

ABSTRACT

Radio Frequency Identification (RFID) is one of technology that uses radio waves to identify people and objects at close range. The use of RFID in many designs have been made for medical records systems in hospital, toll road systems, attendance systems for employees or students, parking systems, and others. The idea of this research is to utilize an RFID system to retrieve health patient's information and send it from their home to database in hospital. Their sends information's like a pulse or heartbeat to the medical personnel.

In this research, it has been designed an RFID antenna which operating frequency of 923 – 925 MHz (Ultra High Frequency). The frequency band is used because it is in accordance with the Regulation of Minister of Communication and Information Indonesia, in regulation No. 34 of 2012 about technical requirements of telecommunication short-range device. The material that used to design this antenna is FR-4 Epoxy. The simulation's result will be compared with the realization's result and analyze the effect of distance from the body with value of Specific Absorption Ratio (SAR).

The proposed antenna that in this final project is Planar Inverted-F Antenna (PIFA) that was realized with FR-4 Epoxy substrate which has a constant $\epsilon_r = 4,4$ and thickness of $h = 1,6$ mm. The simulation results show that the antenna can work at a frequency of 924 MHz at VSWR 1,140, return loss -25,22 and gain 4.203 dB. It is expected that the proposed antenna can be applied to wearable device.

Kata Kunci: *Radio Frequency Identification, Planar Inverted-F Antenna, Ultra High Frequency, Spessific Absorption Ratio*