## Examples of MEMS Industrialization by Tohoku Univ. - industry Collaboration



Catheter pH, PCO<sub>2</sub> monitor (Kurare, Nihon Kohden)



Portable pH sensor (Shindengen)



Instrument to detect H. pylori (Nihon Kohden)

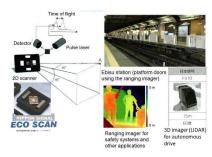


## Electrostatically levitated rotational (Tokyo Keiki)

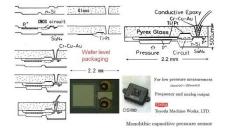


Yaw rate sensor has been produced in Toyota since 2003 and used in more than 1 million cars.

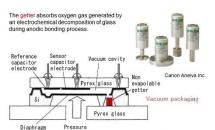
> Yaw rate-Accelerometer (Toyota)

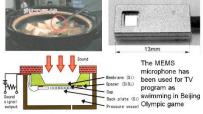


2-axes optical scanner (Nippon signal)

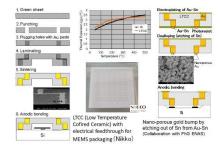


## Integrated capacitive pressure sensor (JTEKT)

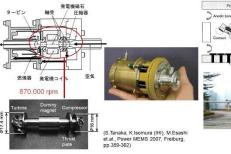




Diaphragm vacuum gauge (Canon ANELVA) Silicon microphone (NHK, Panasonic)



LTCC with electrical feedthrough for MEMS packaging (Nikko)



Palm-top silent gas turbine engine power generator for robot (IHI)

Immune to electrostatic discharge up to 1000 Wide frequency range (DC-10GHz) MEMS switch factory (Advantest components (Sendai))

MEMS switch for LSI tester (Advantest)