CERTIFICATION

I certify that this research project has been approved as meeting part of the requirement for the award of National Diploma In Architectural Technology, Institute Of Environmental Studies, Kwara State Polytechnic, Ilorin, Kwara State.

06082025

ARC. MOHAMMED SHERO

Project Supervisor

Sign and Date

05/08/25.

ARC OLAREWAJU F.A

Project Coordinator

Sign and Date

ARC TOMORI

Head of Department

Sign and Date

External Examiner

Sign and Date

A PROJECT REPORT

ON

PROPOSED INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) CENTER

FOR

KWARA STATE MINISTRY OF EDUCATION

BY

AWOYEMI KARAMOT ADESOPE

ND/23/ARC/FT/025

SUBMITTED TO: THE DEPARTMENT OF ARCHITECTURAL TECHNOLOGY

INSTITUTE OF ENVIROMENTAL STUDIES KWARA STATE POLYTECHNIC, ILORIN

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF NATIONAL DIPLOMA (ND) IN ARCHITECTURAL TECHNOLOGY.

2025

DECLARATION

I declare that this project work was written and composed by **AWOYEMI KARAMOT ADESOPE (ND/ARC/23/FT/0025)** and this is also record of my own research work and it has not been presented before in any previous application and all the sources of information are specifically acknowledged by means of references, under **ARC. MOHAMMED SHERO.**

Signature: _____ Date: _____

Project Title:

INFORMATION AND COMMUNICATION TECHNOLOGU

(ICT)CENTER

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ARC. MOHAMMED SHERO ----------

Project Supervisor **Signature and Date**

ARC OLAREWAJU F.A ----------

Project Coordinator **Signature and Date**

ARC TOMORI ----------

Head of Department **Signature and Date**

External Examiner ----------

Signature and Date

DEDICATION

I dedicate this project to God Almighty the creator of the universe for the grace bestow upon my life, for he has strengthen me to this present time and also to my beloved parents **MR., MRS. AWOYEMI**, **MR. OYEFESO SULAIMON** for their prayer and full support. May God Almighty bless and reward them abundantly and every other supporter to my academic life.

ACKNOWLEDGMENT

Everything that has beginning must have an end, therefore, all praises and adoration is unto God for the strength and courage he has accorded me in the process of this project.

Special thanks to my supervisor **ARC. MOHAMMED SHERO** for taking her time to go through my research work, may Almighty God bless you abundantly.

I say thanks to the management, staff both teaching and non1teaching staff of Architectural Technology for their impact in my life during my course of study.

My deepest appreciation goes to my parents **MR., MRS. AWOYEMI** and **MR. OYEFESO SULAIMON** for their moral and financial support towards my education.

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ABSTRACT

This project focuses on the Information and Communication Technology (ICT) in addressing contemporary challenges in data processing, communication and information management.

The objective of the study is to design and implement a reliable, user-friendly ICT-based system that enhances efficiency, accuracy and accessibility of data. The project adopts a combination of hardware and software tools to develop a functional solution that meets user needs. Through extensive analysis, design and implementation stages, the system was tested and evaluated to ensure it meets the expected performance standards.

The results show that ICT plays a vital role in simplifying tasks, improving communication and supporting decision-making processes across various sectors. This project contributes to the growing body of knowledge on ICT applications and provides a practical model for solving real-life problems using modern technology.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Computer1Based Testing (CBT) Centers play a pivotal role in the digital transformation of assessment methods in education, certification and recruitment. These centers provide an organized environment equipped with the necessary technological infrastructure to administer tests electronically. As the world shifts towards digital solutions, CBT Centers are increasingly regarded as a reliable, efficient and scalable platform for delivering assessments.

1.2 HISTORICAL BACKGROUND OF ICT CENTERS:

Early Years (1960s11980s)

The concept of CBT emerged alongside advancements in computer technology in the late 20th century. Initially adopted by standardized testing organizations like ETS (Educational Testing Service) for exams such as GRE and TOEFL, it gained popularity due to its ability to handle large1scale testing with reduced human errors.

In Nigeria, CBT became widely recognized after its introduction by the Joint Admissions and Matriculation Board (JAMB) in 2015 for the Unified Tertiary Matriculation Examination (UTME). This transition marked a significant step towards eliminating irregularities and enhancing the efficiency of the examination process.

EXPANSION AND GROWTH (1990S12000S)

1. Internet and World Wide Web: The widespread adoption of the internet and World Wide Web in the 1990s transformed the way people communicated and accessed information.

2. Establishment of ICT Centers: The first ICT centers were established in the 1990s, primarily in developed countries, to provide public access to computers and the internet.

MODERN ERA (2010S1PRESENT)
1. Mobile Technology: The widespread adoption of mobile technology, including smartphones and tablets, has further transformed the way people access and use ICTs.

2. Digital Literacy: There is a growing focus on digital literacy, with ICT centers playing a key role in providing training and education programs.

1.3 STATEMENT OF DESIGN PROBLEM

Design an accessible and user1friendly online learning platform for students with disabilities, providing equal opportunities for education and skill development.

CONSIDERATIONS:

1. Accessibility: Ensure platform accessibility for users with disabilities.

2. User experience: Design intuitive navigation and clear content.

3. Inclusivity: Cater to diverse learning needs and abilities.

GOALS:

1. Improve accessibility: Enhance digital inclusion.

2. Enhance user experience: Increase engagement and learning outcomes.

3. Promote equality: Provide equal opportunities for education.

1.4 AIM AND OBJECTIVES OF THE STUDY
AIM:

To provide a secure, efficient and accessible platform for conducting electronic examinations while maintaining integrity and reliability.

OBJECTIVES:

1. Facilitate seamless and standardized test administration.

2. Minimize human errors in assessment and scoring.

3. Enhance test security to prevent malpractice and fraud.

4. Provide instant feedback and results to candidates.

5. Reduce logistical challenges associated with paper1based exams.

6. Improve accessibility for remote or physically challenged candidates.

1.5 JUSTIFICATION OF STUDY

ECONOMIC JUSTIFICATION

1. Job Creation: An ICT center can create employment opportunities for IT professionals, technicians and support staff.

2. Economic Growth: By providing ICT services, the center can contribute to the local economy and stimulate economic growth.

3. Increased Productivity: The center can provide training and resources to help businesses and individuals improve their productivity and competitiveness.

SOCIAL JUSTIFICATION

1. Digital Inclusion: An ICT center can provide access to ICTs for marginalized communities, promoting digital inclusion and social equity.

2. Education and Skills Development: The center can offer training programs to help individuals develop new skills and improve their employability.

3. Community Engagement: The center can serve as a community hub, fostering social connections and community engagement.

TECHNICAL JUSTIFICATION

1. Improved Infrastructure: An ICT center can provide a robust and reliable ICT infrastructure, supporting the needs of businesses, education and healthcare.

2. Access to Information: The center can provide access to a vast array of information resources, supporting research, education and innovation.

3. Technical Support: The center can offer technical support and maintenance services, ensuring that ICT systems are running smoothly and efficiently.

ENVIRONMENTAL JUSTIFICATION

1. Reduced Carbon Footprint: By providing virtual services and promoting online collaboration, an T center can help reduce the carbon footprint of businesses and individuals.

2. E1Waste Management: The center can provide facilities for responsible e1waste management, minimizing the environmental impact of ICTs.

3. Sustainable Development: The center can support sustainable development by providing resources and training on environmentally sustainable practices.

EDUCATIONAL JUSTIFICATION

1. Improved Learning Outcomes: An ICT center can provide access to educational resources and tools, improving learning outcomes and academic achievement.

