

## ABSTRACT

One of the uses of telecommunications technology is telemedicine. Telemedicine is one of the telecommunication technologies for conducting long-distance health services. One component to support telemedicine is a wearable antenna. The use of wearable antennas is expected to make it comfortable when used by patients. By looking at the condition of Indonesia, which has a large area and a dense population. The need for health equity is a problem that continues to find a solution. Telemedicine is expected to be a solution to the problem of lack of health equity.

In this final project, a dual band microstrip antenna with flexible materials with Industry Scientific and Medical (ISM) frequency of 2.45GHz and 5.85GHz was designed using RO3003 with a thickness of 0.75 mm as a substrate to be flexible and comfortable to use. The microstrip antenna will be designed using a slot technique with feedline rows.

In this task study, microstrip antennas with rectangular patches with rectangular slots have been designed using Industry Scientific and Medical (ISM) feed-line rationing techniques 2.45 GHz and 5.85 GHz and use Roger 3003C as a substrate that has thickness of 0.75 mm and the material permittivity value of 3.0. Simulation results show that the antenna can work well at frequencies of 2.45 GHz and 5.85 GHz with a total bandwidth of 59.9 MHz and a gain value of 2.45 GHz at 6.347 dBi and at a frequency of 5.85 at 5.276 dBi with a pattern unidirectional radiation. The realized antenna has a VSWR value below 2 and the return loss value below -10 with the gain generated for the 2.45 GHz frequency of 4.195 dBi and at the frequency of 5.85 at 2.426 dBi.

**Keyword:** *Telemedicine, Wearable, Flexible, Microstrip Antenna, Phantom*