ABSTRACT

Indonesia is one of the countries that often experiences natural disasters. The damage of Base Statio (BS) is a big problem that is often experienced after a disaster occurs. Mobile Cognitive Radio Base Station (MCRBS) is an alternative to temporarily replace the role of the BS to recover soon the network. MCRBS requires an optimal routing system to save energy of every device helping to forward the signal and ensure that the device's power lasts long. This undergraduated thesis aims to determine the optimal route to recover the post-disaster communication network serving broadband applications.

This undergraduated thesis considers the condition of the post-disaster area with several dead BS. The distance between victim devices is also considered for determining the routing algorithm with broadband communication that requires the quality of the channel capacity on every route. The optimal routing performance is then evaluated by using a seing of computer simulations.

The result of this undergraduated thesis is optimal routing, which is optimal in providing information access in disaster areas connectly victims to the people in normal areas. The optimal link is determined based on the value of the signal to noise ratio (SNR) at each node and the value of channel capacity. The results of computer simulations show that the more nodes, the smaller the distance between nodes. With the distance between nodes that are not far apart, the value of the signal to noise power ratio (SNR) is even greater. If the SNR value which is the gamma value is greater, the channel capacity value will also be greater. This undergraduated thesis is expected to contribute to the development of disaster technology in Indonesia to help disaster victims who are still trapped in the disaster area.

Keywords: Disaster Recovery Networks, Broadband, Optimal Routing Algorithm, Cognitive Radio