematize the technologies accumulated by previous research such as sensor technology and package technology, and make the MEMS devices highly sensitive and systematize them.

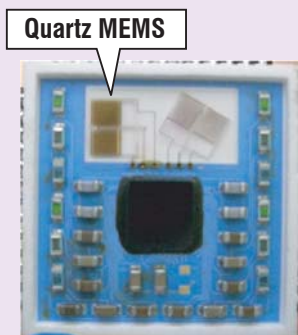
Tilt sensor: Study and develop technologies to make them hypersensitive and to systematize them by the multilayer MEMS package

Hydrogen sensor: Study and develop technologies to make them hypersensitive and to systematize them by the hollow MEMS package

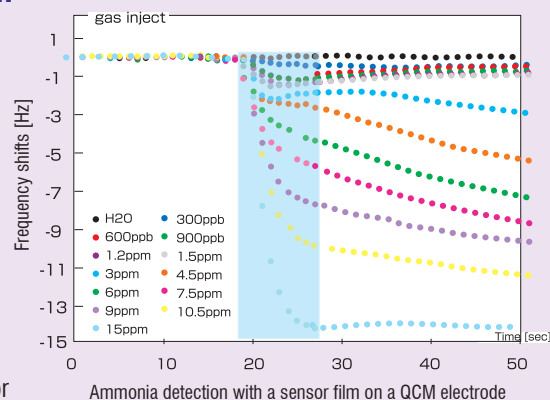
Gas sensor: Research and development of super highly sensitive photonic band gap fiber based gas sensor and systematization technique

2) We will establish a portable sensor system with a high performance for the disease diagnosis by a combination of the thin film modification technique based on molecular recognition and a MEMS integration technique.

Results of the Research



Example of mounting a tilt sensor



Prospective Fields of Application

- Inclination sensor (Level detector, clinometers, and others)
Installation, horizon control, and slope control of semiconductor equipment, robot, construction equipment, monitoring camera, surveying instrument, and others. Monitoring of volcanic eruption, landslide, collapsing, and others.
- Hydrogen sensor
Fuel cell
- Gas sensor
Air pollution, process management, laboratory analysis, things related to biotechnology, medical inspection, food inspection
- Odor sensor
Simple examination for various types of diseases



Information

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Information

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