



How to Write a Technical Report

The template below is designed to help students write technical reports. The sections mentioned in this template are inspired from the template of the Capstone Design Project that is made by the Capstone Design Committee.

Note that this is a general template and some sections mentioned here might not be applicable to certain projects and in some cases some extra sections might need to be added.

TITLE OF THE PROJECT

Student A

Student B

HABIB UNIVERSITY

TITLE OF THE PROJECT

Student A

Habib email of student A

Student B

Habib email of student B

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Month XX, 20XX

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EXECUTIVE SUMMARY

This summary is a stand-alone part of this report. It should be understood by any reader who reads it irrespective of their background. One should be able to understand what the project is about just by reading this summary.

The following should be highlighted here:

- Problem that is being solved
- Major technical challenges involved
- Solution/approach taken to solve this particular problem
- Key features/attributes of the chosen solution
- Proof of concept
- Way forward

(Mention the key words here. For example)

KEYWORDS: Image Processing, Computer Vision etc.

INTRODUCTION

Describe the problem in a broader context and in simple language, like you would to explain it to a layperson. Talk about the need(s) and motivation of solving this problem. Provide any necessary background information that could aid the reader to understand the problem. Talk about the expected functions and features of the solution. Also, mention the technical challenges that show the development of a solution.

LITERATURE REVIEW

Provide a review of related existing solutions to the problem.

PROBLEM STATEMENT

This is one of the most important sections of report writing. It defines the scope of the project, and the remainder of the document and the solution is judged based on your problem statement.

Here you state in a very clear and concise manner the exact objective of the project.

The problem that was discussed in the introduction section could be a broader problem and one could only be solving a small/particular aspect of that problem. Whatever it is, it needs to be defined very clearly here.

STAKEHOLDERS AND THEIR REQUIREMENTS

Discuss the stakeholders and their requirements. Mention a list of requirements from the view point of the stakeholders. Describe the objectives for the project and their corresponding metrics, e.g. minimizing the cost or time etc. Also, mention the functions that the final product will perform. If there are any constraints placed by the stakeholders, they need to be written here in a clear manner.

DESIGN CONCEPTS

Discuss the different ideas and possible solutions that were generated during the ideation phase. There are many ways to go about this. The big problem could be broken down into smaller problems and different solutions could be used to solve those smaller problems resulting in an integration of these smaller solutions to eventually solve the big problem. A comparison of different possible solutions can also be discussed here and why a certain solution has been chosen. You can use an appendix to include additional details.

TECHNICAL REQUIREMENTS

Give an overview of the final design without mentioning the project details. Make a comparison between this solution and already existing solutions. And finally provide quantitative specifications for the features in your solution and the means through which these features may be verified. For example, if the given solution measures the speed of an incoming vehicle then provide the maximum and minimum speed it will be able to measure. If applicable, mention the allowable tolerances of your solution.

SOLUTION/SYSTEM OVERVIEW

Give a brief overview of your solution/system with the help of a Block Diagram. Briefly discuss each subsystem.

SOLUTION/SYSTEM DETAILS

Each subsystem mentioned in the overview section needs to be described here in detail with different subheadings. Additional details of these subsystems (like charts, diagrams, etc.) could be mentioned in the appendices.

PROTOTYPING AND TESTING

Discuss how the design/solution was prototyped and evaluated. Mention the testing procedures and patterns. Failed tests (if relevant) may also be mentioned here. Discuss the scalability of the given prototype. Ideally, this section must have the following:

- Pictures of the prototype (pictures starting from the development phase till the final prototype may be used)
- Prototyping testing procedures/methods for all functions of the prototype
- Mention the Key Performance Indicators (KIPs) that are being considered to evaluate the performance of the prototype
- Show results based on the actual data collected from your prototype. If applicable, results should be in the form of graphs and tables.
- Draw a comparison between actual results and theoretical design values. Evaluate these and discuss the findings. Find out the efficiency, percentage deviation etc.
- If there is a deviation, discuss the possible/actual factors behind this deviation.
- Mention additional details like drawings (CAD etc.), and codes, etc.

CONCLUSION AND FUTURE WORK

Provide a summary of what has been accomplished and your conclusions. Discuss the remaining work (if any) and/or provide suggestions for future work.

APPENDICES

Mention operational details, manual of the prototype, or any other related information/data here.

REFERENCES

Mention all the references here in IEEE format.