Fuzzy logic based Investigative analysis of dropped calls in mobile communication networks

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Abstract - This *study focuses on investigative analysis of dropped calls in mobile communication networks with emphases on Nigeria's telecommunications industry, specifically within the MTN telecommunication network in Port Harcourt City. Dropped calls have negative implications for consumers, leading to financial burdens and potential declines in productivity for individuals and organizations alike. To address this issue, a MATLAB simulated system is proposed to control call dropping in their networks within wireless cellular networks. The system utilizes Fuzzy Logic Control and an optimization handover technique to effectively manage call drops through dynamic load balancing and efficient resource sharing in real-time. Through extensive simulations, various parameters affecting call dropping are examined, and the newly proposed fuzzy logic-based system outperforms the previous approach in terms of reliability and performance. Even under high resource usage and heavy traffic conditions, the proposed approach maintains the call dropping probability below the minimum threshold, ensuring the expected Quality of Service (QoS) provision.*

Keywords – dropped calls, fuzzy logic, MATLAB, QoS, telecommunication network