ABSTRACTION

The wireless communication technology especially mobile communication leans to develop on the need of high data need to support various data services as well as sound services. Wireless channel undergo the multipath fading which produce a high attenuation effect on transmission signal. One of the technique which effective enough to reduce the multipath fading effect is diversity. The approach which could made is by apply the multiple antennas on the receiver side (*single input multiple output*) or on the transmitter side (*multiple input single output*). Beside that approach, recently found the new technique that is *multiple input multiple output* (MIMO). This technique could give diversity gain. One of the technique or algorithm which could use on MIMO is *space-time trellis codes* (STTC).

On this final assignment, we analyze and discuss the performance of *space-time trellis codes* (STTC) for *multiple input multiple output* (MIMO) by using 2Tx-2Rx and 2Tx-3Rx antennas on the wireless communication channel. The analysis also made by compare its performance to *single input multiple output* (SIMO) performance by using 1Tx-2Rx and 1Tx-3Rx antennas. The performance size made base on a certain BER and SNR.

From the result of the simulation we could get that the diversity technique can upgrade the system performance. For *space time trellis code,* 2Tx-2Rx attain diversity gain in the amount of 3,3 dB until 3,5 dB on the AWGN channel and attain diversity gain in the amount of 5,2 dB until 5,75 dB and 6,4 until 7 dB on the multipath fading channel. While for 1Tx-3Rx of *single input multiple output* (SIMO) attains diversity gain in the amount of 4 dB until 4, 5 dB on the AWGN channel.