|  |  |  |
| --- | --- | --- |
| **CONTENTS** | | |
| **Chapter no.** | **TITTLE** | **Page no.** |
|  | **ACKNOWLEDGEMENT** |  |
|  | **ABSTRACT** |  |
|  | **TABLE OF CONTENTS** |  |
|  | **LIST OF FIGURES** |  |
| **Chapter 1** | **INTRODUCTION** | **1-5** |
|  | * 1. Wireless network elements | 1-2 |
|  | 1.2 Difficulties in Wireless Network | 2 |
|  | 1.2.1 Interference | 2 |
|  | 1.2.2 Absorption and reflection | 2 |
|  | 1.2.3 Multipath fading | 2-5 |
| **Chapter 2** | **Literature Survey** | **6-8** |
|  | 2.1 Luby Raptor | 6 |
|  | 2.2 T.-P. Low | 6 |
|  | 2.3 Araniti | 7 |
|  | 2.4 Liu | 7 |
|  | 2.5 Asadi | 8 |
| **Chapter 3** | **Existing Method** | **9-16** |
|  | 3.1 system model and the proposed retransmission way | 9-10 |
|  | 3.2 FDMA Technique | 10-16 |
|  | 3.2.1 Multi-channel per-carrier ([MCPC](https://en.wikipedia.org/wiki/MCPC)) | 12 |
|  | 3.2.2 Single Channel per-carrier(SCPC) | 13-14 |
|  | 3.2.3 Main Features of FDMA | 15-16 |
|  | 3.3 Zhang Method | 16 |
|  | 3.4 Zhou Method | 16 |
|  | 3.5 Drawbacks of Existing Method | 16 |
| **Chapter 4** | **Proposed Method** | **17-31** |
|  | 4.1 TDMA Technique | 17-20 |
|  | 4.1.1 TDMA Characteristics | 20 |
|  | 4.2 Applications of TDMA | 20-21 |
|  | 4.2.1 TDMA in Mobile Phone Systems | 21 |
|  | 4.3 TDMA in Wired Network | 21 |
|  | 4.4 Comparison with Other Multiple Access Schemes | 21-23 |
|  | 4.5 Efficient Algorithm For The MNLP Problem | 23-24 |
|  | 4.6 Heuristic Algorithm For Selecting Good NACK-Devices' Aps | 24-25 |
|  | 4.6.1 Applications of Heuristic Algorithm | 25 |
|  | 4.6.2 Heuristic Routing | 25-26 |
|  | 4.7 Algorithm for Optimizing Transmission Powers for a Given AP | 26-31 |
|  | 4.8 Drawbacks of Proposed Method | 31 |
| **Chapter 5** | **Extension** | **32-36** |
|  | 5.1 Rayleigh Fading Channel | 32-35 |
|  | 5.1.1 Generating Rayleigh Fading | 35-36 |
|  | 5.2 Applications of Rayleigh fading channel | 36 |
| **Chapter 6** | **Software Used : MATLAB** | **37-51** |
|  | 6.1 The MATLAB System | 37-51 |
|  | 6.1.1 Improvement Environment | 39 |
|  | 6.1.2 The MATLAB Language | 39 |
|  | 6.1.3 Designs | 39 |
|  | 6.1.4 The MATLAB Application Program Interface [API] | 39 |
|  | 6.2 MATLAB Working Environment | 40-42 |
|  | 6.2.1 MATLAB Desktop | 40-41 |
|  | 6.2.2 Utilizing the MATLAB Editor to make M-Files | 41-42 |
|  | 6.3 MATLAB in Communication | 42-45 |
|  | 6.3.1 Key Features | 42-45 |
|  | 6.4 Source and Channel Coding | 45-46 |
|  | 6.4.1 Source Coding | 45 |
|  | 6.4.2 Channel Coding | 46 |
|  | 6.5 Channel Modeling and RF Impairments | 46-48 |
|  | 6.5.1Channel Modeling | 46-47 |
|  | 6.5.2 RF Impairments | 47-48 |
|  | 6.6 Evening out and Synchronization | 48-50 |
|  | 6.6.1 Synchronization | 48-50 |
|  | 6.7 Multicast Communication | 50-51 |
| **Chapter 7** | **Result** | **52-57** |
|  | 7.1 Advantages | 52 |
|  | 7.2 Applications | 52 |
|  | 7.3 Simulation Results | 52 |
| **Chapter 8** | **Conclusion** | **58** |
| **Chapter 9** | **Source Code** | **59-69** |
| **Chapter 10** | **References** | **70-73** |

|  |  |  |
| --- | --- | --- |
| **LIST OF FIGURES** | | |
| **Figure no.** | **Name of the figure** | **Page no.** |
| Figure 1 | Re-presentation of D2D MC Cluster | 9 |
| Figure 2 | Multiplexing | 12 |
| Figure 3 | Basic concept of FDMA Technique | 15 |
| Figure 4 | TDMA Frame Structure | 19 |
| Figure 5 | One second of Rayleigh fading with a maximum Doppler shift of 10 Hz | 34 |
| Figure 6 | One second of Rayleigh fading with a maximum Doppler shift of 100 Hz | 35 |
| Figure 7 | MATALAB function Simulink with scatter | 45 |
| Figure 8 | Simulink model of an adaptive MIMO system | 47 |
| Figure 9 | An ideal 16 QAM scatter plot | 48 |
| Figure 10 | re-presentation of multicasting | 51 |
| Figure 11 | Construction of Cellular Network | 53 |
| Figure 12 | Comparison of Throughputs | 54 |
| Figure 13 | Comparison of ET with increased number of Users | 55 |
| Figure 14 | Comparison of Analytical and actual values of CA-FIL | 56 |
| Figure 15 | The ET versus outage probability for different Radii | 57 |