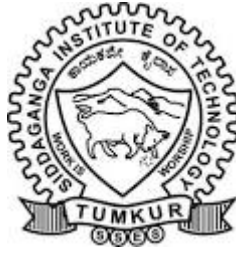**SIDDAGANGA INSTITUTE OF TECHNOLOGY, TUMAKURU-572103**

(An Autonomous Institute under Visvesvaraya Technological University, Belagavi)

Project Report on

"Full Title of Major Project"

submitted in partial fulfillment of the requirement for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE & ENGINEERING
Submitted by

Batch ID 12

Name 1   (USN 1)

Name 2   (USN 2)

Name 3   (USN 3)

Name 4   (USN 4)

under the guidance of

Guide's Name

Designation

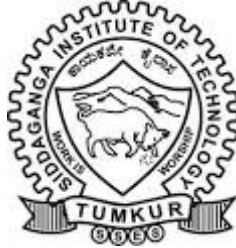Department of CSE

SIT, Tumakuru-03

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

2025-26

CERTIFICATE

This is to certify that the project work entitled "TITLE OF THE PROJECT IN BLOCK LETTERS" is a bonafide work carried out by Name1 (USN1), Name2 (USN2), Name3 (USN3) and Name4 (USN4) in partial fulfillment for the award of degree of Bachelor of Engineering in Computer Science & Engineering from Siddaganga Institute of Technology, an autonomous institute under Visvesvaraya Technological University, Belagavi during the academic year 2025-26. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library. The Project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering degree.

Name of the Guide   Head of the Department

Designation   Dept. of CSE

Dept. of CSE   SIT,Tumakuru-03

SIT,Tumakuru-03

ACKNOWLEDGEMENT

Course Outcomes

After successful completion of major project, graduates will be able:

CO1: To identify a problem through literature survey and knowledge of contemporary engineering technology.

CO2: To consolidate the literature search to identify issues/gaps and formulate the engineering problem

CO3: To prepare project schedule for the identified design methodology and engage in budget analysis, and share responsibility for every member in the team

CO4: To provide sustainable engineering solution considering health, safety, legal, cultural issues and also demonstrate concern for environment

CO5: To identify and apply the mathematical concepts, science concepts, engineering and management concepts necessary to implement the identified engineering problem

CO6: To select the engineering tools/components required to implement the proposed solution for the identified engineering problem

CO7: To analyze, design, and implement optimal design solution, interpret results of experiments and draw valid conclusion

CO8: To demonstrate effective written communication through the project report, the one-page poster presentation, and preparation of the video about the project and the four page IEEE/Springer/ paper format of the work

CO9: To engage in effective oral communication through power point presentation and demonstration of the project work

CO10:To demonstrate compliance to the prescribed standards/ safety norms and abide by the norms of professional ethics

CO11: To perform in the team, contribute to the team and mentor/lead the team

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO-1											3			
CO-2		3												
CO-3										3				
CO-4					3									
CO-5	3	3												
CO-6				3							3			
CO-7			3	3										
CO-8									3					
CO-9									3					
CO-10							3							
CO-11								3						
Average	3	3	3	3	3	3	3	3	3	3	3			

Attainment level:

1: Slight (low)

2: Moderate (medium)

3: Substantial (high)

POs:

PO1: Engineering knowledge,

PO2: Problem analysis,

PO3:Design of solutions,

PO4:Conduct investigations of complex problems,

PO5: Engineering tool usage,

PO6:Engineer and the world,

PO7:Ethics,

PO8:Individual and collaborative work,

PO9:communication,

PO10:project management and finance,

PO11: Life-long learning.

Abstract

An abstract is a concise **summary of a larger project** that concisely describes its findings, conclusions, or intended results.

Abstract answers questions such as why this project in first paragraph, what is the main objective of the work in second paragraph and finally how is the implementation done in third paragraph.

Please include the implementation details such as tool/software used(in brief).