2. Teacher Training: The center can offer training programs for teachers, helping them integrate ICTs into their teaching practices.

3. Lifelong Learning: The center can support lifelong learning by providing access to online courses, tutorials and educational resources.

1.6 SCOPE OF THE PROJECT

HERE ARE THE SCOPES OF AN ICT CENTER:

EDUCATION AND TRAINING

1. Digital Literacy Training: Provide basic computer skills and digital literacy training.

2. ICT Skills Development: Offer advanced ICT skills training, such as programming, web development and data analysis.

3. Online Courses and Tutorials: Provide access to online courses and tutorials on various subjects.

COMMUNITY DEVELOPMENT

1. Community Outreach Programs: Organize community outreach programs to promote digital inclusion and ICT awareness.

2. Digital Entrepreneurship Support: Provide resources and support for digital entrepreneurs and start1ups.

3. Community Engagement: Foster community engagement through events, workshops and seminars.

ICT SERVICES

1. Internet Access: Provide public internet access and Wi1Fi services.

2. Computer Rentals: Offer computer rentals and printing services.

3. Software and Hardware Support: Provide technical support for software and hardware issues.

RESEARCH AND DEVELOPMENT

1. Research Collaboration: Collaborate with researchers and institutions on ICT1related research projects.

2. Innovation Incubation: Provide resources and support for innovation and entrepreneurship.

3. Technology Testing and Evaluation: Test and evaluate new ICT technologies and solutions.

ECONOMIC EMPOWERMENT

1. Job Creation: Create employment opportunities in the ICT sector.

2. Digital Entrepreneurship: Support digital entrepreneurship and start1ups.

3. E1commerce and Online Business: Provide resources and support for e1commerce and online businesses.

HEALTHCARE AND WELLNESS

1. Telemedicine Services: Provide telemedicine services for remote healthcare consultations.

2. Health Information Resources: Offer access to health information resources and medical databases.

3. Health and Wellness Programs: Organize health and wellness programs and workshops.

ENVIRONMENTAL SUSTAINABILITY

1. E1waste Management: Provide facilities for responsible e1waste management.

2. Energy Efficiency: Promote energy efficiency and sustainable practices.

3. Environmental Education: Offer environmental education and awareness programs.

1.7 RESEARCH METHODOLOGY

PRIMARY DATA COLLECTION:

OBSERVATION: Visiting CBT Centers to observe infrastructure, test administration and user experience.

INTERVIEWS: Conducting structured interviews with administrators, candidates and technical staff to gather insights into the functionality and challenges of CBT Centers.

SURVEYS: Using questionnaires to collect feedback from a larger audience.

SECONDARY DATA COLLECTION:

Reviewing literature, reports and case studies on CBT implementation globally and locally.
Analyzing policy documents and technical guidelines for setting up CBT Centers.

DATA ANALYSIS:

- Quantitative analysis of candidate performance, system uptime and error rates.
- Qualitative analysis of stakeholder feedback and user experience.

CASE STUDIES:

- Comparing successful CBT implementations to identify best practices.
- Evaluating failures to understand limitations and areas for improvement.
- This framework provides a comprehensive understanding of the concept, operation and significance of CBT Centers. Let me know if you'd like further elaboration!

CHARPTER TWO

INTRODUCTION

2.1 LITERATURE REVIEW

HERE IS A LITERATURE REVIEW OF ICT CENTERS:

INTRODUCTION

ICT centers have emerged as vital institutions in promoting digital inclusion, economic development and social empowerment. This literature review aims to provide an overview of the current state of ICT centers, their services, impact and challenges.

2.2 DEFINITION AND CONCEPTUAL FRAMEWORK

ICT centers are defined as facilities that provide access to computers, internet and other digital technologies to support various activities such as education, research, innovation and community development (1). The conceptual framework of ICT centers encompasses three key dimensions: access, literacy and application (2).

SERVICES AND ACTIVITIES

ICT centers offer a range of services and activities, including:

1. Digital literacy training (3)

2. Internet access and computer rentals (4)

3. ICT skills development and training (5)

4. Research and innovation support (6)

5. Community outreach and engagement (7)

2.3 IMPACT AND BENEFITS

THE IMPACT AND BENEFITS OF ICT CENTERS ARE NUMEROUS:

1. Improved digital literacy and ICT skills (8)

2. Enhanced access to information and knowledge (9)

3. Increased economic opportunities and entrepreneurship (10)

4. Improved social inclusion and community engagement (11)

5. Support for education and research (12)

2.4 CHALLENGES AND LIMITATIONS

DESPITE THE BENEFITS, ICT CENTERS FACE SEVERAL CHALLENGES AND LIMITATIONS:

1. Limited funding and resources (13)

2. Infrastructure and connectivity issues (14)

3. Digital divide and unequal access (15)

4. Lack of trained personnel and capacity building (16)

5. Sustainability and long1term viability (17)

CONCLUSION

ICT centers play a crucial role in promoting digital inclusion, economic development and social empowerment. While they offer numerous benefits, they also face significant challenges and limitations. Further research and investment are needed to support the development and sustainability of ICT center

2.5 TYPES OF ICT CENTERS :

HERE ARE THE TYPES OF ICT CENTERS:

1. COMMUNITY ICT CENTERS

1. Rural ICT Centers: Provide ICT services to rural communities.

2. Urban ICT Centers: Offer ICT services to urban communities.

3. Public Access ICT Centers: Provide free or low1cost ICT services to the general public.

2. EDUCATIONAL ICT CENTERS

1. School ICT Centers: Support educational activities in schools.

2. University ICT Centers: Provide ICT services to university students and faculty.

3. Library ICT Centers: Offer ICT services in libraries.

3. SPECIALIZED ICT CENTERS

1. Business Incubation ICT Centers: Support start1ups and entrepreneurs.

2. Research and Development ICT Centers: Focus on research and development activities.

3. E1government ICT Centers: Provide e1government services to citizens.

4. MOBILE ICT CENTERS

1. Mobile ICT Vans: Provide ICT services to remote or underserved areas.

2. Mobile ICT Containers: Offer ICT services from shipping containers.

5. VIRTUAL ICT CENTERS

1. Cloud1based ICT Centers: Provide ICT services over the cloud.

2. Online ICT Centers: Offer ICT services through online platforms.

6. GOVERNMENT ICT CENTERS

1. National ICT Centers: Provide ICT services at the national level.

2. Regional ICT Centers: Offer ICT services at the regional level.

3. Local ICT Centers: Provide ICT services at the local levels

2.6 ARCHITECTURAL CONSIDERATIONS FOR AN ICT CENTER

HERE ARE SOME ARCHITECTURAL CONSIDERATIONS FOR AN ICT CENTER STRUCTURE:

BUILDING LAYOUT

1. Open Floor Plan: An open floor plan can facilitate collaboration and communication among users.

2. Flexible Spaces: Incorporate flexible spaces that can be easily reconfigured to accommodate different activities and events.

3. Quiet Areas: Provide quiet areas for focused work, study and research.

SUSTAINABILITY AND ENERGY EFFICIENCY

1. Natural Lighting: Maximize natural lighting to reduce the need for artificial lighting.

2. Energy1Efficient Systems: Incorporate energy1efficient systems, such as LED lighting and solar panels.

3. Water Conservation: Implement water1conserving measures, such as low1flow fixtures and greywater reuse systems.

TECHNOLOGY INFRASTRUCTURE

1. High1Speed Internet: Ensure high1speed internet connectivity throughout the building.

2. Wireless Connectivity: Provide wireless connectivity options, such as Wi1Fi and Bluetooth.

3. Power and Data Outlets: Install ample power and data outlets to support a variety of devices.

CHAPTER THREE

3.1 CASE STUDY

A case study is a research methodology that involves an in1depth examination of a specific individual, group, organization, or phenomenon. It is a detailed analysis of a real1world situation or event, aiming to gain a deeper understanding of the underlying issues, relationships and dynamics.

