**DESIGN AN IMPLEMENTATION OF SENSOR FOR SMALL MIMO WIRELESS NETWORKS**

**A PROJECT REPORT**

***Submitted* by**

**D. MAHESWARAN 821121106025**

**M. MOHAMED YASEEN 821121106030**

**M. MUKILVANNAN 821121106032**

**P. SUDHARSAN 821121106055**

***in partial fulfillment for the award of the degree***

***of***

**BACHELOR OF ENGINEERING**

**IN**

**ELECTRONICS AND COMMUNICATION ENGINEERING**

**KINGS COLLEGE OF ENGINEERING, PUNALKULAM**

**ANNA UNIVERSITY: CHENNAI 600 025**

**MAY 2025**

**ANNA UNIVERSITY: CHENNAI – 600 025**

**BONAFIDE CERTIFICATE**

Certified that this report titled **“DESIGN AN IMPLEMENTATION OF SENSOR FOR SMALL MIMO WIRELESS NETWORKS” is** the Bonafide work of **“D. MAHESWARAN (821121106025), M. MOHAMED YASEEN (821121106030), M. MUKILVANNAN (821121106032), P. SUDHARSAN (821121106055)”** who carried out the project work under my supervision.

**SIGNATURE**

Mrs. N. MANGAIYARKARASI, M.E.,

**HEAD OF THE DEPARTMENT,**

Department of ECE,

Kings College of Engineering,

Punalkulam,

Pudukkottai – 613 303.

**SIGNATURE**

Mr. K. SUDARSANAN, M.E.,

**SUPERVISOR,**

Assistant Professor,

Department of ECE,

Kings College of Engineering,

Punalkulam,

Pudukkottai – 613 303.

Submitted for the university viva voce held on ………………

**INTERNAL EXAMINER EXTERNAL EXAMINER**

**ACKNOWLEDGEMENT**

We owe great thanks to the Almighty for His shoers of blessings and his divine help which enables us to complete the Project successfully.

We would like to express out thanks to **Dr. R. Rajendran, Secretary,** for his support and encouragement.

We wish to express our deep sense of gratitude and respect **to Dr. J. Arputha Vijaya Selvi, Principal,** Kings College of Engineering, Punalkulam, for giving permission to do the project work successfully.

A special thanks to **Shri. T. R. S. Muthukumar, CEO,** Kings College of Engineering, Punalkulam, for offering the means of attaining our most cherished goal and for their incessant support.

We express our sincere thanks to **Mrs. N. Mangaiyarkarasi, Head of the Department,** Electronics and Communication Engineering, and **Mr. W. Newton Davod Raj, Project Coordinator,** who endorsed us with constant encouragement, and for extending full support.

With immense pleasure, we extend our sincere and heartfelt thanks to **Mr. K. Sudarsanan, Project Guide.** We also extend our sincere thanks to all the staff members of ECE department.

We extend our sincere and heartfelt thanks to non-teaching staff members of ECE department. Our deepest thanks to our parents for updating us by providing professional Education and for their prayerful support that make me to complete the project.

(D. MAHESWARAN)

(M. MOHAMED YESEEN)

(M. MUKILVANNAN)

(P. SUDHARSAN)

**ABSTRACT**

**TABLE OF CONTENTS**

|  |  |  |
| --- | --- | --- |
| **CHAPTER NO.** | **TITLE** | **PAGE NO.** |
|  | **ABSTRACT** |  |
|  | **LIST OF TABLES** |  |
|  | **LIST OF ABBREVIATIONS** |  |
| **1** | **INTRODUCTION** |  |
|  | 1.1 OVERVIEW OF THE PROJECT |  |
|  | 1.2 WIRELESS COMMUNICATION |  |
|  | 1.3 WIRELESS COMMUNICATION STANDARD |  |
|  | 1.4 5G / 6G GENERATION |  |
|  | 1.5 MIMO CHANNELS |  |
|  | 1.6 TYPES OF MIMO |  |
|  | 1.7 IRS DETAILS |  |
|  | 1.8 COMSOL MULTIPHYSICS 6.3 |  |
| **2** | **LITERATURE SURVEY** |  |
| **3** | **EXISTING AND PROPOSED SYSTEM** |  |
|  | 3.1 EXISTING SYSTEM |  |
|  | 3.1.1 Disadvantages |  |
|  | 3.2 PROPOSED SYSTEM |  |
|  | 3.2.1 Advantages |  |
| **4** | **SYSTEM DESIGN** |  |
|  | 4.1 BLOCK DIAGRAM |  |
|  | 4.2 DESCRIPTION |  |
| **5** | **HARDWARE REQUIREMENTS** |  |
|  | 5.1 |  |
| **6** | **SOFTWARE REQUIREMENTS** |  |
|  | 6.1 COMSOL MULTIPHYSICS 6.3 |  |
|  | 6.2 INTRODUCTION OF THE SOFTWARE |  |
|  | 6.3 SOFTWARE FEATURES |  |
|  | 6.4 FUNCTIONS |  |
| **7** | **SYSTEM IMPLEMENTATION** |  |
|  | 7.1 |  |
|  | 7.2 |  |
|  | 7.3 |  |
|  | 7.4 |  |
| **8** | **EXPERIMENTAL RESULT AND ANALYSIS** |  |
| **9** | **CONCLUSION** |  |
| **10** | **FUTURE SCOPE** |  |
|  | **APPENDEX** |  |
|  | **REFERENCES** |  |