AI DRIVEN SAFETY EQUIPMENT MONITORING SYSTEM FOR ELECTRICAL INDUSTRY

A PROJECT REPORT

Submitted by

MARABATTINA MANOJ KUMAR

(En. No.: MSAI22R011)

in partial fulfillment for the award of the degree

of

MASTER OF SCIENCE

IN

COMPUTER SCIENCE (AI&ML)

DEPARTMENT OF COMPUTER SCIENCE (AI&ML)

RAJIV GANDHI NATIONAL INSTITUTE OF YOUTH DEVELOPMENT

SRIPERUMBUDUR- 602105

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BONAFIDE CERTIFICATE

Certified that this Project report "**AI Driven Safety Equipment System For Electrical Industry** " is the bonafide work of **Marabattina Manoj Kumar** who carried out the project work under my supervision.

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ABSTRACT

The AI-Driven Safety Equipment Monitoring System for the Electrical Industry revolutionizes workplace safety by leveraging advanced artificial intelligence and machine learning. This innovative system automates the monitoring and upkeep of safety gear like helmets, shoes, and gloves, ensuring they comply with safety standards and are fit for use

Keywords: AI-Driven Safety Equipment Monitoring System, Real-Time Image Recognition, YOLO Model, Workplace Safety, Alert System.

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Acronyms

AI Artificial Intelligence
ML Machine Learning
DL Deep Learning

Symbols

Π An Pi Symbol
β An Beta Symbol
σ An Sigma Symbol
α Another Alpha Symbol

Chapter 1

Introduction

The first chapter of the dissertation is almost invariably the Introduction. Generally, its purpose is to lead the readers into the problem you intend to attack in the project, to set the scene. The main points here consist of the background to the problem and your motivation in solving it. This then leads into the objectives and the scope of the project. It is good to conclude your Introduction with a section on the layout of the dissertation. It prepares the readers for what is to come

1.1 Detailed Description of the problem

Detailed Description of the problem goes here. Also you can put in some references [1].

Here is a sample of table in Table 1.1

Table 1.1: A table without vertical lines.

	Treatment A	Treatment B
John Smith	1	2
Jane Doe	–	3
Mary Johnson	4	5

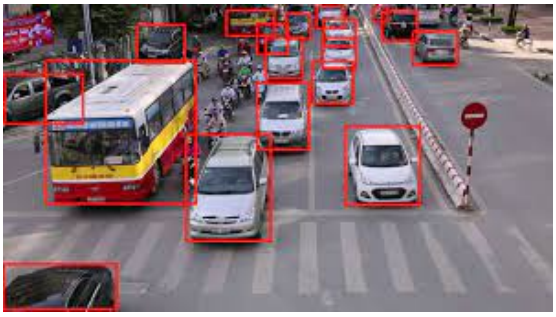

Figure 1.1: boundingboxexample

Also can try to refer to this image in Figure 1.1. Notice that the `.eps` and `.pdf` format vector graphs are favoured, because:

1. they can be zoomed-in to check the detail.
2. text in such formats are search-able.

Try to insert a math equation as in Equation 1.1. If you wanna try the in-line mathematical, here is a sample $\alpha = \pi \cdot \frac{1}{\Theta}$.

$$e^{ix} = \cos x + i \sin x \tag{1.1}$$

Also here is a sample for footnote and hyperlink url[1].

When mention some file formats can use `music.mp3`, `latex.pdf`, etc.

If there are any update of the dissertation standard, or you want to contribute to the `NTU-EEE-MSc-Dissertati` project too, kindly send an E-mail to me. Thank you :)

1.2 Challenges & Motivation

[1] `https://github.com/doem97`

Chapter 2

Literature Review

Then comes the main part of your work. To lay the ground, there should first be a chapter on what has been done before on the problem - a Literature Review. This is an important section because it shows that you do not narrowly focus only on what you do, but are aware of the related work elsewhere, some of which might be instructive to your solving the problem. It can also explain why you are taking the direction you do.

2.1 Existing Works (EW) Methods/Technologies

(Co-localization methods of auto-drawing bbox) [2]

2.2 Project Objectives

(Propagate bbox by co-segmentation) [3]

Chapter 3

Detailed analysis of the Proposed method(s)

3.1 Methodology to solve the Problem (Proposed Algorithm/Methods)

The next few chapters should describe the work you have done in tackling the problem. There might be a chapter on the fundamental theories relevant to the solution you are pursuing, or the supporting technologies you need in implementing the solution. Then there should be a chapter on the solution itself, followed by a chapter on the results and analysis of the results

3.1.1 one

two

three

Chapter 4

Experimental Setup

4.1 Design & Implementation of the Project Work

4.2 Two

4.3 Three

Chapter 5

Discussion & Results

5.1 One

Generally, there should be no more than six or seven chapters in your dissertation. If you have more than that, you should take a close look at its orgainsation and see if certain chapters can be merged.

5.2 Performance measures

5.3 Comparison of the proposed work/Complexity analysis if required

Chapter 6

Conclusion

6.1 Scope & limitations

The last chapter is always the Conclusion. This generally should have three parts. The first is a concise summary of the work you have done. In a way, this is similar to the abstract. Then there is the conclusion, in which you highlight the significance of the results, and perhaps the consequences of the results, critically where necessary. The last thing is usually recommendations and/or future work, in which you identify the inadequacies of what you have done, and suggest how the gaps may be plugged.

6.2 Future directions

Documents that are prepared with the help of other sources should have a list of sources cited. A list of References contains only sources the writer quotes directly, takes original ideas from, and refers to in the dissertation should be included. In reports where the subject is primarily scientific, the list of references is the most widely accepted way to cite specific sources.

6.3 Three

6.4 Four

6.4.1 Six

References

[1] Olaf Ronneberger, Philipp Fischer, and Thomas Brox. U-net: Convolutional networks for biomedical image segmentation. In *International Conference on Medical image computing and computer-assisted intervention*, pages 234–241. Springer, 2015.

[2] Ian Goodfellow, Yoshua Bengio, and Aaron Courville. *Deep Learning*. MIT Press, Cambridge, MA, 2016.

[3] OpenAI. Chatgpt: Language models are few-shot learners, 2024. Accessed: 2024-05-30.