3.2 CASE STUDIES TYPICALLY INVOLVE:

1. In1depth data collection: Gathering detailed information through various methods, such as interviews, observations, documents and surveys.

2. Contextual analysis: Examining the case within its specific context, including historical, cultural, social and economic factors.

3. Thematic analysis: Identifying patterns, themes and relationships within the data.

4. Interpretation and conclusion: Drawing conclusions and making recommendations based on the findings.

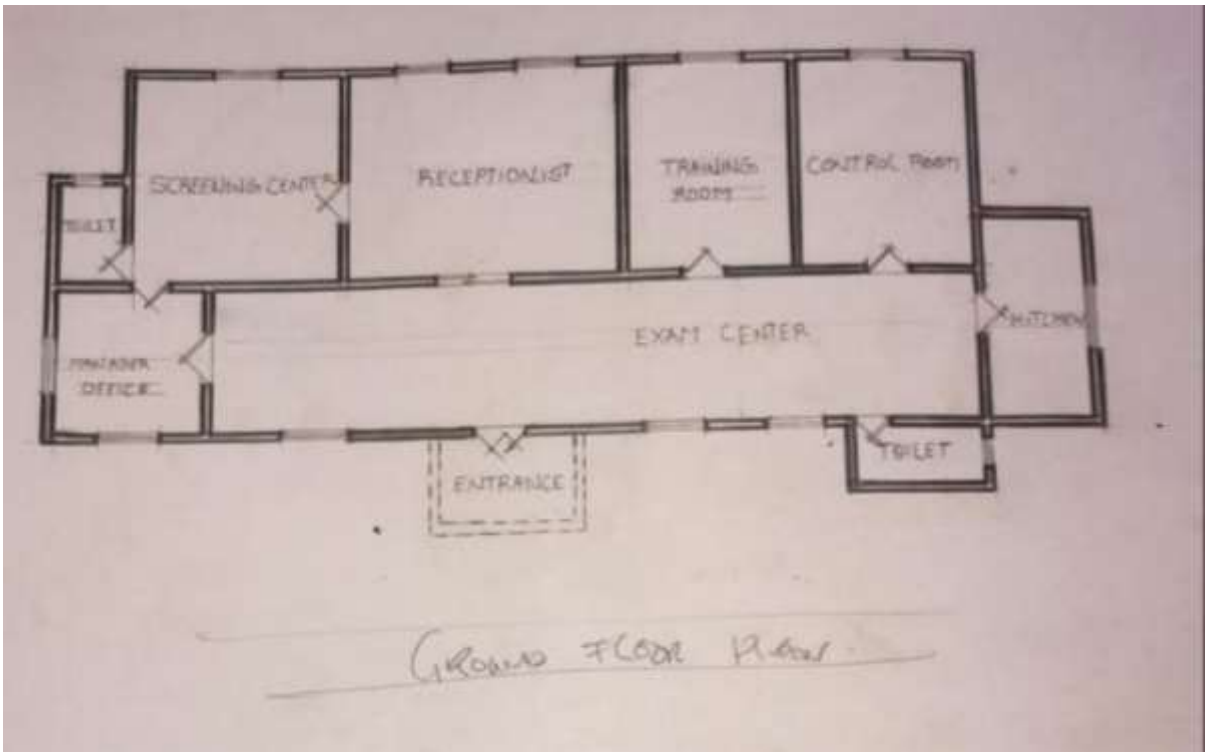
3.3 OUTLINE OF CASE STUDIES

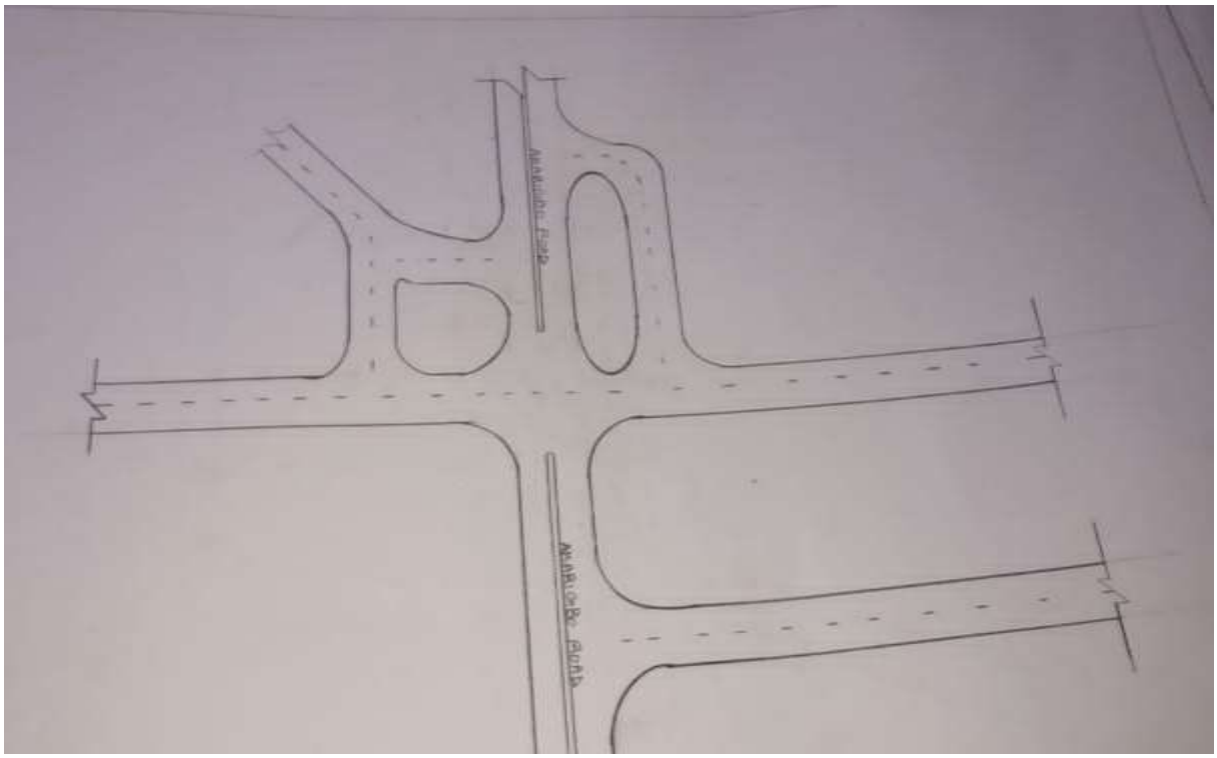
1. Ilorin kwara state
2. Lagos state
3. Ogun state
4. Online case study in United State
5. Online case study in France

3.4 CASE STUDY ONE

EXAM BETA

Chief Sotuminu Villa, Akarigbo Road, Behind Unior Bank, Ijoku, Sagamu, Ogun State.





