**ScanIT**

A Minor Project Report

Submitted in partial fulfillment of requirement of the

Degree of

**BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE & ENGINEERING**

BY

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**Department of Computer Science & Engineering**

**Faculty of Engineering**

**MEDI-CAPS UNIVERSITY, INDORE- 453331**

**APRIL-2024**

**Report Approval**

The project work **“ScanIT”** is hereby approved as a creditable study of an engineering/computer application subject carried out and presented in a manner satisfactory to warrant its acceptance as prerequisite for the Degree for which it has been submitted.

It is to be understood that by this approval the undersigned do not endorse or approve any statement made, opinion expressed, or conclusion drawn there in; but approve the “Project Report” only for the purpose for which it has been submitted.

Internal Examiner

Name: Mandakini Ingle & Tithirupa Tapaswini

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External Examiner

Name:

Designation

Affiliation

**Declaration**

I/We hereby declare that the project entitled **“ScanIT”**  submittedin partial fulfillment for the award of the degree of Bachelor of Technology/Master of Computer Applications in ‘Computer Science & Engineering’ completed under the supervision of **Prof**. **Mandakini Ingle & Prof. Tithirupa Tapaswini, Department of Computer Science,** Faculty of Engineering, Medi-Caps University Indore is an authentic work.

Further, I/we declare that the content of this Project work, in full or in parts, have neither been taken from any other source nor have been submitted to any other Institute or University for the award of any degree or diploma.

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**Certificate**

We, **Mandakini Ingle & Tithirupa Tapaswini** certify that the project entitled **“ScanIT”** submittedin partial fulfillment for the award of the degree of Bachelor of Technology/Master of Computer Applications by **Ishika Sadhwani, Ishika Somani & Jasneet Singh Saini** istherecordcarried out by him/them under my/our guidance and that the work has not formed the basis of award of any other degree elsewhere.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Acknowledgements**

I would like to express my deepest gratitude to the Honorable Chancellor, **Shri R C Mittal,** who has provided me with every facility to successfully carry out this project, and my profound indebtedness to **Prof. (Dr.) D. K. Patnaik,** Vice Chancellor, Medi-Caps University, whose unfailing support and enthusiasm has always boosted up my morale. I also thank **Prof. (Dr.) Pramod S. Nair,** Dean, Faculty of Engineering, Medi-Caps University, for giving me a chance to work on this project. I would also like to thank my Head of the Department **Dr. Ratnesh Litoriya** for his continuous encouragement for the betterment of the project.

It is their help and support, due to which we became able to complete the design and technical report.

Without their support this report would not have been possible.

**Ishika Sadhwani**

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B.Tech. III Year (F)

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**Abstract**

The Attendance Management System is a software solution aimed at automating the attendance tracking process in educational institutions or workplaces. This system provides a user-friendly interface for both administrators and users to efficiently manage attendance records. Key features include biometric authentication, barcode scanning, or manual entry options for marking attendance, real-time tracking of attendance data, automated notifications for absentees, and comprehensive reporting capabilities. By implementing this system, institutions can streamline their attendance management process, enhance accuracy, and improve overall efficiency. This report outlines the system's architecture, features, implementation details, and future enhancements.

**Keywords**

Barcode Scanning, ID Cards, Data Retrieval, Automation, Efficiency, Accuracy, User Interface, Integration, Attendance Management, Student Information, Faculty Information, Enrollment Details, Branch Information, Contact Details, Hometown Records, Class and Section Management, System Design, Database Structure, Frontend and Backend Development, Cross-platform Compatibility, User Authentication, Reporting, Scalability, Usability Testing, Performance Optimization.

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**Abbreviations**

API: Application Programming Interface

ID: Identification

DB: Database

UI: User Interface

UX: User Experience

HTTP: Hypertext Transfer Protocol

REST: Representational State Transfer

OCR: Optical Character Recognition

CSV: Comma-Separated Values

RFID: Radio-Frequency Identification

NFC: Near Field Communication

DDL: Data Definition Language

DML: Data Manipulation Language

CRUD: Create, Read, Update, Delete

SQL: Structured Query Language

**Notations & Symbols**

{}: Curly braces used to denote data structures or JSON objects.