Contents

List of Figures

List of Tables

Chapter 1

Introduction

The title of Chapter 1 shall be Introduction. The introduction is certainly the most read chapter of any deliverable, and it largely determines the attitude of the reader/reviewer will have toward the work. Therefore, it is probably the most delicate part of the writing of a report.

It shall justify and highlight the problem posed, define the topic and explain the aim and scope of the work presented in the project report. It may also highlight the significant contributions from the investigation.

Also, it shall include the proposed solution and methodology used in brief.

1.1 Motivation

In this section, state the motivation w.r.t. project(brief about , what motivated you to take up this as a project)

1.2 Objective of the project

State the Objective precisely according to the suitability of the project.

1.3 Organisation of the report

This project report shall be presented in a number of chapters, starting with Introduction and ending with Summary and Conclusions. Each of the other chapters will have a precise title reflecting the contents of the chapter. A chapter can be subdivided into sections, subsections and sub subsection so as to present the content discretely and with due emphasis. When the work comprises two or more mutually independent investigations, the project report may be divided into two or more parts, each with an appropriate title. However, the numbering of chapters will be continuous right through. In this section make sure to mention in what chapter what is explained.

Chapter 2

Literature Survey

This chapter includes summary of the findings/surveys that are carried as a ground work for the project. Findings/survey are to be from peer reviewed journals/conferences such as IEEE, IET, etc. .

This illustrates how to cite a reference. This is the first [1] reference cited. To site a second [2] reference, it's very easy. Refer bibliography.tex file to know , how to cite the reference.

Chapter 3

System Overview

Sections named "XYZ" should be filled with appropriate heading with respect to your project.

The main body of the report may be divided into multiple chapters as the case may be. The organization of the report is problem specific. There may be separate Chapters for System Overview, design methodology, or experimental methodology, Hardware Description or Software Description

3.1 XYZ

Use of figures: The cliche "a picture is worth a thousand words" is appropriate here. Spend time thinking about pictures. Wherever necessary, explain all aspects of a figure (ideally, this should be easy), and do not leave the reader wondering as to what the connection between the figure and the text is.

Further illustrations on how to refer Figure, Equations, Table and References.

3.2 XYZ

This section illustrates, how to refer Figure.

Figure 3.1: The SIT Logo.

The SIT Logo is shown in Figure 3.1.

3.3   XYZ

This section illustrates, how to refer Equations.

This is how equation

$$F = ma$$

is centered and not referred.

To get equation in the same line, use this $z^2 = x^2 + y^2$ which is called Pythagorous Equation.

$$V = IR \tag{3.1}$$

where,

$V = voltage$,

$I = current$ and

$R = resistance$

The equation 3.1 is a called Ohm's equation.

3.4   XYZ

This section illustrates, how to refer Table.

Table 3.1: My Table

Sl. No.	Heading 1	Heading 2	Heading 3
1	<u>R1/C1</u>	R1/C2	R1/C3
2	R2/C1	<u>R2/C2</u>	R2/C3
3	R3/C1	R3/C2	<u>R3/C3</u>

The Table 3.1 shows **Bold**, *Italic* and <u>underlined</u> fonts.

Can also visit "http://www.tablesgenerator.com/", to generate table online.

Chapter 4

System Architecture and High Level Design

Sections named "XYZ" should be filled with appropriate heading with respect to your project.

The technical section is the most work-specific, and hence is the least described here.

Terminology: Define each term/symbol before you use it, or right after its first use. Stick to a common terminology throughout the report.

4.1 XYZ

4.1.1 XYZ

4.2 XYZ

4.3 XYZ

The list goes on.

