Kirteyman Singh Rajput

M.Tech.

Electronic Systems Engineering
Indian Institute of Science,
Bengaluru

Research Interest

Biomedical Devices

Biophotonics
Electronic Systems Engineering
Neural Engineering

Technical Skills

Electronic Product Design

Embedded System Programming
FPGA programming using Verilog
Image Processing
Machine Learning
Mechatronics
Microfabrication Process flow
Optical Instrumentation

M.Tech. Thesis

Aim: Design and development of elastic scattering spectroscopy (ESS)-based probe for breast cancer diagnosis and margin detection.

Objective: Design and development of data acquisition (DAQ) system, a mathematical model, and a user-friendly graphical user interface (GUI) for data (optical properties such as reflectance, absorption coefficient and scattering coefficient of tissue sample) acquisition, processing, and visualization in real time

Approach

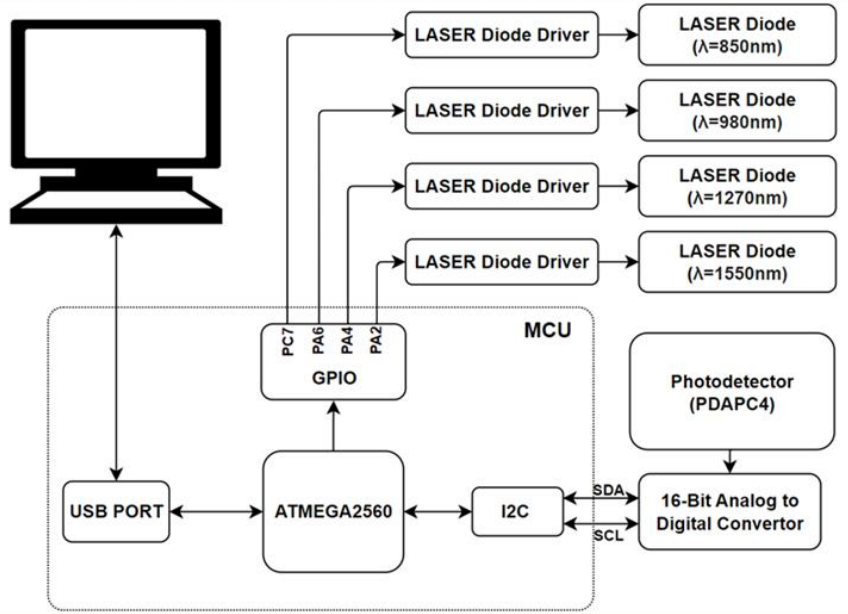
The hand-held probe can be used during surgery for breast cancer diagnosis and margin detection, ensuring all the tumor is extracted at the time of surgery, eliminating the possibility of re-excision after histopathological examination.

