ABSTRACT

The growth of cellular telecommunication in Indonesia is growing rapidly, this condition is encouraging the development of electronic topup server, but there is a regulation applied by operator to market the products based on BTS network (base transceiver station) which is mapped cluster in each city area. With these problems the design of a pulsa server system that can overcome cluster area by placing one main server (parent) within a cluster and designing a mini server that is placed in a different cluster as a child (client) from main server (parent). Focus in this final project build a mini server using Raspberry Pi 2 and GSM modem Wavecom to plant chip (SIMcard) charging (topup) pulsa. The mini pulsa server communications system with the main (parent) server uses SMS media and USSD dial method for topup to operator system. Testing result of mini server system with 1 modem shows the average response time of 7.86 seconds and handles 10 transactions in 1 minute, while using 2 modems response time average of 1.79 seconds and handle 25 transactions in 1 minute. The next development suggestion is to create an interface for server configuration, use of internet communication media, and data security system.

Keyword: *server*, pulsa, *cluster*, raspberry pi 2, GSM modem Wavecom