

## Practical 2 – Research Methods and Applications

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25-04-2024

This report presents a critic review of paper named “Fuzzy Internet of Things-based water irrigation system (Dhumale, 2023)” written by Dummale and Others.

### bibliographic detail of the paper

#### Bibliography

Dhumale, R. a. N. a. U. A. a. N. S. a. M. P. a. S. A., 2023. Fuzzy Internet of Things-based water irrigation system. *Agricultural Engineering International: CIGR Journal*, 25(3).

### Review of the Selected Paper:

The paper selected presents a water irrigation system which is based on Internet of Things and Fuzzy logic.

#### Overall structure and logic

The paper represents a novel approach of solving the challenges exist in the water irrigation system, with state of art technologies and strategies with real time predictions. The implementation of embedded system proposed by the author has been described in this paper comprehensively. The paper started with an Introduction. Then directly moved to the methodology defined the solution. Followed by that the Fussy Inference System logic has been provided. Then provided the results and discussion along with a conclusion.

The main point is the implementation of proposed solution. The author has succeeded well enough to present the solution with architecture of the model and the logic used to compute the required output.

The way the paper has been structured was found hard for a reader to get an understanding and defined the edge between the current state of the problem defined, understanding about the terminologies used, and the approach proposed to solve the problem. The literature review part has been mixed up with the introduction, which could have been structured into sections and subsections to give a clear understanding for the readers to get a space for thinking and creating the necessity of solving the problem using a better approach. As of my point of view, the author failed to create that space to the user. Apart from the literature review, the proposed system implementation has been done in detail.

Along with the architecture, the description of the solution which is presented with the explanation of how it's being depicted in the real world was clear and impressive. A significant example has been provided which uses the concept of fuzzy logic to get the output with maximum accuracy.

The interpretation of the results which can be applied to various farming domains have been discussed prior to the conclusion made, which was sounded and has justified the objective of the paper.

#### Reader-friendliness

Apart from the literature review part, the rest of the paper was well structured and was easy and refined for a reader with least knowledge about the subject though some of the adequate sections

which makes the research significant has found to be missing. For instance, the recommendations and hints for the further research which could benefit the readers to think extensively about the paper.

The key definitions of the terminologies implemented has not been mentioned in the literature review part in a proper way which makes the reader hard to get the concepts well. Another problem which was found is that the author failed to create the flow between the sections throughout the paper. This makes the readability of the paper less.

### **Proof-reading**

While reading the paper, any grammatical error, missing words, or typing mistake have not found. But the words or notations used in the implementation could have been specified separately at the beginning of the implementation under a section, which could have made the user easy to get a clear understanding of the solution made and the way how the real implementation works.

Most of the sentences uses passive voice, except some places where author must be highlighted, which was quite acceptable. The English used to express the understanding of the problem and solution definitions and descriptions were found to be simple and readable except the difficulty faced to extract the notations/ variables used to express state or operation in the architecture proposed. As of my point of view the author could have made such words or notations bold or italic which would have been made easy for the reader to see it well and separate it from the content of the paper.

### **Visual aspect**

The layout of the paper was quite good, but the alignment of pictures could have been given more attention by the author which would make the paper more impressive, especially the figures 3 and 4, which consumes almost three quarter of the page, which was unnecessary and annoying for the reader to get with the flow of the paper.

The tables and graphs given in the paper was quite impressive and understandable from the readers point of view however, the author could have extended the table given (see Table 3) more detailed instead of giving explanation of the result as paragraphs. With an assumption that most of the reader wouldn't prefer to read paragraphs instead understand the concepts from tables.