Micromachine for Medical and Healthcare Applications

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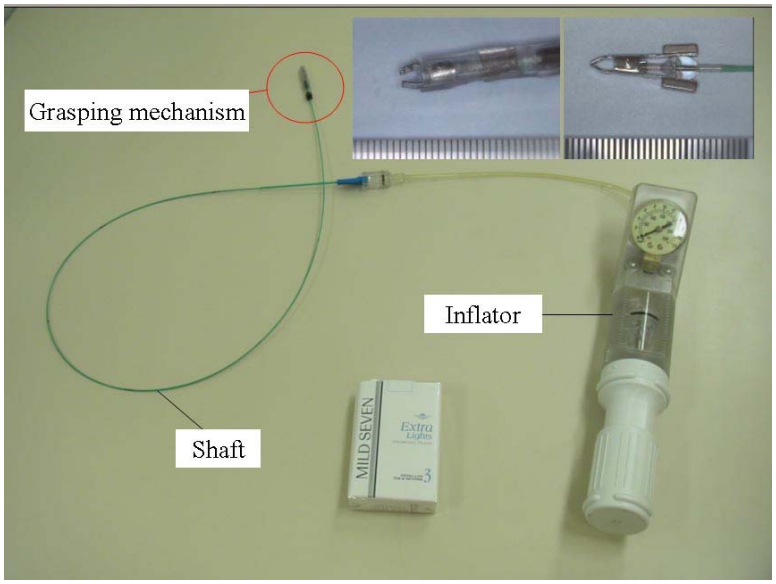
Fabrication of useful medical and healthcare devices using microsensors and microactuators is purpose. After research of microsensors and microactuators, we will start fabrication, for example, micro endoscopic surgical tools, healthcare devices and communication devices. Some of former works in this project are shown below.

Grasping Forceps Using Hydraulic and Magnetic Mechanism

Forceps is a medical tool which grasps tissue in the human body. Conventional thin forceps has problems of force reduction of traction wire and lack of precise control by deflection of the shaft of the forceps. Unique grasping mechanism using hydraulic and magnetic mechanism which is not affected by deflection of the shaft of the forceps has been developed.



Pin Display for Visually Impaired or Sightless Person

2-Dimensional tactile display (Pin Display) which displays character and graphic information from computer by making pins array up and down dynamically has been developed. This project was initially started as a dynamic Braille display. Shape Memory Alloy (SMA) coil actuators contract and make the pins up and down when electrical current is applied. Pin display which displays Braille points was fabricated during this program. Pin display which has 10 × 10 pins (100 pins) with 2 mm pitch has been developed.