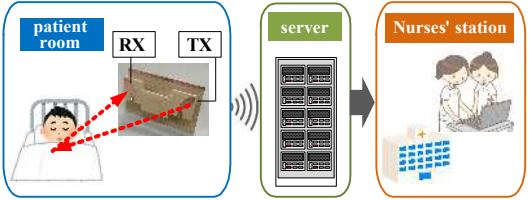
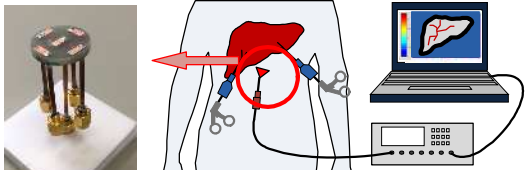


Name FUJIMOTO Takafumi	Job Title Associate Professor	Area of Expertise Antenna Engineering
1. Main Research Topics Radio waves play an important role in transmitting information, but recently, they have come to be utilized in fields other than communication, such as the medical field and energy field. In our laboratory, we conduct research and development on "antennas," which are the most important devices for utilizing radio waves, through simulation and measurement experiments. ① Development of Compact High-Performance Antennas for Communication We conduct research and development on compact planar antennas with high performance characteristics such as broadband characteristics and multi-band operation. <u>Compact Circularly Polarized Antenna for UWB</u> We have developed a planar antenna with a circular polarization frequency bandwidth of over 80%. The circular polarization frequency bandwidth is at world-class level.  Top view Bottom view <u>Multiband Printed Antenna</u> We have developed a planar antenna that can be used in three frequency bands (2.45 GHz band, 3.5 GHz band, and 5 GHz band). By adopting a multilayer structure, we have enabled operation in three frequency bands while also achieving antenna miniaturization.  Final design Upper Middle Lower ② Development of Planar Antennas for Radio Wave Applications We conduct research and development on compact planar antennas for the purpose of utilizing radio waves in new fields such as medical applications. <u>Body Movement Detection and Monitoring System</u> We are developing antennas for non-contact monitoring of patient body movement, bed exit, respiration, and heartbeat in hospitals and nursing care facilities.  <u>Radio Wave Endoscopic Antenna System</u> We are developing radio wave endoscopic antennas capable of detecting blood vessels inside fatty tissue. 		
2. Keywords Broadband antennas, Planar antennas, Radio wave applications, Medical applications, Sub-6 5G		
3. Remarks and Websites • The radiation characteristics required for antennas depend on the application. We can design and develop antennas according to specific applications. • We possess multiple electromagnetic field analysis software packages for antenna design. We are also capable of measuring antenna characteristics up to 43 GHz. • In addition to the above, we also conduct research on Sub-6 5G antennas, 28 GHz band 5G antennas, and antennas for wireless power transmission (rectennas). researchmap: https://researchmap.jp/read0185026 Laboratory: https://www.eee.nagasaki-u.ac.jp/labs/emlab/study/staff/fujimoto/		