MERIT:

i. Easy accessible

ii. Brief precise

iii. Structurally balance

DEMERIT:

i. The examination center is too expose d

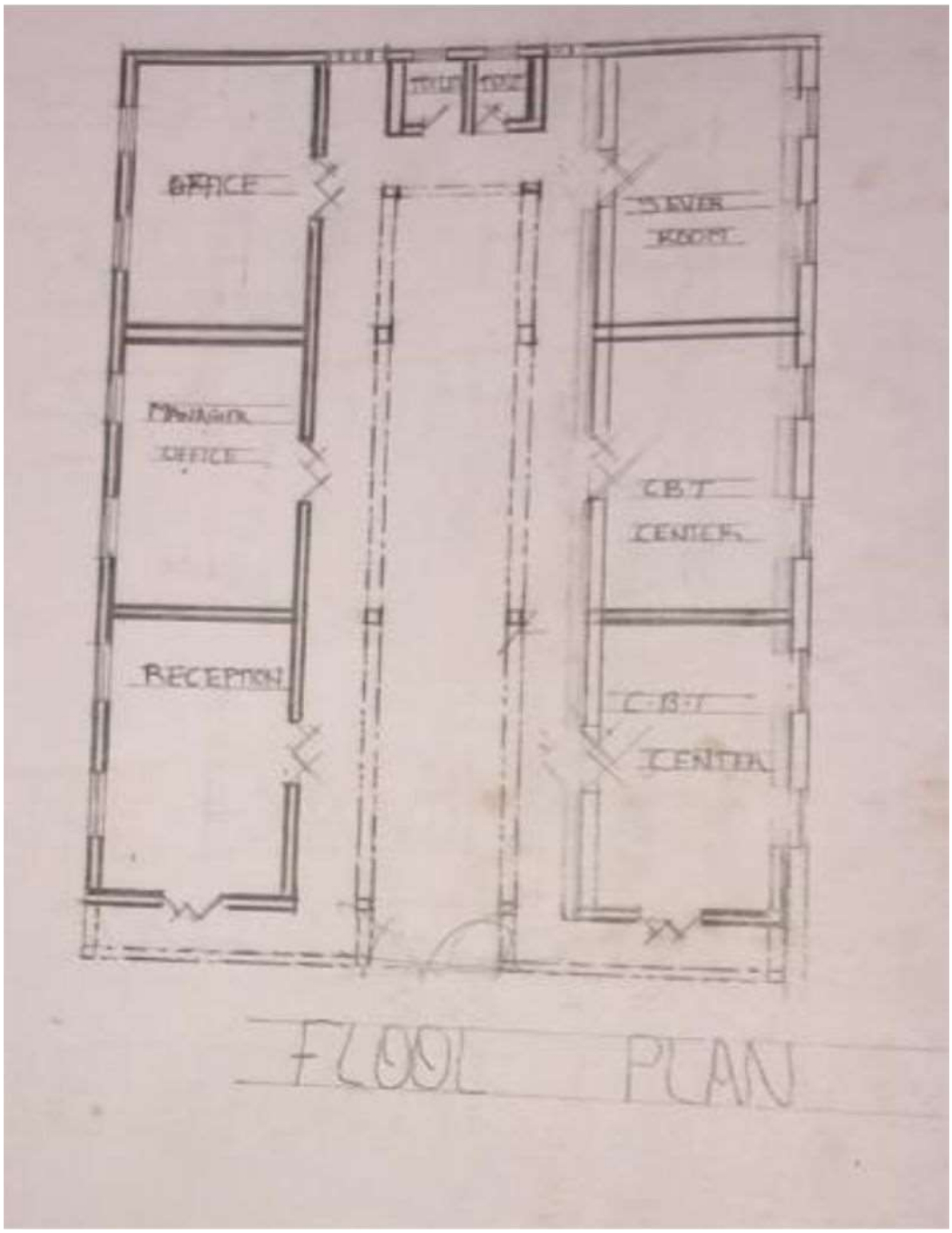
ii. Poor landscaping

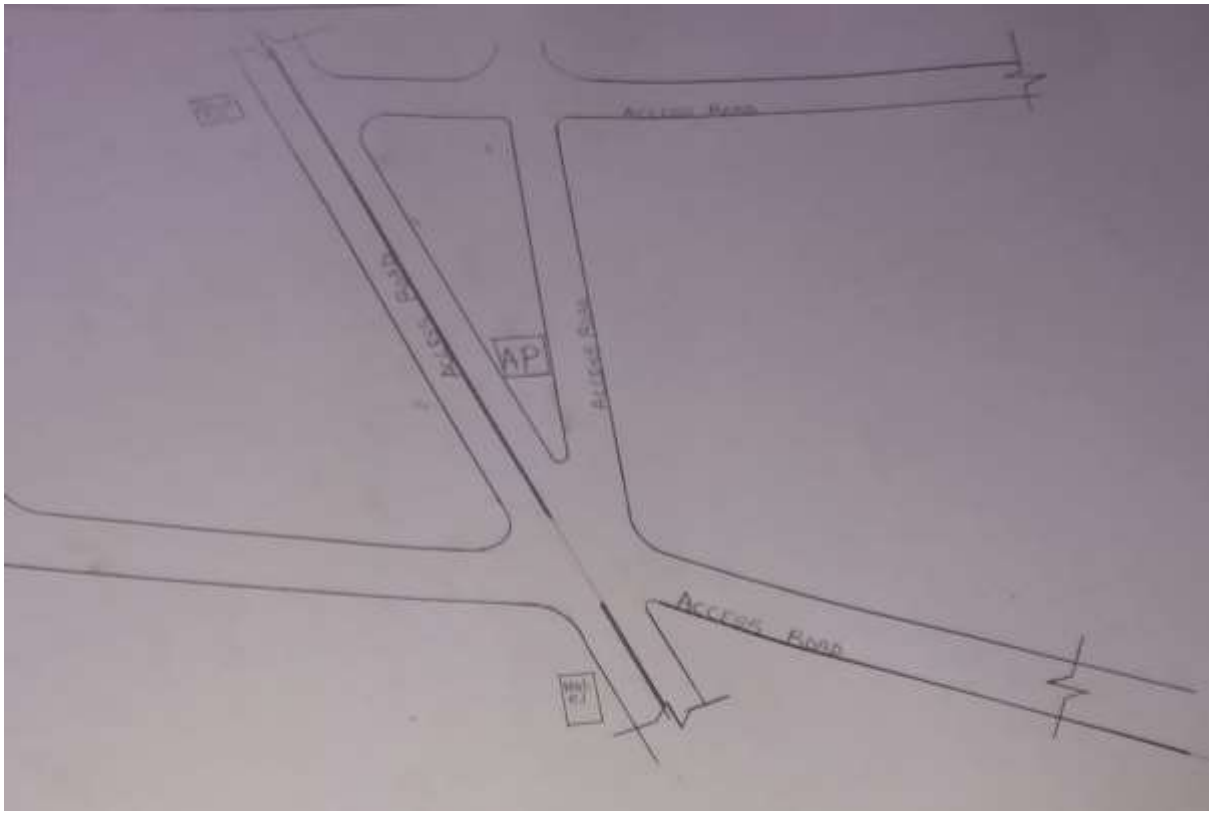
iii. Insufficient convenience

3.5 CASE STUDY TWO

DIGITAL WORLD TECH ACADEMY

Agric Bus Stop, Ikorodu, Lagos State




Access Road
AP
Access Road


DIVE INTO THE EXCITING WORLD OF TECH
DIGITAL WORLD TECH ACADEMY
Graphics Design
ICT Fundamental
Digital Marketing
Data Analytics And Data Science
Web Development
Video Editing
Cyber Security
UI/UX Design
Project Management
Software and App Development
AKWA CROSS
GLOBAL RESTAURANT

