

Abstract

Base Transceiver Station (BTS) is a media that's used to transmit data in wireless communication. BTS can acts as data transmitter and also as a data receiver.

Plan of analyzing the optimality of BTS is very necessary, so the BTS can serve the communication process optimally. The plan starts by analyzing the demand growth for 3 months ahead, using time series. To analyze the demand growth, a forecasting method's used. This final project uses neural network with backpropagation algorithm as the forecasting method.

The result of demand forecasting will be an input to analyze the optimality of BTS. The analysis is started by converting the result of demand forecasting into traffic unit, such as erlang (E), based on the average of traffic used by the demand. The analysis is done in busy hour, because in this time the using of traffic is maximum. The total traffic in busy hour, will be compare with the total traffic that can be served by the BTS. In this final project, a BTS called can serves optimally if total traffic served by the BTS is bigger than total traffic needed by demand. If total traffic needed by demand is bigger than the BTS's capacity, then the BTS will collapse. The final result of this analysis is dermine that a BTS either can serve the communication optimally or can't, if BTS can't serve the communication process, then what recommendation of solution needed to repair it.

Keyword: *Base Transceiver Station (BTS), plan, neural network, optimality, time series, backpropagation, Global System for Mobile Communication (GSM)*