OPTICAL CHARACTER RECOGNISER AND TRANSLATOR

A PROJECT REPORT

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ABSTRACT

India has 22 constitutionally recognised languages written in 13 different scripts. An average traveller, on a business or pleasure trip, often gets confused by the various signboards written in an unfamiliar language in a new region. This often spoils the experience of visiting a new place and the traveler goes back with not-so-fond memories. The resulting unfortunate, unpleasant and unproductive bitterness can easily be avoided by building better Apps. The field of Artificial Intelligence and Mobile Application platforms have made it possible to offer an efficient and robust solution to those problems.

The Project focuses upon automatically detecting and recognizing the text inside an image and translate it from the corresponding language into English. The above tasks require the knowledge of python, state-of-the-art deep learning algorithms, flutter, flask API and principal experience in android app development.

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CHAPTER 1

INTRODUCTION

This chapter is about the introduction of your work.

1.1 FORMAT OF THE THESIS

A few guidelines for writing the thesis are given below. These are taken from Ph.d regulations of Anna University [1].

1.1.1 Table of Contents

The Table of contents should list all captions following it as well as any caption which precedes it. The title page, Certificate and Acknowledgment will not find a place among the items listed in the Table of Contents but the page numbers of which are in lower case Roman letters. One and a half line spacing should be adopted.

1.1.2 List of Tables and Figures

The list should use exactly the same captions as they appear above the Tables and Figures in the text. One and a half line spacing should be adopted.

1.1.3 List of Symbols and Abbreviations

One and a half line spacing should be adopted for typing the matter under this head. Standard symbols, abbreviations, etc. should be used.

1.1.4 Chapters

The chapters may be broadly divided into 3 parts (i) Introductory chapter, (ii) Chapters developing the main theme of the Thesis and (iii) Results, Discussion and Conclusion. The main text shall be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

- Each chapter should be given an appropriate title.
- Tables and Figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.
- Footnotes should be used sparingly. They should be typed single space and placed directly underneath in the very same page which refers to the material they annotate.

1.1.5 Appendices

Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction and cloud the central theme under discussion.

- Appendices should be named alphabetically starting from Appendix A, Appendix B, etc.

- Appendices, Tables and references appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters.
- Appendices shall carry the title of the work reported and the same title shall be included in the Table of Contents page.

1.1.6 References

Any works of other researchers, if used either directly or indirectly, the origin of the material thus referred to at appropriate places in the thesis should be indicated. Use of bibtex is recommended.

1.1.7 Citation

A few examples for citing articles, books and websites are given in Chapter 2.

1.1.8 Tables and Figures

A Table or Figure including caption should be accommodated within the prescribed margin limits and appear on the page following the page where their first reference is made.

- Tables and Figures on half page or less in length may appear on the same page along with the text. However, they should be separated from the text both above and below by triple spacing.

- Tables and Figures on half page or less in length may appear on the same page along with the text. However, they should be separated from the text both above and below by triple spacing.
- All Tables and Figures should be prepared on the same paper or material used for the preparation of the rest of the Thesis.
- Two or more small Tables or Figures may be grouped if necessary in a single page.

1.2 TYPING INSTRUCTIONS

Some guidelines for typing are provided below.

1.2.1 General

One and a half line spacing should be used for typing the general text. The general text shall be typed in Font Style Times New Roman and Font Size 13.

1.2.2 Chapter

The word CHAPTER without punctuation should be centered 50 mm down from the top of the page. Two spaces below, the title of the chapter should be typed centrally in capital letters. The text should commence 4 spaces below this title, the first letter of the text starting 20 mm inside from the left hand margin. The division and sub-division captions along with their numberings should be left justified. The typed material directly below division or sub-division heading should commence 2 spaces below it and should be offset 20 mm from the left hand margin. Within a division or sub-division paragraphs are permitted.

Even paragraph should commence 3 spaces below the last line of the preceding paragraph, the first letter in the paragraph being offset from the left hand margin by 20 mm.

1.3 NUMBERING INSTRUCTIONS

1.3.1 Page Numbering

All page numbers (whether it be in Roman or Arabic numbers) should be typed without punctuation on the upper right hand corner 20 mm from the top with the last digit in line with the right hand margin. The preliminary pages of the Thesis (such as Title page, Acknowledgement, Table of Contents, etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered as (ii) and it should appear at the top right hand corner as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals.

1.3.2 Numbering of Chapters, Divisions and Subdivisions

The numbering of chapters, divisions and sub-divisions should be done using Arabic numerals only and further decimal notation should be used for numbering the divisions and sub-divisions within a chapter. For example sub-division 4 under division 3 belonging to chapter 2 should be numbered as 2.3.4. The caption for the sub-division should immediately follow the number assigned to it. Refer below to the subsection and subsubsections. Every chapter beginning with the first chapter should be serially numbered using Arabic numerals.

1.3.2.1 A subdivision of the subsection

Use `subsubsubsection` in Latex to indicate a subdivision. The numbering should automatically appear in the Table of Contents.

