

**OPTIMIZATION OF THE ENERGY CONSUMPTION FOR DATA
COLLECTION AND TRANSMISSION IN A DIGITAL TWIN APPLICATION**

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Revision after the Thesis Defense on 12 July 2023

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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ABSTRACT

OPTIMIZATION OF THE ENERGY CONSUMPTION FOR DATA COLLECTION AND TRANSMISSION IN A DIGITAL TWIN APPLICATION

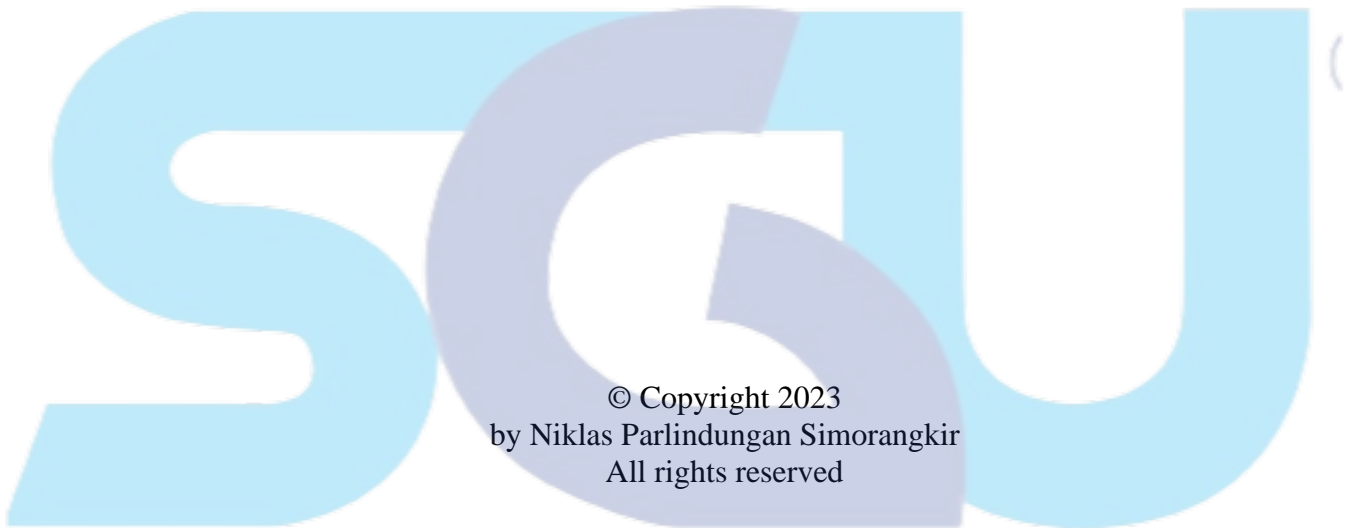
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The Internet of Things (IoT) has become an important aspect of daily life. It offers various functions for people to utilize. IoT has become indispensable due to its numerous capabilities, one of which is its ability to upload data to the cloud through the IoT network, especially when there is a significant amount of data involved. However, it has become imperative that certain optimizations are needed to ensure that conducting such activities does not inflict a high cost. Optimizing energy consumption is one of these interests, and there are multiple ways to achieve this, one of which is to select the best IoT module. Determining certain adjustments of the parameters will also help in the optimization of energy consumption. This is also helped by the use of digital twin, in which a virtual system is developed in imitation of the physical system; a simulation is one such example. By choosing the module with the lowest energy consumption value (10 J) to conduct certain activities and adjusting the parameters involved, the energy consumption will be optimized and the utilization of IoT will be implemented significantly better.

Keywords: Digital Twin, Internet of Things, Energy Consumption Optimization, Deep Learning



DEDICATION

I dedicate this work to God, my family, friends, lecturers, and colleagues, who have provided me with endless support.



ACKNOWLEDGEMENTS

I would like to thank God for all the blessings that He gave me, in which I have found hope, strength and endurance throughout my thesis work.

I wish to express my love and thanks to my family and friends, who have provided me with endless support.

I would like thank Prof. Dr. -Ing Robert Bach for being an excellent Advisor, constantly pushing me to do the best that I can and encourage me to not complicate things; as he once said to me, “Stay simple!”.

Dr. Aditya Tirta Pratama, my Co-Advisor, has been wonderful in helping guide me throughout the whole process of my thesis, providing me with numerous ideas on how to resolve the obstacles that I faced.

Last but certainly not least, I thank Adinata Danapati and the research team in Germany for supervising my work and giving me suggestions on how to develop my thesis better. While there were various issues and challenges, they kept supporting me and for that I will always remain grateful.