MERIT:

i. It is easily accessible

ii. Structurally balanced

iii. Brief precise

DEMERIT:

i. No packing space

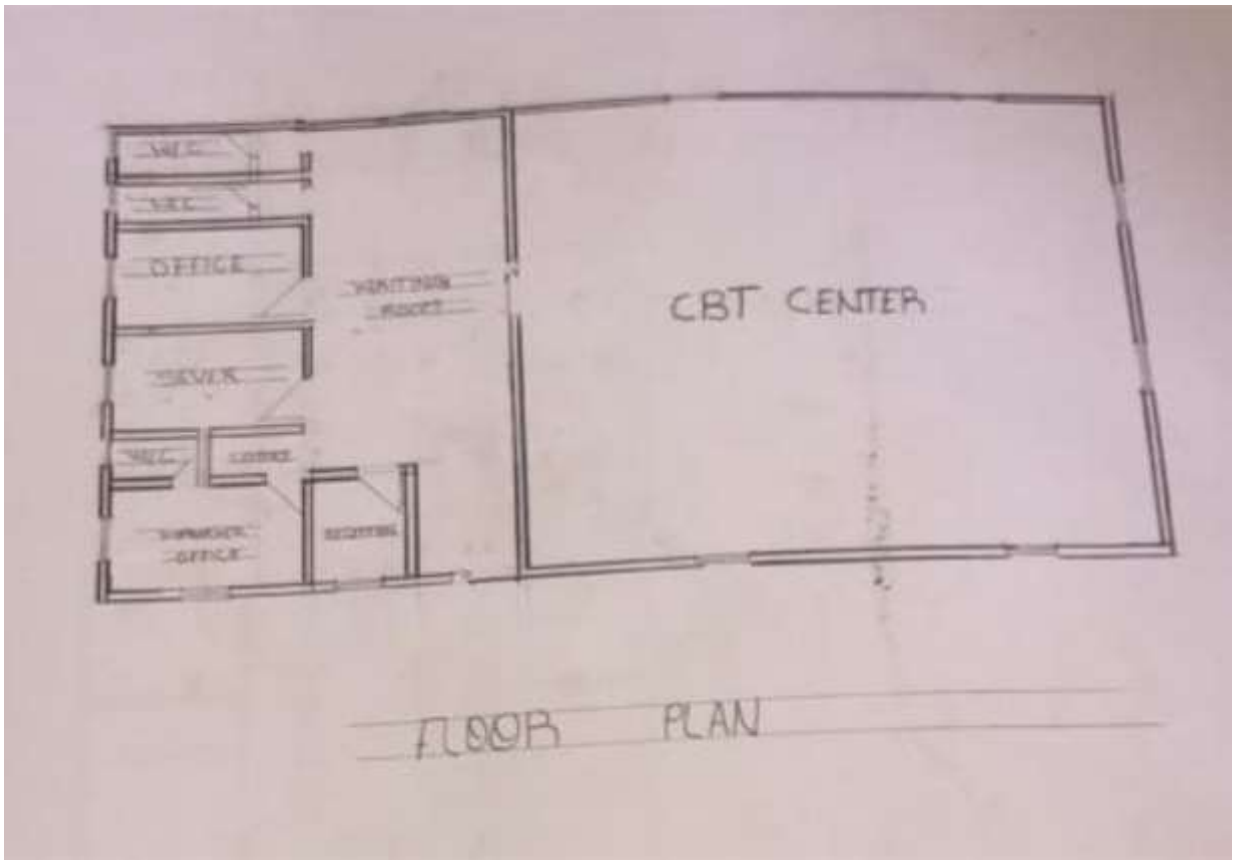
ii. No landscaping

iii. Lack of proper site zoning

3.6 CASE STUDY THREE

ZINI-MAC TECHNOLOGIES LIMITED

Oyun, Ilorin, Kwara State.



MERIT:

i. It is easily accessible

ii. Structurally balanced

iii. Aesthetically balanced

DEMERIT:

i. Low packing space

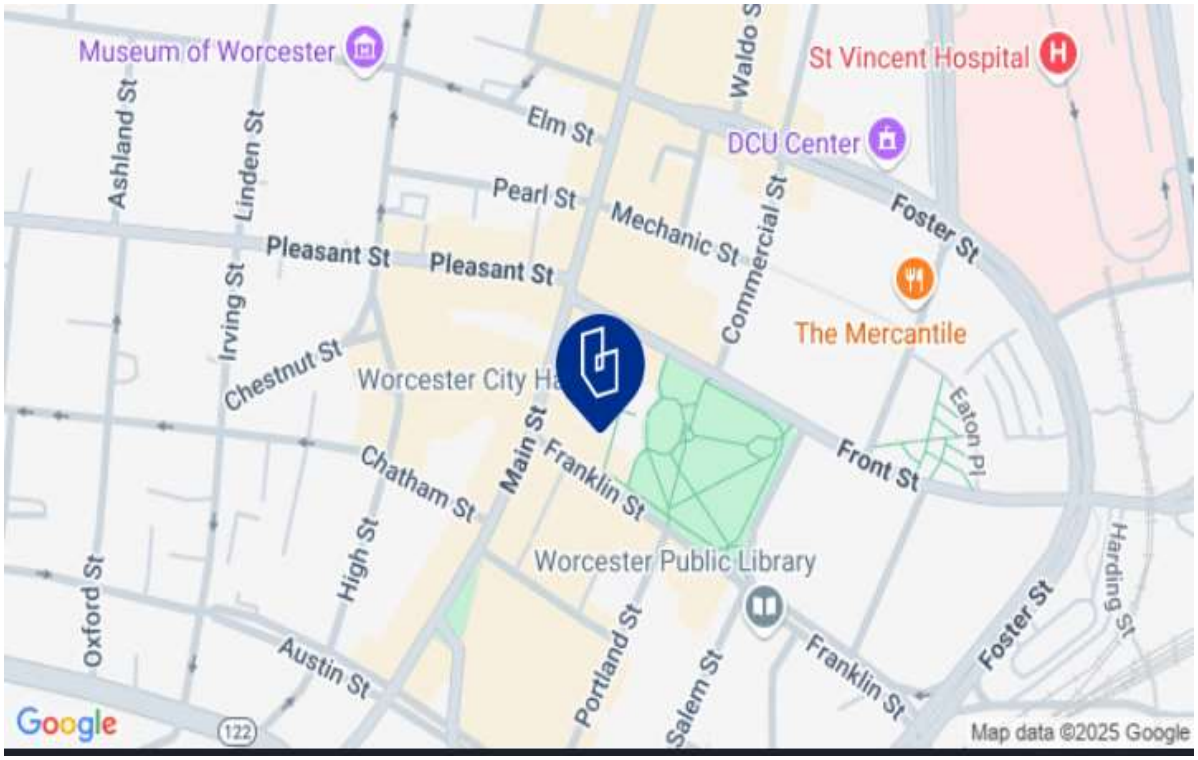
ii. Main entrance not properly placed

iii. Lack of proper site zoning

3.7 CASE STUDY FOUR

ONLINE CASE STUDY

CLARK UNIVERSITY CENTER, UNITED STATE


Museum of Worcester
St Vincent Hospital
Waldo St
Ashland St
Linden St
Elm St
DCU Center
Pearl St
Mechanic St
Commercial St
Foster St
Pleasant St
Pleasant St
Irving St
The Mercantile
Chestnut St
Worcester City Ha
Eaton Pl
Main St
Franklin St
Front St
Chatham St
High St
Worcester Public Library
Harding St
Oxford St
Austin St
Portland St
Salem St
Franklin St
Foster St
Google
122
Map data ©2025 Google

3.8 CASE STUDY FIVE

ONLINE CASE STUDY
ELEMENT LABS AT UNIVERSITY RESERCH, FRANCE

Level 1 Plan

Typical Floor Test Fit


W Gorham St
E Johnson
Madison Children's Museum
S Franklin St
S Hancock St
The Old Fashioned
S Butler St
The Madison Concourse Hotel and...
E Mifflin St
S Webster St
Madison Museum of Contemporary Art
State St
King St
Overture Center for the Arts
Marigold Kitchen
E Doty St
E Wilson St
W Main St
N Henry St
S Fairchild St
Hilton Madison Monona Terrace
W Doty St
Monona Terrace East Loading Dock
Google
Map data ©2025 Google

CHAPTER FOUR

4.0 STUDY AREA/SITE ANALYSIS

4.1 SITE DESCRIPTION

The selected site for the proposed ICT center is located in Adewole Road, Opposite Dangote, Ilorin west local government, Kwara State. easily accessible by public and private transport. The plot is rectangular, bordered by educational facilities and residential buildings.