4.4 Software Requirements

4.4.1 Functional Requirements

Only project specific functional requirements, each requirements with shall tags to be mentioned. All your project specific system functionalities and behaviors only should be covered. NO GENERIC EXPLANATIONS ARE ALLOWED

Include Use Case Diagrams, Swim Lane Diagrams, Activity Diagrams for detailed description

4.4.2 Non Functional Requirements

Only project specific non functional requirements along with elaborations of constraints related to your project work only. NO GENERIC EXPLANATIONS ARE ALLOWED

Chapter 5

Software Architecture and Low Level Design

Only project specific designs, each design with Figure captions to be mentioned in the descriptions. All your project specific models representing system and software components, interfaces, communications, functionalities and behaviors only should be covered. NOT GENERIC EXPLANATIONS AND DESIGNS ARE ALLOWED

Include Class Diagrams, CRC cards, Sequence Diagrams, Activity Diagrams, State Diagrams, Component Diagrams, Deployment diagrams, Communication Diagrams, Object diagrams for detailed design. Ensure Mapping between DESIGN AND its relevance with requirements given under section Functional and Non functional requirement is taken care of. NO GENERIC DIAGRAMS ARE ALLOWED

5.1 Algorithm

Pseudocode / Algorithms used in your project work only shall be given in detail. NO GENERIC ALGORITHMS ARE ALLOWED

5.2 Flowchart

Include the CFD (Context Flow Diagram), DFD (Data Flow Diagram)s specific to your project work only. NO GENERIC FLOWCHARTS ARE ALLOWED

The list goes on.

Don't include codes here.

Note : Subsequent Technical Chapters can be added in this file.

Chapter 6

Results

This is part of the set of technical sections, and is usually a separate section for experimental/design papers.

Also, it illustrates how to use bulletins, numbering the points.

- What aspects of system or algorithm are evaluated? That is, what are the questions that are answered through the evaluations?

    – Why above aspects are evaluated ?

I What are the cases of comparison? If any, include the table of comparison.

II What are the performance metrics? Why?

i What are the results?

ii Finally, why do the results look the way they do?

1. What are the parameters under study?

2. What is the experimental setup? Explain the choice of every parameter value (range) carefully.

a First letter.

b Second letter.

6.1   Test Set up Environment

The testing environment with relevant information including input, output components, interfaces, data storage, evaluations etc shall be given through diagram representation or appropriate screenshots with explanations

6.2   Test Procedures and Test Cases

The testing procedure with steps covering precondition, post condition, actual result and expected result shall be written. Identify both normal test cases and robustness/abnormal cases and demonstrate traceability with requirement

6.3   Snapshots

The results are usually presented as tables and graphs. Give the snapshot of the result for each of the test cases identified in section 7̇2. In explaining tables and graphs, they should be completely explained. Identify trends in the data. Does the data prove what is to be established? In what cases are the results explainable, and in what cases unexplainable if any?

6.4   Analysis

While describing a table, every row/column should be explained. And similarly while describing a graph,describe the x/y axes in detail. If necessary, consider to the use log-axes. If lot of results are to be published, it may be useful to summarize the main take-away points from all the data in a separate sub-section at the end (or sometimes even at the beginning) of the results section.

Chapter 7

Conclusion

This chapter should highlight the contributions made in the project. Language used in conclusion should be different from Abstract.

Hint: Sentences such as, the project titled "Project Title", is successfully implemented and tested under various conditions. This kind of conclusion is expected.

7.1 Summary of the project work

Here, Give the summary of project covering all major details of the work carried out and working overview including results obtained .

7.2 Scope for future work

Here, state the aspects of the problem that are not considered and possibilities for further extensions. As this would help others to improvise the project in coming years.

Bibliography

[1] M. K. Mihçak, I. Kozinsev, K. Ramchandran, and P. Moulin, "*Low-omplexity image denoising based on statistical modeling of wavelet coefficients*", IEEE Signal Processing Lett., vol. 6, pp. 300-303, Dec. 2006.

[2] S. Chaudhuri and A. N. Rajagopalan, "Depth from defocus: A real-aperture imaging approach," *Springer-Verlag, New York*, 1999.

[3] Michel Goossens, Frank Mittelbach, and Alexander Samarin. i. Addison-Wesley, Reading, Massachusetts, 2006

[4] D. Keren, S. Peleg, and R. Brada, "Image sequence enhancement using sub-pixel displacements," *Proc. IEEE Conf. Computer Vision and Pattern Recognition*, pp. 742–746, 1988.

