

## ABSTRACT

Telemedicine is a health service that is carried out remotely using audio, visual, data that involves health workers with patients to obtain health status from patients. Wearable antennas are widely developed in telemedicine application components. A wearable antenna is an antenna designed to be integrated attached to the human body and one type of application of Wireless Body Area Network (WBAN) communication. Textile antenna is a type of wearable antenna that uses textile materials, the use of textile materials is very good to be used to be applied in the field of telemedicine because of the light, soft, and flexible nature of textile materials.

In this final project research, a microstrip antenna made from textiles with a square-shaped patch on the 5.8 GHz Frequency Industry Scientific and Medical (ISM) has been designed which uses jeans fabric as substrate and copper tape as conductor material for patches and ground planes. The microstrip antenna is designed using the DGS technique and the feedline supply technique. The simulation results that have been made are compared with the realization of the antenna by analyzing the antenna parameters and the Specific Absorption Ratio (SAR) value which affects the distance of the antenna from the body.

From the simulation results during ordinary conditions, a bandwidth of 190 MHz was obtained with a VSWR value of 1.37 and a gain of 6.08 dBi. Overall, the antenna can work well and can be used for telemedicine applications on *the Industrial, Scientific and Medical* (ISM) Frequency which is 5.8 GHz. From the simulation results after being given phantom at a distance of 5 mm from the wrist, there was a shift in the working frequency, namely at 5.72 GHz. Obtained a VSWR value of 1.33 with a bandwidth of 250 MHz, a gain value of 6.41 dBi, a unidirectional polaradiation value and a SAR value of 1.114 w / kg.

**Keywords: Telemedicine, Microstrip Antenna, Wearable Antenna**