IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 9, April 2025
Impact Factor: 7.67

Lifi: The Future of High-Speed, Secure Wireless Communication

Jadhav Sayali Dilip[1], Zirmute Gayatri Sanjay[2], Mahatme J. A.[3]
Students, ,Department of Computer Science [1,2]
Assistant Professor, Department of Computer Science [3]
K.R.T. Arts, B.H. Commerce A.M. Science College, Nashik, India
jsayali952@gmail.com,gayatrizirmute@gmail.com,jyotimahatme@kthmcollege.ac.in

Abstract: *LiFi, or Light Fidelity, represents a paradigm shift in wireless communication, leveraging visible light for data transmission. This research report delves into the fundamental principles, advantages, and challenges of LiFi technology, juxtaposing it against the prevalent Wi-Fi. It explores the diverse applications of LiFi, ranging from secure indoor networking to underwater communication, and analyzes its potential to address the escalating demands for high-speed, secure, and interference-free connectivity. The study employs a comprehensive literature review and comparative analysis to assess LiFi's current state and future prospects. Findings underscore LiFi's superior bandwidth and security, while acknowledging challenges such as line-of-sight limitations. The report concludes with an optimistic outlook on LiFi's role in future communication systems, emphasizing the need for continued research and standardization*

Keywords: LiFi, Visible Light Communication (VLC), Wireless Communication, Data Transmission, Security, Bandwidth.

DOI: 10.48175/IJARSCT-25771