[5] R. L. Stevenson and R. R. Schultz, "Extraction of high-resolution frames from video sequences," *IEEE Trans. Image Process.*, vol. 5, pp. 996–1011, 1996.

[6] Knuth: Computers and Typesetting,
http://www-cs-faculty.stanford.edu/~uno/abcde.html

Appendices

Appendix A

Project Planning

Note: include Gantt charts for project timeline and budget estimation details w.r.t. project.Table contents should be justified.

A.1 Project Timeline

This section illustrates, how to write Project timeline.Table contents should be justified.

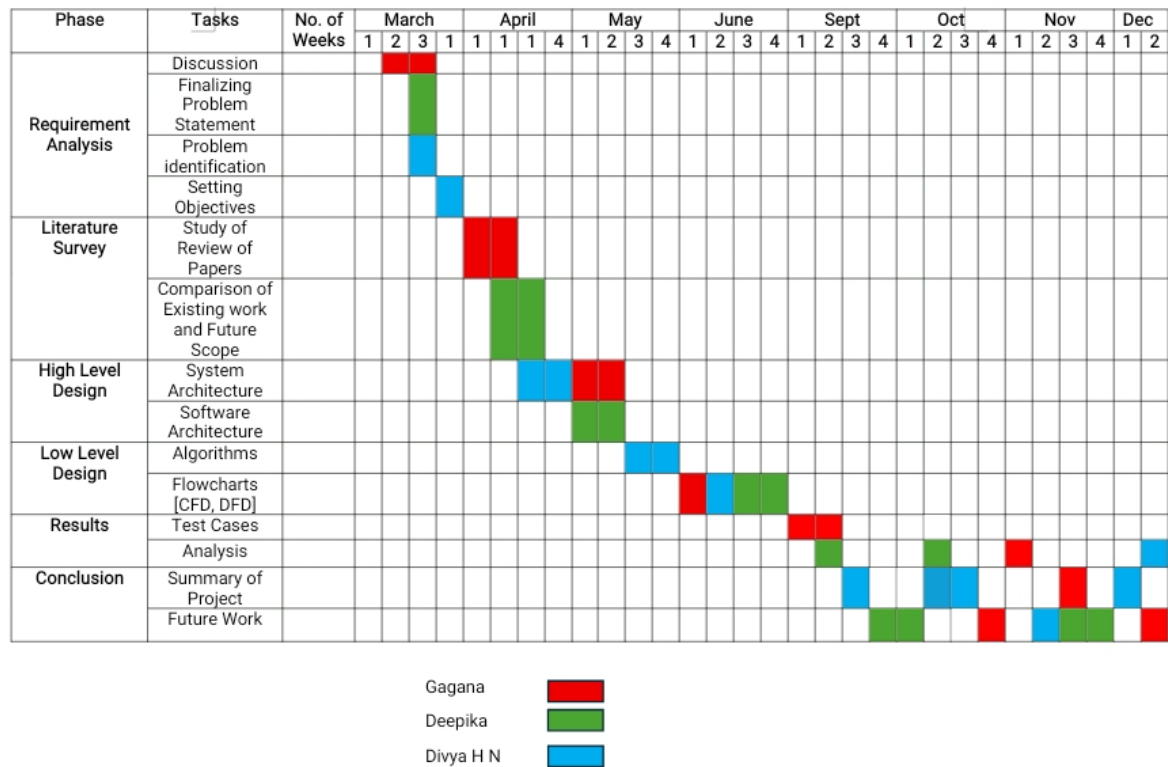| Phase	Tasks	No. of Weeks	March			April					May				June				Sept				Oct				Nov				Dec	
			1	2	3	1	1	1	1	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Requirement Analysis	Discussion																																
	Finalizing Problem Statement																																
	Problem identification																																
	Setting Objectives																																
Literature Survey	Study of Review of Papers																																
	Comparison of Existing work and Future Scope																																
High Level Design	System Architecture																																
	Software Architecture																																
Low Level Design	Algorithms																																
	Flowcharts [CFD, DFD]																																
Results	Test Cases																																
	Analysis																																
Conclusion	Summary of Project																																
	Future Work																																

Gagana

Deepika

Divya H N

Figure A.1: The Project Timeline.

