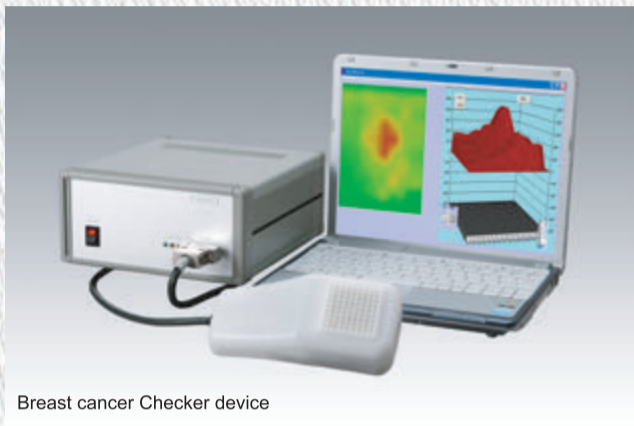
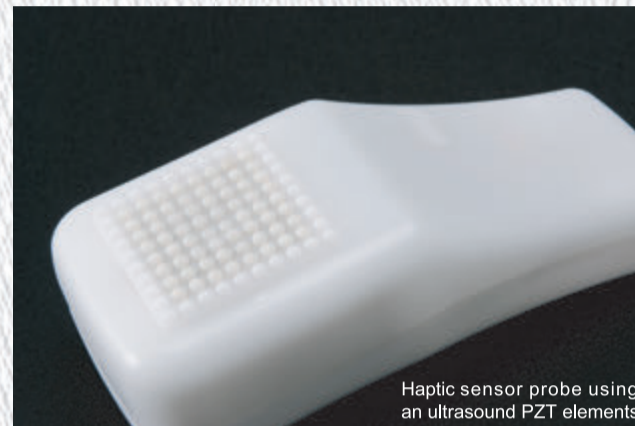


Breast Self-Exam Using The Novel Haptic Cancer Checker



Breast cancer Checker device

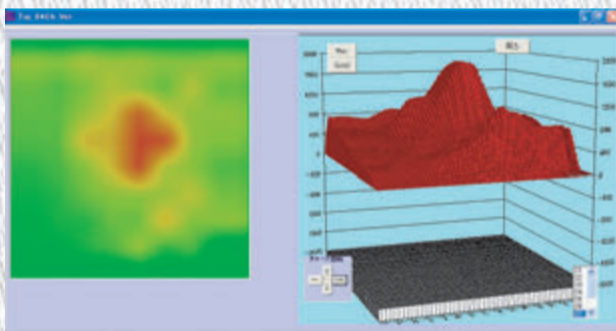


Haptic sensor probe using an ultrasound PZT elements

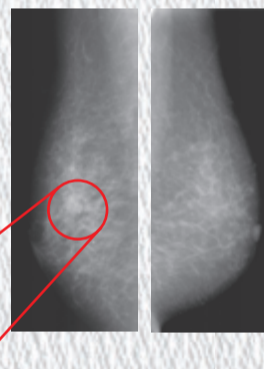
The new medical instrument consisting of 64-channel tactile sensor elements made of PZT (ceramic material lead zirconate titanate), a digital phase shift circuit (DPSC) and a personal computer.

The instrument utilizes the 64-array tactile sensors designed to visualize haptic information within the breast. Using this novel haptic probe, it was demonstrated in both basic and clinical studies that the breast cancer larger than 10 mm located at depths less than 20 mm could be detected.

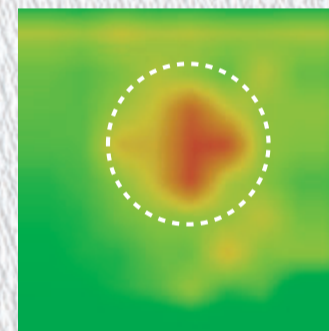
Results displayed on the monitor



MMG

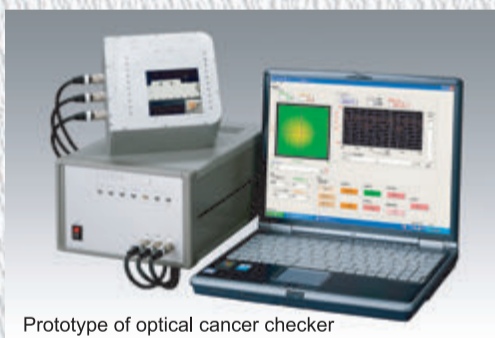


Breast cancer

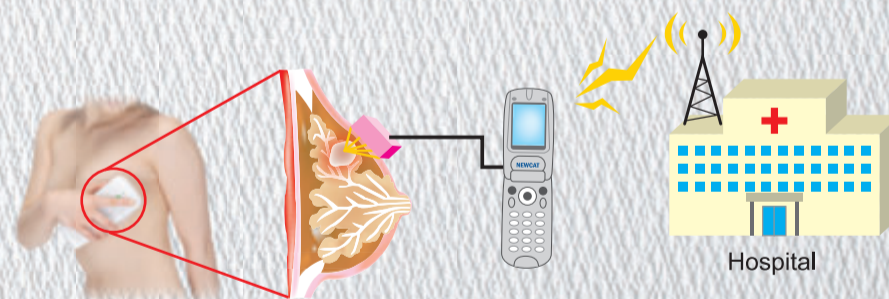


Young modulus: 225.2 ± 7.7 (kPa)

The results can be displayed on the monitor as Young modulus, which is the stiffness and/ or softness of a tumor. Previous to this exam, the patient (female age 74) could not find the breast cancer (1.4cm in diameter), by the traditional breast self-exam method.



Prototype of optical cancer checker



Optical cellular device for breast self-exams using cellular phone

We are now developing a new instrument using an optical device (LED and Photo transistor), and the newest cellular device will be finished by the end of next year.

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