[]: Square brackets used to denote lists, arrays, or JSON arrays.

\*\*"": Double quotes used to enclose strings, such as barcode data.

<>: Angle brackets used for placeholders or formatting in UI elements.

//: Double slash used for comments in code or documentation.

\*\*#: Hash symbol used for categorization or tagging, such as for classes or sections.

@: At symbol used for mentioning users or entities, such as for faculty or staff.

\*\*\*\*: Backslash used as an escape character in strings or file paths.

%: Percent sign used for representing percentages or as a formatting symbol.

+: Plus sign used for concatenation or addition, such as in contact numbers.

=: Equal sign used for assignments or comparisons, such as in database queries.

&: Ampersand used for concatenating query parameters or in URLs.

-: Hyphen or dash used for separating words or in data formats like dates.

\_: Underscore used in variable names or as separators in identifiers.

$: Dollar sign used for currency representation or in financial calculations.

:: Colon used for defining properties or in time formats like HH:MM.

;: Semicolon used as a delimiter in some contexts, such as separating database commands.

(): Parentheses used for grouping expressions or in function calls.

**Chapter-1**

**Standard Formats and Guidelines for Thesis / Dissertations / Reports**

In this regulation, standard formats and guidelines for the submission of the thesis / dissertation / report are given which shall be the requirement for partial fulfillment of the respective degrees such as Ph.D, M.Tech, M.Phil etc.

1. Organization of the Thesis / Dissertation / Report

The Thesis / Dissertation / Report shall be presented in a number of chapters, starting from Abstract, Introduction and ending with Summary and Conclusions. Other chapters will have the description of the work carried out by the student. All the chapters shall have precise title reflecting the contents of the chapter and be subdivided into *sections, sub­sections and sub­sub­sections* describing the contents distinctly with due emphasis.

When the work comprises two or more mutually independent investigations, the thesis may be divided into two or more parts, each with an appropriate title. However, the numbering of chapters will be continuous right through, for example Part I may comprise of Chapters1­5 and Part II having Chapters 6­9. The chapters and their contents are highlighted below.

TITLE PAGE, DEDICATION, ACKNOWLEDGEMENT, Approval Sheet, ETC.

1. Abstract

About 500 words abstract shall highlight the important features of the thesis / dissertation / report. The electronic version shall be submitted to KMC for inclusion in the website. The Abstract in the thesis, however, additionally shall have two more parts, namely, the layout of the thesis giving a brief chapter wise description of the work and the key words.

1. Contents

The contents shall follow the Abstract and shall enlist the titles of the chapters, section and sub­section using decimal notation, as in the text, with corresponding page number against them, flushed to the right.

1. List of Figures and Tables

Two separate lists of Figure captions and Table titles along with their numbers and corresponding page numbers against them shall follow the Contents.

1. Abbreviation, Notation and Nomenclature

A complete and comprehensive list of all abbreviations, notations and nomenclature including Greek alphabets with subscripts and superscripts shall be provided after the list of figures and tables. (As far as possible, generally accepted symbols and notation should be used).

Auxiliary pages from dedication (if any) to abbreviations shall be numbered using Roman numerals in lower case, while the text starting from the Introduction shall be in Hindu­Arabic. (The first pages in the both the cases shall not bear a page number).

1. Declaration of Academic Honesty and Integrity

A declaration of Academic honesty and integrity is required to be included along with every thesis / dissertation / report after the approval sheet. Sample copy of the 'Declaration Sheet' is in the Specimen.

The writing of the thesis / dissertation / report will commence in several chapters starting from Introduction. The chapter wise details are given below:

1. Introduction

The title of **Chapter 1** shall be Introduction. This shall normally form literature review and shall present a critical appraisal of the previous work published in the literature pertaining to the topic of the investigation. The extent and emphasis of the chapter shall depend on the nature of the investigation. It may also highlight the significant contributions from the investigation. It shall justify and highlight the problem posed, define the topic and explain the aim and scope of the work presented in the thesis.