A.2   Budget Estimation

This section illustrates, how to write Budget Estimation. Table contents should be justified.

SL. NO.	Hardware Components	Estimated Cost[INR]
1	Official Raspberry Pi 5 8GB Starter Kit	10,269
2	Raspberry Pi Camera Module 3	2,769
3	DS-451-Push Button Momentary Switch 10mm – 2Pin	25
4	170 pts Mini Breadboard SYB-170 White	15
5	Jumper wires (F-F, M-M, M-F)	114
6	Speaker	999
7	VGA to HDMI	331

Figure A.2: The Budget Estimation.

Appendix B
Sustainable Development Goals (SDGs) Address

SDG	Level
No Poverty	
Zero Hunger	
Good Health and Well-being	
Quality Education	
Gender Equality	
Clean Water and Sanitation	
Affordable and Clean Energy	
Decent Work and Economic Growth	
Industry, Innovation and Infrastructure	
Reduced Inequalities	
Sustainable Cities and Communities	
Responsible Consumption and Production	
Climate Action	
Life Below Water	
Life on Land	
Peace, Justice and Strong Institutions	
Partnerships for the Goals	

Levels: Poor = 1, Good = 2, Excellent = 3

Appendix C

Self-Assessment of the Project

No.	PO and PSO	Contribution from the project	Level
1	**Engineering Knowledge:** Knowledge of mathematics, engineering fundamentals, and engineering specialization to form solutions for complex engineering problems.		
2	**Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems to reach substantiated conclusions considering sustainable development.		
3	**Design/development of solutions:** Design creative solutions for complex engineering problems and design/develop systems, components, or processes to meet identified needs considering public health, safety, whole-life cost, net zero carbon, culture, society, and the environment.		
4	**Conduct investigations of complex problems:** Conduct investigations using research-based knowledge, including experiment design, modelling, data analysis, and interpretation to provide valid conclusions.		

5	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering & IT tools—including prediction and modelling—to solve complex engineering problems while recognizing limitations.		
6	**The Engineer and the world:** Analyze and evaluate societal and environmental impacts of engineering solutions with reference to sustainability, economy, health, safety, legal framework, culture, and environment.		
7	**Ethics:** Apply ethical principles; commit to professional ethics, human values, diversity and inclusion; and adhere to national and international laws.		
8	**Individual and Team Work:** Function effectively as an individual and as a member or leader in diverse or multidisciplinary teams.		
9	**Communication:** Communicate effectively and inclusively within the engineering community and society, including writing reports, design documentation, making presentations, and considering cultural and linguistic differences.		
10	**Project Management and Finance:** Apply engineering management principles and economic decision-making in one's own work as a member or leader of a team, and in managing projects within multidisciplinary environments.		

11	**Life-long Learning:** Recognize the need for and develop the ability for (i) independent and life-long learning, (ii) adaptability to emerging technologies, and (iii) critical thinking in the context of technological change.		
12	**PSO1 – Computer-based systems development:** Ability to apply knowledge of databases, computing, operating systems, digital circuits, microcontrollers, computer organization, and architecture in designing computer-based systems.		
13	**PSO2 – Software development:** Ability to specify, design, and develop applications and system software using knowledge of data structures, algorithms, programming languages, software engineering practices, and open-source tools.		
14	**PSO3 – Computer communications and Internet applications:** Ability to design and develop network protocols and internet applications using knowledge of computer networks and communication protocols.		

Levels: Poor = 1, Good = 2, Excellent = 3

Appendix D

Input details

D.1 Data Set Details

Note: Only include relevant details of the components that are referred w.r.t. project.

D.2 Database details

Note: Only include relevant details of the database that are referred w.r.t. project.

Appendix E

Configuration Details

Note: It is compulsory to add your project artifacts at GirHub repository with public access. Give the GitHub Link. Ensure that at GitHub repository ReadMe note is available along with project data