1.3.3 Numbering of Tables and Figures

Tables and Figures appearing anywhere in the Thesis should bear appropriate numbers. The rule for assigning such numbers is illustrated by an example. Thus, if a Figure in Chapter 3, happens to be the fourth then assign 3.4 to that Figure. Identical rules apply for Tables except that the word Figure is replaced by the word Table. If Figures (or Tables) appear in appendices then Figure 3 in Appendix Section 2 will be designated as Figure A 2.3. If a table to be continued into the next page this may be done, but no line should be drawn underneath an unfinished Table. The top line of the Table continued into the next page should, for example read Table 2.1 (continued) placed centrally and underlined.

1.3.4 Numbering of Equations

Equations appearing in each Chapter or Appendix should be numbered serially, the numbering should commence afresh for each Chapter or Appendix.

CHAPTER 2

EXISTING WORK

This chapter should provide the details about the related work. Atleast 20 articles should be referred and cited. The explanation should be provided within sections and subsections.

Include the limitations of the existing work and briefly explain how your idea is advantageous over the existing ones in this chapter.

2.1 METHOD OF CITATION

Following are a few methods of citation.

2.1.1 Citation of Journals

Method for citing journals can be seen in References [2], [3] and [4].

2.1.2 Citation of Proceedings

Proceedings should be cited as given in the References [5] and [6].

2.1.3 Citation of Websites

The websites should be cited as shown in this Reference [1].

2.1.4 Citation of Books

Books should be cited as shown in References [7] and [8]. The edited book that consists of several articles should be cited as shown in the Reference [9].

2.1.5 Citation of Thesis

Reports and thesis should be referred as given in the Reference [10].

2.1.6 Citation of Patents/ Newspapers/ Media

Check the Reference [11] for referring the patent information and [12] for citing newspapers or other media related information.

2.2 SECTION 2

2.2.1 Subsection 1

2.2.2 Subsection 2

2.3 SECTION 3

2.3.1 Subsection 1

2.3.2 Subsection 2

CHAPTER 3

DESIGN OF YOUR WORK

Your actual work should come in here. Include system architecture, modules, etc., with diagrams and provide an explanation for each of these.

3.1 VIEW OF TABLES

Sample view is shown in Table 3.1 and an example is given in Table 3.2.

Table 3.1: Example 1

$c1$	$c2$
r1	r2
r1	r2

Table 3.2: Example 2

x	y
x	*not* y

3.2 VIEW OF FIGURES

Examples of pictures are shown in Figure 3.1 and Figure 3.2.

3.3 VIEW OF EQUATIONS

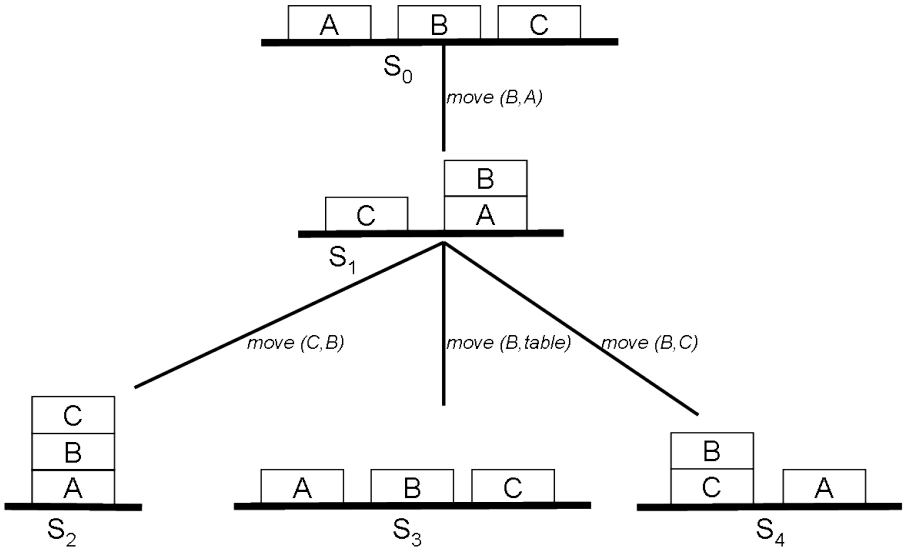

Figure 3.1: Example 1

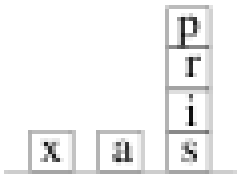

Figure 3.2: Example 2

The sum of squares of a and b are calculated as shown below:

$$(a+b)^2 = a^2 + b^2 + 2ab \tag{3.1}$$

From Equation 3.1, the data is obtained.

CHAPTER 4

IMPLEMENTATION OF YOUR WORK

The implementation details of your work should be mentioned in this chapter.

4.1 ALGORITHM 1

1: Get the number of variables *num*
2: Start with an empty list *x* [ ]
3: **for** each *n* of *num* **do**
4: Get the *x*
5: Get the *t*
6: Get the *w*
7: **end for**
8: **if** *xl* == *s* **then**
9: terminate with the failure message **failed**
10: **else**
11: $z = x$
12: **end if**

CHAPTER 5

CONCLUSION

This chapter should provide the details of results and the analysis of your work. Depending on the type of project, there may not be analysis. In such cases, mention the title as “Results” or “Testing and Results”.

CHAPTER 6

CONCLUSION AND FUTURE WORK

Conclude your work and provide an explanation for future enhancements.

APPENDIX A

TOPIC 1

A.1 SECTION 1

A.2 SECTION 2

APPENDIX B

TOPIC 2

B.1 SECTION 1

B.2 SECTION 2

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