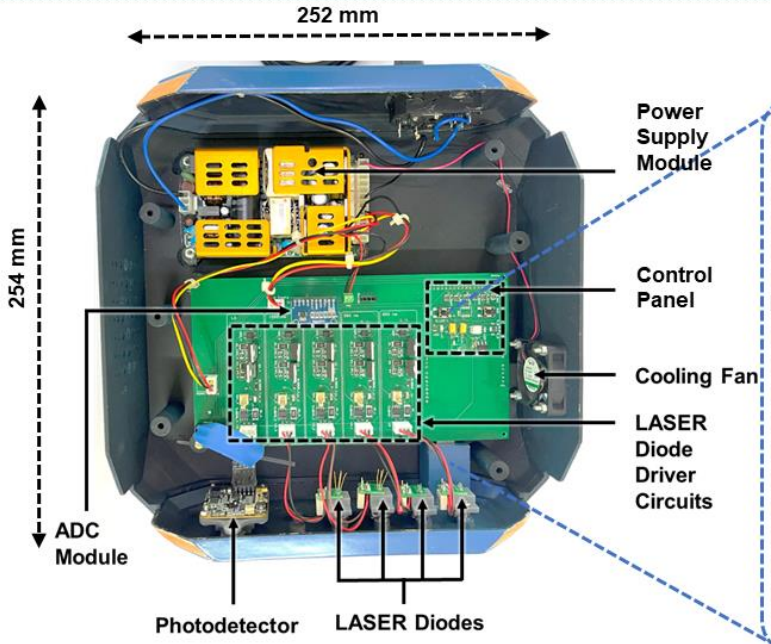
Phantom to mimic tissue properties

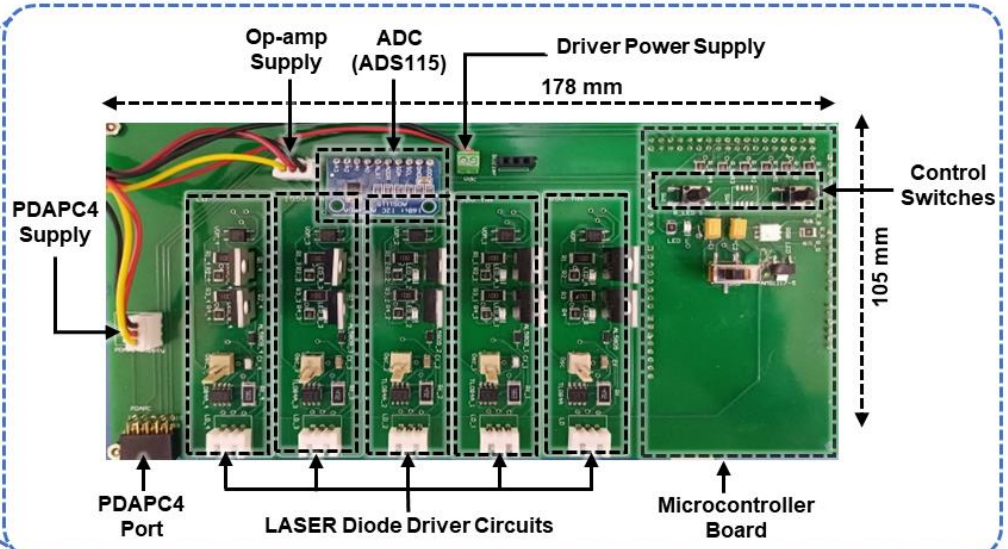
Breast-Conserving Surgery

Brest Cancer Tumor