4.2 ENVIRONMENTAL ANALYSIS

The site enjoys moderate rainfall and average temperatures around 28°C. There are no environmental hazards and the surroundings are quiet, making it conducive for learning. Prevailing winds are from the southwest and the site benefits from natural daylight with several mature trees offering shade.

4.3 SITE SELECTION CRITERIA

1. Accessibility: Proximity to public transport, pedestrian paths and parking.
2. Visibility: Prominent location for visibility and awareness.
3. Infrastructure: Availability of electricity, internet and water supply.
4. Safety: Secure location with minimal crime risk.

4.4 PROJECT GOALS AND SPACE REQUIREMENTS

1. Training rooms: For ICT skills development and workshops.
2. Computer labs: For hand on practice and project1based learning.
3. Library/resource center: For access to digital resources and research materials.
4. Administration office: For management and support staff.

4.5 DESIGN CRITERIA AND FUNCTIONAL RELATIONSHIPS

1. Flexibility: Design spaces to accommodate various activities and events.

2. Technology integration: Incorporate ICT infrastructure and equipment.

3. Sustainability: Implement energy1efficient systems and sustainable materials.

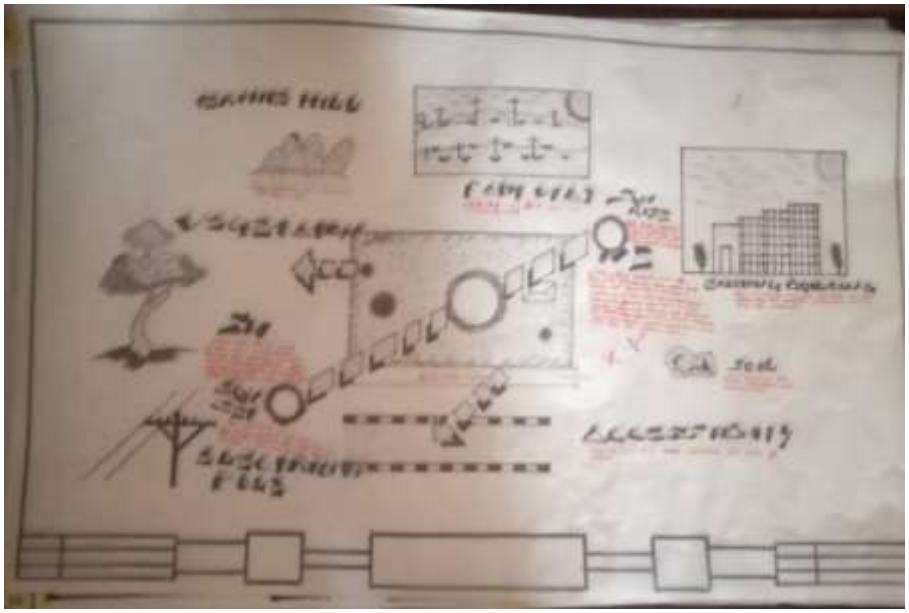
4. User1centered design: Prioritize user comfort, accessibility and usability.

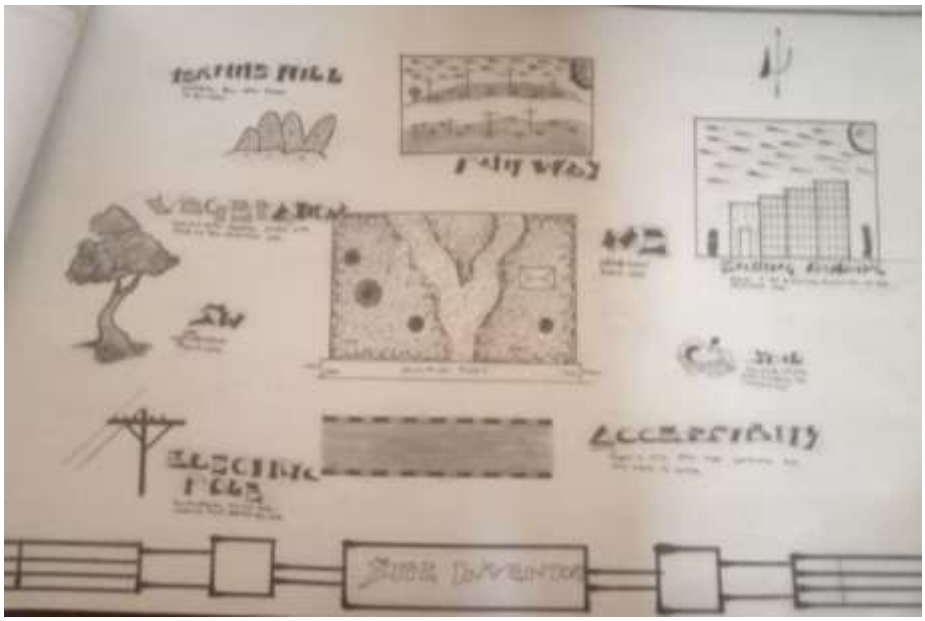
4.6 FUNCTIONAL RELATIONSHIPS

1. Training rooms and computer labs: Adjacent to facilitate easy access.

2. Library/resource center: Centrally located for easy access.

3. Administration office: Strategically located for supervision and support.





CHAPTER FIVE

5.0 DESIGN APPROACH/REALIZATION

5.1 CONCEPT DEVELOPMENT

The concept is guided by comfort, flexibility and “symbiosis with nature,” blending user needs with the climate. Design ideas take cues from nature for ventilation and light and ensure easy adaptability for future tech upgrades.