TABLE OF CONTENTS

STATEMENT BY THE AUTHOR.....	2
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF FIGURES.....	10
LIST OF TABLES.....	11
CHAPTER 1 - INTRODUCTION.....	12
1.1 Background.....	12
1.2 Research Problems.....	13
1.3 Research Objectives.....	13
1.4 Significance of Study.....	13
1.5 Research Question.....	13
1.6 Scope and Limitations.....	14
CHAPTER 2 - LITERATURE REVIEW.....	15
2.1 Digital Twin.....	15
2.2 Network Optimization in IoT.....	17
2.3 Stochastic Modelling.....	17
2.3.1 Stochastic Gradient Method.....	17
2.3.2 Prediction Quality.....	18
2.4 Energy Consumption of IoT Modules.....	21
2.5 Previous Study – Comparison of LoRa and NB-IoT in Terms of Power Consumption (Tan, L. (n.d.)).....	22
2.6 Previous Study – Energy Harvesting at a 110-kV-Cable for Independent Monitoring Purposes (Danapati, 2022).....	23

CHAPTER 3 – RESEARCH METHODS	25
3.1 Methodology Framework.....	25
3.2 Data Collection	26
3.2.1 IoT Communication Modules.....	26
3.2.2 Generating Data.....	28
3.3 Stochastic Modelling: Deep Learning	29
3.3.1 MATLAB Program	29
3.3.2 Deep Network Designer	32
3.3.3 Determining Prediction Quality	36
3.3.4 Power Consumption Analysis	37
3.4 Energy Consumption Simulation.....	40
3.4.1 Series Upload.....	42
3.4.2 Parallel Upload	43
3.5 Analysis and Recommendations	45
CHAPTER 4 – SIMULATION, RESULTS AND DISCUSSIONS.....	47
4.1 Generating Data	47
4.2 Trained Network	48
4.2.1 SIM7080G	48
4.2.2 SIM8262E.....	49
4.2.3 SIM900	50
4.2.4 LoRa	50
4.2.5 SIM7600E.....	51
4.3 Power Consumption Results	51
4.4 Energy Consumption Performance Results	55
4.4.1 Series Upload.....	55
4.4.2 Parallel Upload	57
4.5 Energy Consumption – Cost Trade-off.....	59
4.6 SRS and Assessment Form	60
CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS.....	61

5.1 Conclusion	61
5.2 Recommendations	62
GLOSSARY	63
REFERENCES	64
APPENDIX.....	67
CURRICULUM VITAE.....	79



LIST OF FIGURES

Figure 1. Mind Map of Literature Sources	15
Figure 2. IoT Architecture (Liu et al., 2021)	16
Figure 3. Features of NB-IoT Device (Michelinakis et al., 2020).....	21
Figure 4. Energy Consumption Results Based on Coverage Conditions (Michelinakis et al., 2020)	22
Figure 5. System Set-Up (Danapati, 2022).....	24
Figure 6. Research Methodology Framework	25
Figure 7. NB-IoT Module (SIM7080G) b) 5G Module (SIM8262E) c) SIM900 (Sim Com, 2009, as cited in Danapati, 2022) d) LoRa Module c) SIM7600E	27
Figure 8. Block Diagram for Data Collection of Power Consumption Values.....	29
Figure 9. Block Diagram of MATLAB Program.....	30
Figure 10. Layers for the LSTM Network	34
Figure 11. Analysis of the Network Layer Sample.....	35
Figure 12. Import Custom Data Window Sample	35
Figure 13. Layout for Series Upload and Parallel Upload.....	41
Figure 14. Random Number Block Settings	41
Figure 15. Layout for Series Upload Subsystem	42
Figure 16. Layout for Parallel Upload Subsystem.....	44
Figure 17. Layout for IoT Module Subsystem (SIM7080G Sample).....	45
Figure 18. SIM7080G Trained Network (Red: Training Loss, Black: Validation Loss)	49
Figure 19. SIM8262E Trained Network (Red: Training Loss, Black: Validation Loss)	49
Figure 20. SIM900 Trained Network (Red: Training Loss, Black: Validation Loss)	50
Figure 21. LoRa Trained Network (Red: Training Loss, Black: Validation Loss)	50
Figure 22. SIM7600E Trained Network (Red: Training Loss, Black: Validation Loss)	51
Figure 23. Bar Chart of Energy Consumption of IoT Modules in Series Upload	57
Figure 24. Bar Chart of Energy Consumption of IoT Modules (Parallel Upload)	58

LIST OF TABLES

Table 1. Categorization of the IoT Modules	28
Table 2. Data Utilized for the Simulation	48
Table 3. Detailed Information on Predicted Power Consumption of the IoT Communication Modules	52
Table 4. Power Consumption (PC) Per Second, PC Per Minute and PC Per Hour	53
Table 5. Power Consumption (PC) Per Package, Power Draw Limit Per Second, and Time Needed to Send the Package	54
Table 6. Energy Consumption Results (Series Upload)	56
Table 7. Energy Consumption Results (Parallel Upload)	57
Table 8. Energy Consumption – Cost Comparison of the IoT Communication Modules	59