1. Report on the Present Investigation

The reporting on the investigation shall be presented in one or more chapters with appropriate titles.

1. Due importance shall be given to experimental setups, procedures adopted,
2. Techniques developed, methodologies developed and adopted.
3. While important derivations / formulae should normally be presented in the text of these chapters, extensive and long treatments, copious details and tedious information, detailed results in tabular and graphical forms may be presented in Appendices. Representative data in table and figures may, however, be included in appropriate chapters.
4. Figures and tables should be presented immediately following their first mention in the text. Short tables and figures (say, less than half the writing area of the page) should be presented within the text, while large tables and figures may be presented on separate pages.
5. Equations should form separate lines with appropriate paragraph separation above and below the equation line, with equation numbers flushed to the right.
6. Results and Discussions

This shall form the penultimate chapter of the thesis and shall include a thorough evaluation of the investigation carried out and bring out the contributions from the study. The discussion shall logically lead to inferences and conclusions as well as scope for possible future work.

1. Summary and Conclusions

This will be the final chapter of the thesis. A brief report of the work carried out shall form the first part of the Chapter. Conclusions derived from the logical analysis presented in the Results and Discussions Chapter shall be presented and clearly enumerated, each point stated separately. Scope for future work should be stated lucidly in the last part of the chapter.

1. Appendix

Detailed information, lengthy derivations, raw experimental observations etc. are to be presented in the separate appendices, which shall be numbered in Roman Capitals (e.g. “Appendix IV”). Since reference can be drawn to published / unpublished literature in the appendices. These should precede the “Literature Cited” section.

1. Literature Cited

This should follow the Appendices, if any, otherwise the Summary and Conclusions chapter. The candidates shall follow the style of citation and style of listing in one of the standard journals in the subject area consistently throughout his/her thesis, for example, IEEE in the Department of Electrical Engineering, Materials Transactions in Department of Metallurgical Engineering and Materials Science. However, the names of all the authors along with their initials and the full title of the article/monogram/book etc. have to be given in addition to the journals/publishers, volume, number, pages(s) and year of publication.

1. Citation from websites should include the names(s) of author(s) ( including the initials), full title of the article, website reference and when last accessed.
2. Reference to personal communications, similarly, shall include the author, title of the communication (if any ) and date of receipt.
3. Publications by the candidate

Articles, technical notes etc. on the topic of the thesis published by the candidate may be separately listed after the literature cited. This may also be included in the contents. The candidates may also include reprints of his/her publications after the literature citation.

1. Acknowledgements

The acknowledgments by the candidate shall follow the citation of literature, signed by him/her, with date.

1. Format of the Thesis
2. Paper Quality
3. The thesis shall be printed/xeroxed on white bond or Executive Bond paper, whiteness 95% or above, weight 70 gram or more per square meter.
4. Size
5. The size of the paper shall be standard A 4; height 297 mm, width 210 mm.
6. Type ­Setting, Text Processing and Printing
7. The text shall be printed employing laserjet or Inkjet printer, the text having been processed using a standard text processor. The standard font shall be Times New Roman of 12 pts with 1.5 line spacing.
8. Page Format
9. The Printed Sheets shall have the following written Area and margins:
   1. Top Margin 15 mm
   2. Head Height 3 mm
   3. Head Separation 12 mm
   4. Bottom Margin 22 mm
   5. Footer 3 mm
   6. Foot Separation 10 mm
   7. Text Height 245 mm
   8. Text Width 160 mm

When header is not used the top margin shall be 30 mm.

1. Left and Right Margins

The candidates shall have the options of single or double sided printing

1. Pagination

Page numbering in the text of the thesis shall be Hindu­Arabic numerals at the center of the footer. But when the candidate opts for header style the page number shall appear at the right and left top corner for the odd and even number pages, respectively.

Page number “1” for the first page of the Introduction chapter shall not appear in print, only the second page will bear the number “2”.

The subsequent chapters shall begin on a fresh page (fresh odd number page in case of double sided printing). When header style is chosen the first page of each chapter will not have the header and the page number shall be printed at the center of the footer.

Pagination for pages before the Introduction chapter shall be in lower case Roman numerals, e.g., “iv”.