1. Theme: "Digital Gateway"

2. Vision: Create a vibrant, inclusive and sustainable ICT center that fosters digital literacy and innovation.

3. Community engagement.

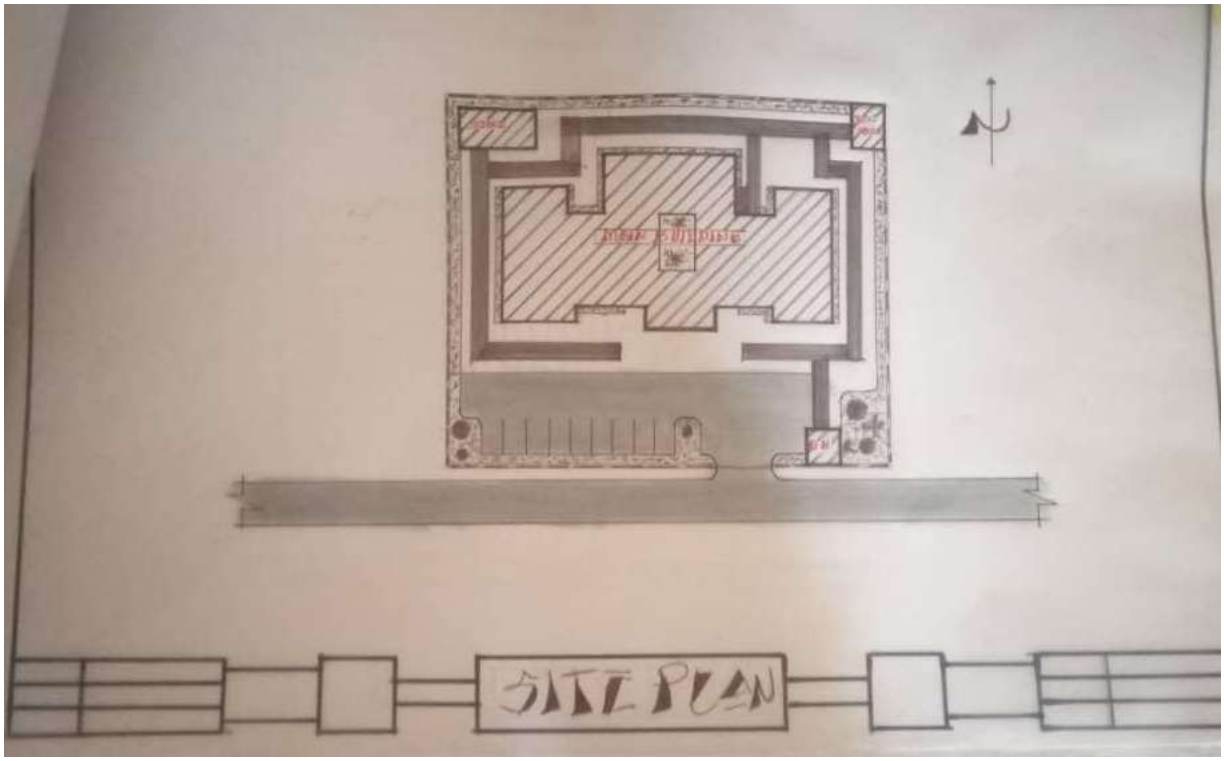
5.2 DESIGN PROCESS

Site layout prioritizes access, landscaping and separation of noisy and quiet zones. Building massing features an inner courtyard, shaded balconies and high ceilings; labs and server areas are temperature-controlled, while most spaces use natural ventilation.

5.3 SITE PLANNING

1. Site layout: Optimize space for building, parking and outdoor activities.

2. Pedestrian access: Ensure safe and accessible pathways.



5.4 BUILDING MASSING

1. Form and structure: Design a modern, functional building that incorporates sustainable materials and energy-efficient systems.

2. Facade design: Create a visually appealing facade that reflects the theme and purpose of the ICT center.

5.5 CONSTRUCTION SYSTEMS AND SERVICES

Reinforced concrete frame, locally sourced blocks and aluminum louvers are used for durability and cost efficiency. Services include reliable power, backup generators, fire protection, high-speed internet, AC in sensitive areas and efficient waste disposal.

1. Building envelope: Design a well-insulated building envelope to minimize energy consumption.

2. HVAC systems: Install energy-efficient heating, ventilation and air conditioning systems.

3. ICT infrastructure: Incorporate state-of-the-art ICT equipment and infrastructure.

5.6 LEGAL/PLANNING CONSTRAINTS

Design complies with local zoning, accessibility standards and fire safety codes, ensuring all relevant permits are secured before construction.

1. Zoning regulations: Comply with local zoning laws and regulations.

2. Building codes: Adhere to national and local building codes and standards.

3. Accessibility standards: Ensure compliance with accessibility standards and regulations.

5.7 ENVIRONMENTAL AND BEHAVIORAL CONSIDERATIONS

Sustainable materials, water harvesting and open, collaborative spaces are emphasized. Spaces encourage interaction and knowledge sharing and adapt to changing tech or user demands.

1. Sustainability: Incorporate sustainable design principles and materials.

2. Natural lighting: Maximize natural lighting to reduce energy consumption.

3. User comfort: Design spaces that prioritize user comfort, accessibility and usability.

5.8 CONCLUSION & RECOMMENDATIONS

SUMMARY:

The project delivers a flexible, climate-responsive and inclusive ICT centre that enhances digital literacy and community engagement.

KEY FINDINGS:

Careful concept development, sustainable materials and compliance with local regulations are crucial for ICT centre success. Natural ventilation and adaptable layouts support energy savings and better user experience.

1. Suggestions for Future Design or Research:

2. Explore solar power integration for off-grid resilience.

3. Include remote/hybrid learning spaces.

4. Test digital inclusion efforts for community impact.

The ICT center design approach prioritizes sustainability, accessibility and user-centered design.
1. Importance of sustainability: Incorporating sustainable design principles and materials is crucial for reducing environmental impact.

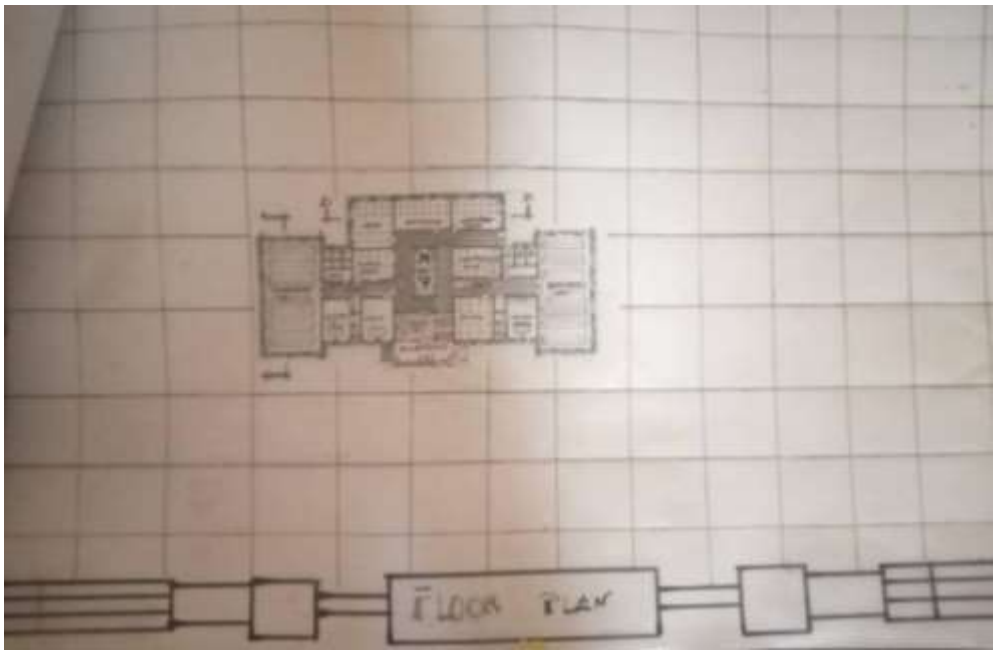
2. Need for accessibility: Ensuring accessibility and usability is essential for promoting digital inclusion.