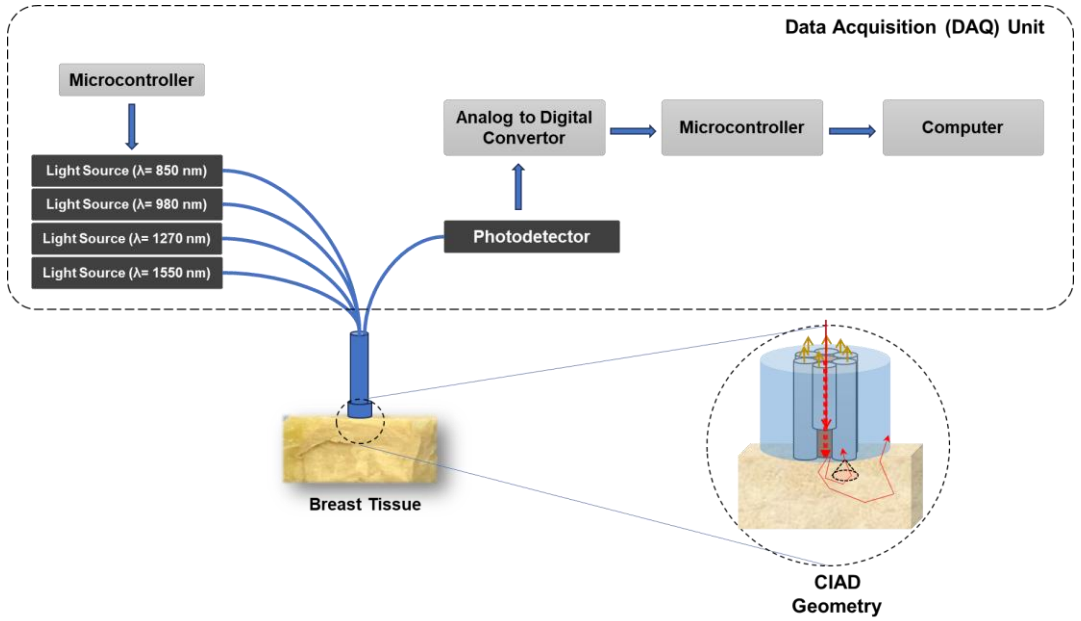
System Design

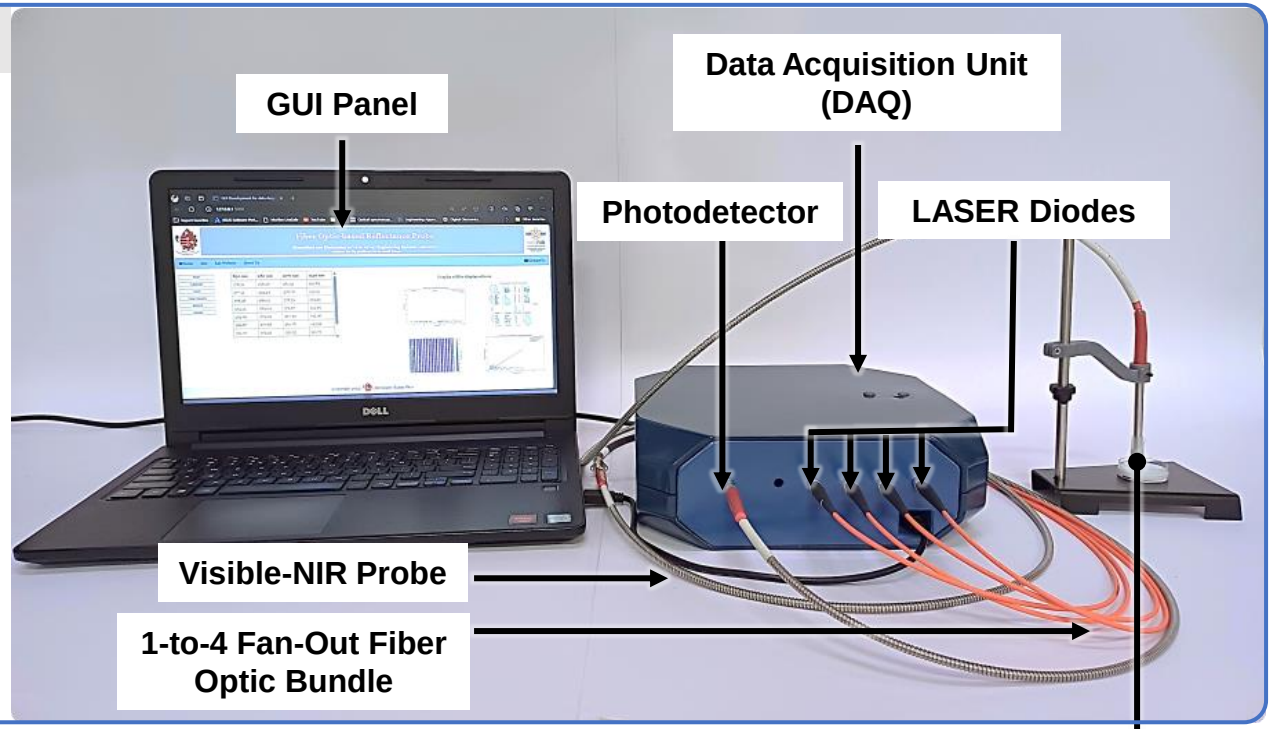






Experimental Setup





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