PERFORMANCE ANALYSIS FOR MIMO (MULTIPLE INPUT MULTIPLE OUTPUT) ANTENNA

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ABSTRACT

Multiple Input Multiple Output or MIMO is wireless radio technology that uses multiple antennas on the transmitter and receiver. MIMO send information via two or more antennas and the information is received via two or more antennas as well. The advantage of MIMO is it offers significant increases in data throughput and link range without additional bandwidth or transmit power. For example, when two transmitters and two or more receivers are used, two simultaneous data streams can be sent and this could double the data rate. The objective of this project is to study the performance of MIMO antenna in Wireless Local Area Network (LAN) application. In this project, two types of coding techniques which are Space Time Block Code and Space Frequency Block Code are used. Quadrature Amplitude Modulation (QAM) is used as type of modulation and Rayleigh Channel is used as communication channel. In this project, a simulation using MATLAB has been developed to study the performance of Bit Error Rate (BER) between two transmitter antennas and two receiver antennas. The result shows that effect of pilot code which is to improve the performance of MIMO is also studied in this project. The results and findings in this project have proved theory part. Different type of coding, modulation and number of pilot symbols bring different effects to performance of MIMO.

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