

## ABSTRACT

Communications during and immediately after disaster such as earthquakes or volcanic eruptions are increasingly important for the process of rescue, evacuation and recovery. Flexible devices have an important role in the emergency movement because it is impractical and easy to carry out rescue and evacuation.

Antenna is one of the important components in the communication system. On a flexible device, a small and flexible antenna is needed so that it is practical and has a high approval level. Currently there are many flexible antennas that are expected to be able to communicate with more flexible devices. Flexible antenna is a type of antenna that uses flexible material as a *substrate*. The use of flexible materials on antennas makes the antenna easier, lighter and thinner to be more comfortable to use during rescue and high-need searching.

In this final project, a microstrip flexible antenna bowtie patches on 2,45 GHz Scientific and Medical Industry (ISM) frequency using Roger 3003c as a *substrate* with  $\epsilon_r = 3$  and thickness  $h = 0.75$  mm is designed. The simulation results show that the antenna works at a central frequency of 2,45 GHz with a bandwidth of 530 dB , a *gain* of 3.19 dBi and a radiation pattern in the same direction. On an antenna that is realized and taken both VSWR and return loss under 2 and -10 respectively. Compared with simulation result, bandwidth result has decrease from 530 dB to 360 dB MHz and *gains* 2.86 dBi.

**Keywords : Search and Rescue, Microstrip bow-tie patch antenna, Flexible antenna, ISM Band**