1. Header

When the header style is chosen, the header can have the Chapter number and Section number (e.g., Chapter 2, Section 3) on even numbered page headers and Chapter title or Section title on the odd numbered page header.

1. Paragraph format

Vertical space between paragraphs shall be about 2.5 line spacing. The first line of each paragraph should normally be indented by five characters or 12mm. A candidate may, however, choose not to indent if (s) he has provided sufficient paragraph separation.

A paragraph should normally comprise more than one line. A single line of a paragraph shall not be left at the top or bottom of a page (that is, no windows or orphans should be left)

The word at the right end of the first line of a page or paragraph should, as far as possible, not be hyphenated.

1. Chapter and Section Format

Each chapter shall begin on a fresh page (odd number page in case of double sided printing) with an additional top margin of about 75mm. Chapter number (in Hindu­Arabic) and title shall be printed at the center of the line in 6mm font size (18pt) in bold face using both upper and lower case (all capitals or small capitals shall not be used). A vertical gap of about 25mm shall be left between the Chapter number and Chapter title lines and between chapter title line and the first paragraph.

1. Sections and Sub­sections

A chapter can be divided into Sections, Sub­sections and Sub­sub­Sections so as to present different concepts separately. Sections and sub­sections can be numbered using decimal points, e.g. 2.2 for the second section in Chapter 2 and 2.3.4 for the fourth Sub­ section in third Section of Chapter 2. Chapters, Sections and Subsections shall be included in the contents with page numbers flushed to the right. Further subsections need not be numbered or included in the contents.

The Section and Sub­Section titles along with their numbers in 5 and 4mm (16 and 14 pt) fonts, respectively, in bold face shall be flushed to the left (not centered) with 15 mm space above and below these lines.

In further subdivisions character size of 3 and 3.5 with bold face, small caps, all caps and italics may be used for the titles flushed left or centered. These shall not feature in the contents.

1. Table / Figure Format

As far as possible tables and figures should be presented in portrait style. Small size table and figures (less than half of writing area of a page) should be incorporated within the text, while larger ones may be presented on separate pages. Table and figures shall be numbered chapter ­wise. For example, the fourth figure in chapter 5 will bear the number Figure 5.4 or Fig 5.4

Table number and title will be placed above the table while the figure number and caption will be located below the figure. Reference for Table and Figures reproduced from elsewhere shall be cited in the last and separate line in the table and figure caption, e.g. (after McGregor [12]).

1. Other Details
2. Binding
3. The evaluation copies of the thesis/dissertation/report may be spiral bound or soft bound. The final hard bound copies to be submitted after the viva voce examination will be accepted during the submission of thesis/dissertation/report with the following color specification:
4. Ph.D. Thesis Black
5. M.E./M.Tech./M.Phil./ Dissertation Maroon
6. Project Report M.A./M.B.A./M.Sc. Royal Blue
7. B.E./B.Tech. /MCA Project Report Brown
8. Front Covers

The front covers shall contain the following details:

1. Full title of thesis in 6 mm 22 point's size font properly centered and positioned at the top.
2. Full name of the candidate in 4.5 mm 15 point's size font properly centered at the middle of the page.
3. A 40 mm dia replica of the university emblem followed by the name of department, name of the faculty and the year of submission, each in a separate line and properly centered and located at the bottom of page.
4. Lettering

All lettering shall be embossed in golden color.

Bound back

The degree, the name of the candidate and the year of submission shall also be embossed on the bound (side) in gold.

1. Blank Sheets

In addition to the white sheets (binding requirement) two white sheets shall be put at the beginning and the end of the thesis.

This shall be the first printed page of the thesis and shall contain the submission statement: the Thesis/Dissertation/project Report submitted in partial fulfillment of the requirements of the Degree, Ph.D. /M.Tech./M.Ed./LL.M./M.S./DIIT/B.E./B.Tech./M.Sc., the name and Roll No. of the candidate, name(s) of the Supervisor and Co­supervisor (s) (if any), Department, Institute and year of submission.

