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An Intelligent IoT-Based Framework for Smart City Traffic Management Using Machine Learning

(Title should be written in Baskerville Old Face, 16pt, Bold, Centered)

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Abstract

The abstract is an essential part of a scientific article that serves as a comprehensive summary of its content. Write the abstract concisely, clearly, and precisely, aiming for a length of 150 to 250 words. The main purpose of the abstract is to provide readers with a quick overview of the research without requiring them to read the entire article. Therefore, authors must ensure that the abstract includes five key elements: the background or research problem, the objective of the study, the methodology employed, the main results, and the conclusions along with the contributions of the research. The abstract must be written in a single paragraph without numbering or bullet points, using objective and impersonal language, typically in the past tense, as it describes completed work. Abstracts should not include citations, figures, or tables. In addition, authors must provide a list of keywords after the abstract, consisting of 3 to 6 important words or phrases relevant to the research topic, separated by commas. A well-written abstract enhances the appeal and visibility of the article in indexing systems and academic search engines. Therefore, authors should pay careful attention to clarity and precision (Baskerville Old Face, 11pt, Regular, Justify, Single Line Spacing).

Keywords: Abstract Writing, Article, Research Structure, Academic Writing, Journal Publication

1. Introduction

The introduction section primarily includes the research problem, insights and plans for solving it; a clear formulation of the research objectives; and a summary of relevant theoretical reviews related to the problem under study. This section may also present expectations regarding the results and potential benefits of the research. The recommended length of the introduction is approximately 2 to 3 pages, typed with single line spacing. The article template is prepared in Microsoft Word format and should be saved in Rich Text Format (RTF). The main body text should use Baskerville Old Face, 12pt, Regular Style, Single Line Spacing, with spacing before and after set to 0 pt.

2. Methodology

The methodology section is a crucial component of a scientific article, particularly in the fields of electrical engineering and computer science. It provides a detailed explanation of the research process. This section should be written systematically and objectively to allow readers to understand the approach used, assess the reliability of the results, and potentially replicate the study. A well-structured methodology provides transparency and strengthens the credibility of the research findings.

In electrical engineering research, the methodology generally includes a description of the system or circuit design and the types and specifications of hardware used, as well as the stages of development and testing. In computer science research, it typically involves explanations of system architecture, software development processes, algorithms implemented, and the programming languages or platforms used. Additionally, in both fields, the methodology should clearly describe the data collection techniques, whether through experiments, simulations, or digital data sources.

Testing procedures and evaluation methods should also be explained by specifying the metrics or parameters used, such as accuracy, efficiency, response time, or overall system performance. If the research involves artificial intelligence or machine learning models, it is necessary to describe the training and validation processes, data preprocessing techniques, and performance measurements. The methodology should be presented in narrative paragraph form using scientific and impersonal language, and it is typically written in the past tense to describe completed actions. Subheadings may be used if necessary to clarify specific parts but should follow the formatting style of the journal. The

recommended length of the methodology section is typically between one to three pages, depending on the complexity of the research, and it should provide a comprehensive overview that supports the results and conclusions of the article.

3. Results and Discussion

The Results and Discussion section is a vital part of a scientific article that presents the core findings of the research and interprets their significance. This section should not only report the data obtained from experiments or system implementations but also explain and analyse the results in the context of the research objectives and relevant theories. Results must be presented clearly, supported by tables, graphs, or figures when necessary, and described concisely in the accompanying text. Each figure or table should be numbered and referenced appropriately in the narrative.

In electrical engineering and computer science research, results may include measurements, system performance, simulation outputs, algorithm accuracy, or comparative benchmarks. The discussion should go beyond restating the results; it must interpret what the findings mean, how they align or contrast with previous studies, and what implications they have for theory or practice. It is essential to identify any anomalies or unexpected results and provide logical explanations or hypotheses. In system development or implementation research, the discussion may also evaluate the strengths and limitations of the proposed approach or system.

Authors are encouraged to integrate the discussion directly with the results instead of separating them into different sections, as this allows for a more cohesive narrative. Use objective and critical language to illustrate the importance of the findings. Avoid overgeneralising or making unsupported claims. The Results and Discussion section should convincingly show how the research contributes to solving the problem stated in the introduction, and it should lay the groundwork for the conclusions drawn later in the article. The length of this section may vary depending on the complexity of the data and analysis, but clarity, coherence, and relevance are essential at all times.

3.1 Abbreviations and Acronyms

Electrical engineering and informatics fields allow the use of abbreviations and acronyms in scientific writing to simplify frequently used technical terms. However, authors must ensure that such usage does

not compromise the clarity and readability of the manuscript. Commonly recognized abbreviations and acronyms such as IEEE, IoT, AI, SI, MKS, CGS, AC, DC, and RMS do not require explicit definitions.

In contrast, any less commonly known or author-created abbreviations must be clearly defined at their first occurrence in the text. For example, a Smart Environment Integration Platform (SEIP) can be used for real-time energy monitoring. Once introduced, the abbreviation should be used consistently throughout the article.

