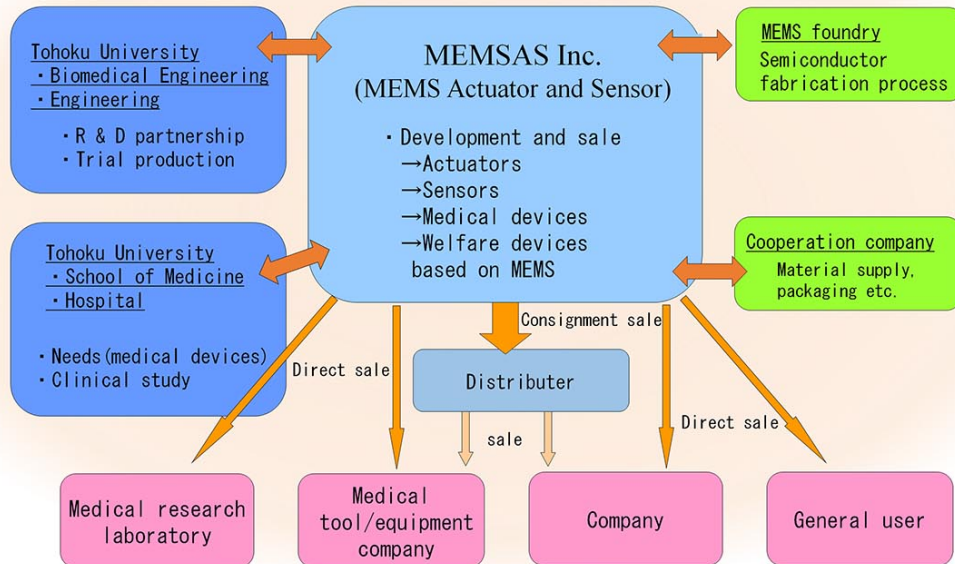


### 3 MEMSAS Inc.



## MEMSAS Inc.

- Products (sensors and actuators based on MEMS)
- Technical support



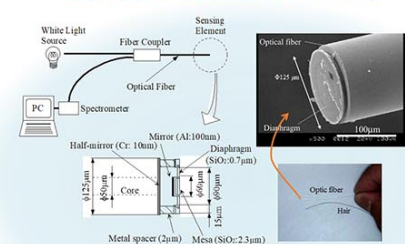
MEMSAS, INC. is the venture company on the purpose of application development, manufacturing consulting, and sales for sensor and actuator which are fabricated based on MEMS (Micro Electro Mechanical Systems) technology. We have developed the tip of catheters equipped with small movement mechanism for minimally invasive instruments that performs inspection and medical treatment safely by controlling the movement and micro pressure sensor (which is very thin like hair) from outside. By applying small movement mechanism, we also have developed 2-Dimensional tactile display (Pin Display) for visually impaired persons. Concerning basic research and development, we actively utilize the research environment of Tohoku University by conducting an animal experiment and evaluating the trial production for medical instruments in Graduate school of Biomedical engineering, Tohoku University.

## About MEMSAS

<b>Name :</b>	MEMSAS Inc. <a href="http://www.memsas.co.jp">http://www.memsas.co.jp</a>
<b>Established :</b>	September 29th, 2004
<b>Location :</b>	#1003, 1-6-22, 1 ban-cho Aoba-ku Sendai-shi Miyagi, Japan, 980-0811
<b>Board Members :</b>	Representative director: Kazuya Kato Director: Masayoshi Esashi, Yoichi Haga, Tadao Matsunaga, Kentaro Totsu Corporate auditor: Nobui Mishina

## Products

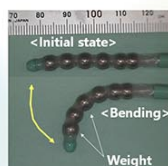
### Sensors based on MEMS



#### Ultra-thin fiber optic pressure sensor

For the purpose of local pressure measurement in a very narrow space, ultra-miniature fiber-optic pressure sensor of 125μm in diameter has been developed. Thin diaphragm which is bonded at a tip of the optical fiber is deformed by applying a pressure, and the deformation changing is measured interferometrically. In particular, fiber-optic pressure sensors have the advantages of not only high potential of miniaturization but also applicability to use in such electromagnetically harsh environments as in an operating room in a hospital.

### Actuators using Shape Memory Alloy (SMA)



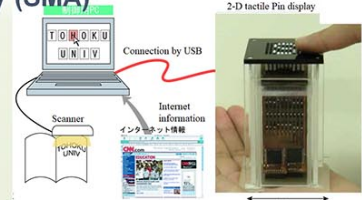
#### Active bending mechanism for ileus tubes

Ileus tube is used for the ileus treatment. Bending mechanism utilizing SMA actuator, which is assembled at a tip of the tube, can make pylorus passing



#### Active bending electronic endoscope

For inspection and treatment inside of the small intestine Disposable endoscope has been developed by combining small electrical imager and bending mechanism using SMA actuator.



#### 2-D tactile pin display

Two-dimensional tactile pin display has been developed for visually impaired people. Character and graphic information is dynamically displayed by an array of pins in up and down positions. The contraction of SMA micro-coil actuators moves the pins up and down, and latch mechanism using a permanent magnet accurately positions the pins in an up or down state without any feedback control.

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