Sample copy of the 'Title Sheet' is in the Specimen Annexure – A

1. Dedication Sheet
2. If the candidate so desires(s) he may dedicate his/her thesis, which statement shall follow the title page. If included, this shall form the page 1 of the auxiliary sheets but shall not have a page number.
3. Approval Sheet

In the absence of a dedication sheet this will form the first page and in that case shall not have a page number. Otherwise, this will bear the number two in Roman lower case “ii” at the center of the footer. The top line shall be :

* + - **Thesis Approval** for Ph.D.
    - **Dissertation Approval** for M.Tech., M.Phil., M.Ed./LL.M., and M.S.,
    - **Report Approval** for M.A./M.B.A., B.E./B.Tech., MCA, MBA and M.Sc. Projects, as the case may be.

The Approval Sheets are to be included only in the hard bound copies which are submitted after the successful Ph.D. viva ­ voce examination.

|  |
| --- |
| Reference and Citation Style Guides |
| Providing references and citations is an important and essential part of any type of academic writing. The main purpose is to acknowledge the original source of ideas and work that is not the author's own, and to direct the readers to the original sources of information. Whenever you use sources such as books, journals, research papers, web sites, e-resources and others in the writings, one must give credit to the original author by properly citing the sources.  There are a number of different reference and citation styles available. Styles are basically well established practices and conventions. Depending on the discipline in which one is working and also the widely used style in the respective discipline, one can decide to select and use a particular style.  Following links provide the list of varieties of styles and also the guidelines for using.   1. [AAA Style (American Anthropological Association)](https://www.iitgn.ac.in/citation/aaa.html) 2. [ACS Style (American Chemical Society)](https://www.iitgn.ac.in/citation/acs.html) 3. [AIP Style (American Institute of Physics)](https://www.iitgn.ac.in/citation/aip.html) 4. [American Antiquity Style-Society for American Archaeology](https://www.iitgn.ac.in/citation/aa.html) 5. [AMS Style (American Mathematical Society)](https://www.iitgn.ac.in/citation/ams.html) 6. [AP Style (Associated Press Style)](https://www.iitgn.ac.in/citation/ap.html) 7. [APA Style (American Psychological Association)](https://www.iitgn.ac.in/citation/apa.html) 8. [APSA Style (American Political Science Association)](https://www.iitgn.ac.in/citation/apsa.html) 9. [ASA Style (American Sociological Association)](https://www.iitgn.ac.in/citation/asa.html) 10. [ASABE Citation Style (American Society of Agricultural and Biological Engineers)](https://www.iitgn.ac.in/citation/asabe.html) 11. [ASME Citation Style (American Society of Mechanical Engineers)](https://www.iitgn.ac.in/citation/asme.html) 12. [Chicago Style](https://www.iitgn.ac.in/citation/chicago.html) 13. [GSA (Geological Society of America) Style](https://www.iitgn.ac.in/citation/gsa.html) 14. [Hart's Ruels (Oxford Style)](https://www.iitgn.ac.in/citation/hart.html) 15. [Harvard Style](https://www.iitgn.ac.in/citation/harvard.html) 16. [IEEE Style](https://www.iitgn.ac.in/citation/ieee.html) 17. [MHRA Style (Modern Humanities Research Association)](https://www.iitgn.ac.in/citation/mrha.html) 18. [MLA Style (Modern Language Association)](https://www.iitgn.ac.in/citation/mla.html) 19. [NLM Style (National Library of Medicine)](https://www.iitgn.ac.in/citation/nlm.html) 20. [Turabian Style](https://www.iitgn.ac.in/citation/turabian.html) 21. [Vancouver Style](https://www.iitgn.ac.in/citation/vancouver.html) |

**Note: For CSE Department IEEE format will be followed.**

Appendices (if any)

Bibliography

List of Publications

Reprint of Publications

**Most Important: The no of copies for B Tech students = 2+ <Number of Students>(IF STUDENTS WANT THEN THEY CAN KEEP THEIR OWN COPIES OTHERWISE 2 COPIES SHOULD SUBMIT )**

* 1. Student(s) Copy (one each) 2. Guide Copy (one) 3. Department Copy (one)