Authors are advised to avoid using abbreviations or acronyms in the article title, except when absolutely necessary and when no suitable alternative exists. Ambiguous or unfamiliar abbreviations should be avoided, as they may lead to misinterpretation. The proper and consistent use of acronyms enhances reader comprehension, especially in interdisciplinary fields such as embedded systems, computer networks, signal processing, and artificial intelligence.

3.2 Units

In scientific articles within the fields of electrical engineering and informatics, the correct and consistent use of units is essential to ensure clarity, precision, and reproducibility of results. Authors are required to adhere to the following guidelines when presenting units:

- Use SI (International System of Units/MKS) as the primary unit system. The use of CGS units should be avoided unless specifically required, as SI is the standard in engineering and computing disciplines.
- Avoid mixing SI and CGS units within the same article to prevent confusion and potential dimensional inconsistencies. Consistency in unit systems supports accurate interpretation and cross-comparison of data.
- Do not mix abbreviated and full unit names in the same context. For example, use either "Wb/m^2" or "webers per square meter," but not "webers/m^2." Consistency in notation contributes to a professional and standardized presentation.
- When using derived or compound units (e.g., V/m, A·s, Ω·cm), ensure proper formatting and avoid unconventional abbreviations.
- For digital systems or computing contexts (e.g., data size or processing speed), use standard notations such as bit, byte, Mbps, and GHz, and specify base values (binary or decimal) when needed to avoid ambiguity.

By following these unit conventions, authors help maintain the scientific integrity of the article and ensure that findings are communicated effectively to a broad audience in engineering and computing domains.

3.3 Equations

Equations should be written using Ms. Equation or Symbol fonts. If there are multiple equations, they must be numbered sequentially, with the equation number aligned to the far right, e.g., (1), (2), etc. Use appropriate mathematical symbols to keep the equations concise and readable. Italic font should be used for variables, while bold font is used for vectors.

Example: $\alpha + \beta = \chi$ (1)

3.4 Tables and Figures

Table titles should be placed above the tables, while figure captions should be placed below the figures. When referring to specific tables or figures in the text, mention them explicitly using the appropriate format, such as Table 1 or Figure 1.

Example:

As shown in Table 1, the system achieved an accuracy of 95%. The visualization of the test results is presented in Figure 1.

Table 1. Table Format

Head	**Column Header**	
	Sub-Head	**Sub-Head**
Content	Table content	Table content

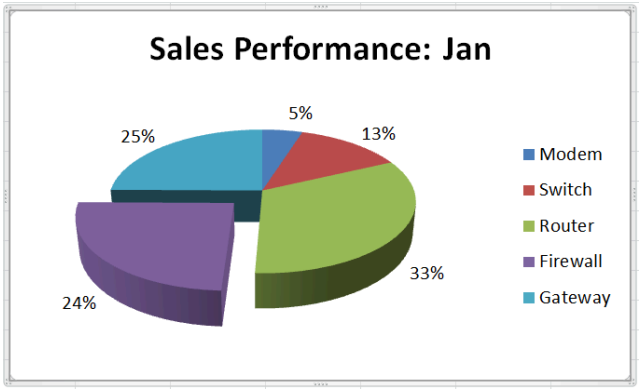

Figure 1. Example of a Figure Caption

3.5 Citations and References

The list of references must be complete and consistent: each citation within the body of the text must have a corresponding entry in the References, and vice versa. To uphold academic rigor, references should be adequate in number, relevant to the topic, and accurately presented. The reference list should be arranged alphabetically and follow the specific citation style adopted by the journal, such as IEEE.

In academic writing, paraphrasing is the preferred method for integrating cited material. Rather than quoting sources directly, authors should summarize or restate the original ideas in their own words. For instance, the Internet of Things (IoT) refers to interconnected devices equipped with sensors and technologies to share data across networks [2].

In IEEE style, in-text citations are represented by numbers in square brackets that correspond to the reference list at the end of the paper.

Rules for IEEE In-Text Citations

1. Order of appearance
   - References are numbered sequentially in the order they appear in the text.
   - Example: ... as shown in [1]; ... described in [2], [3].
2. Multiple citations
   - When citing more than one source, list all numbers inside the same brackets, separated by commas or a dash.
   - Example: Several studies [2], [4], [7] have demonstrated...
   - Example: As shown in [5]–[7], the algorithm...

3.6 Bibliography

The bibliography or References section lists all the materials that were cited or consulted during the writing process. This section is an

integral part of academic integrity, allowing readers to locate the original sources used.

4. Conclusion

The conclusion presents a summary of the results and discussion, referring back to the objectives of the research. From these, key points are developed that reflect the essence of the research findings.

References

(Write references in a consistent style, e.g., IEEE. All references cited in the text must appear here, and vice versa.)

Examples:

[1] F. N. Al-Wesabi *et al.*, "Revolutionizing healthcare: An IoT-driven approach to remote patient health monitoring and management during the pandemic and beyond," *Alexandria Engineering Journal*, vol. 126, pp. 358–367, 2025, doi: 10.1016/j.aej.2025.04.068.

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