The characterization and modeling of the fading channel are essential to wireless communication design. In this paper, we design a fuzzy-based approach for performing the quality estimation of single-path as well as multi-path fading channels. We have used Rayleigh distribution to create the wireless channel. In addition, certain attributes of the channel (bit error rate, energy, and distance between sender and receiver nodes) are fuzzified with the help of Mamdani method to determine the channel quality. We have also carried out case study of five Rayleigh channels having different characteristics. On the basis of its resultant outcome, we have further presented the suitability of the corresponding channels to voice, video and text transmission.


Index Terms

Computer Science

Wireless Communications

Keywords

Single-path & Multi-path Fading Channel  Channel Quality Estimation  Additive White Gaussian Noise