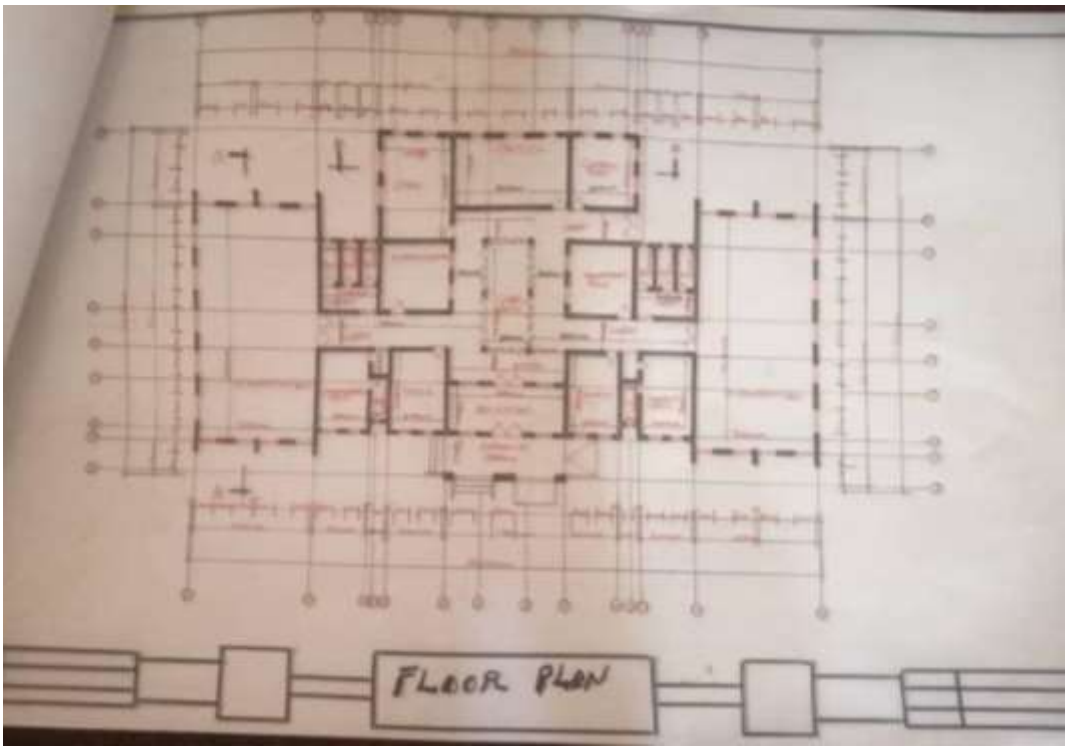
5.9 SUGGESTIONS FOR FUTURE DESIGN OR RESEARCH

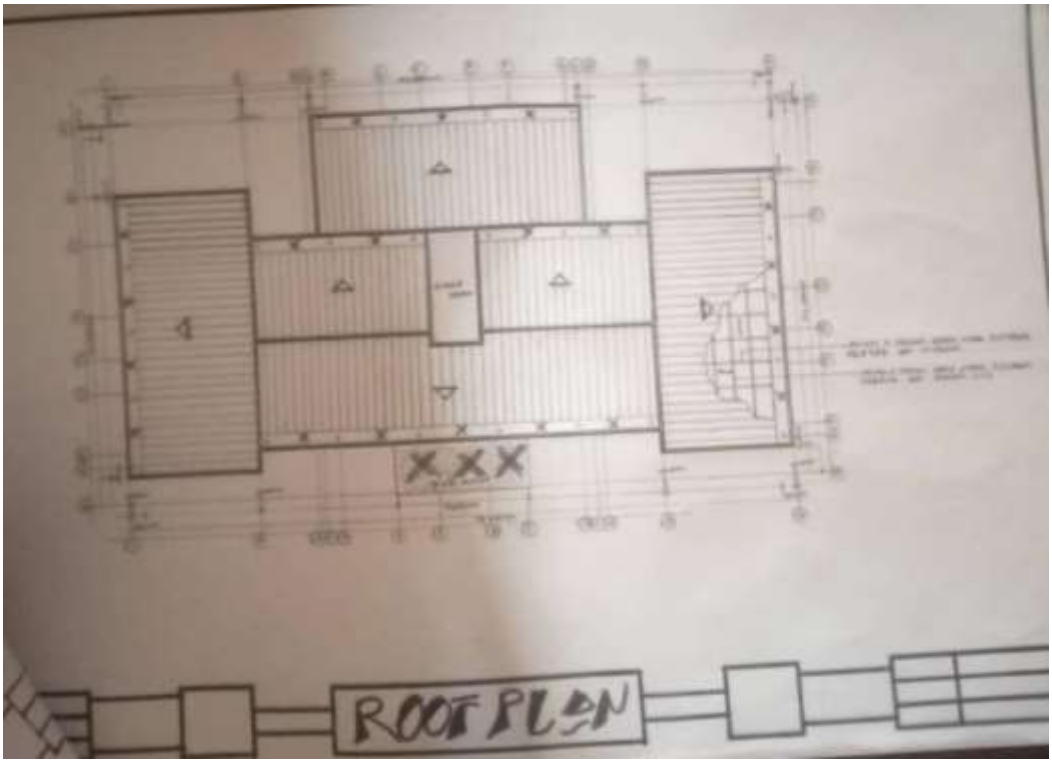
1. Integrating emerging technologies: Explore incorporating emerging technologies, such as AI and VR, into the ICT center design.

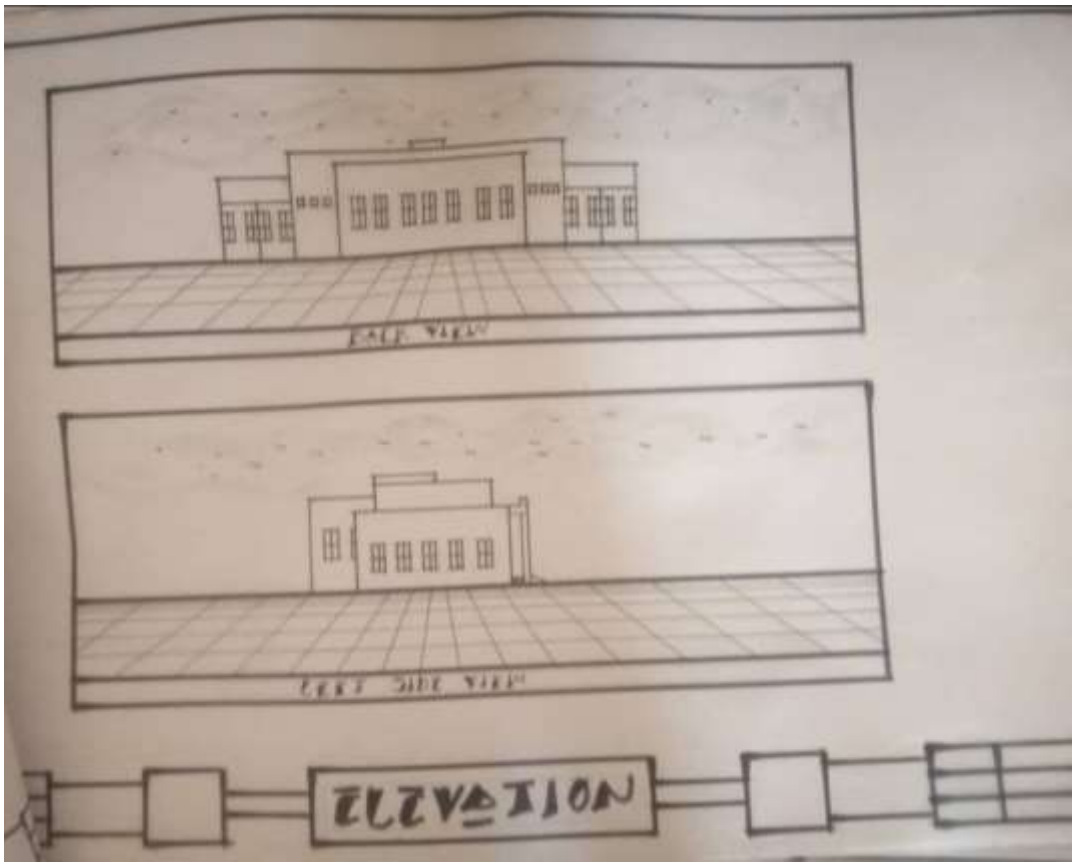
2. Community engagement: Investigate ways to foster community engagement and social interaction within the ICT center.

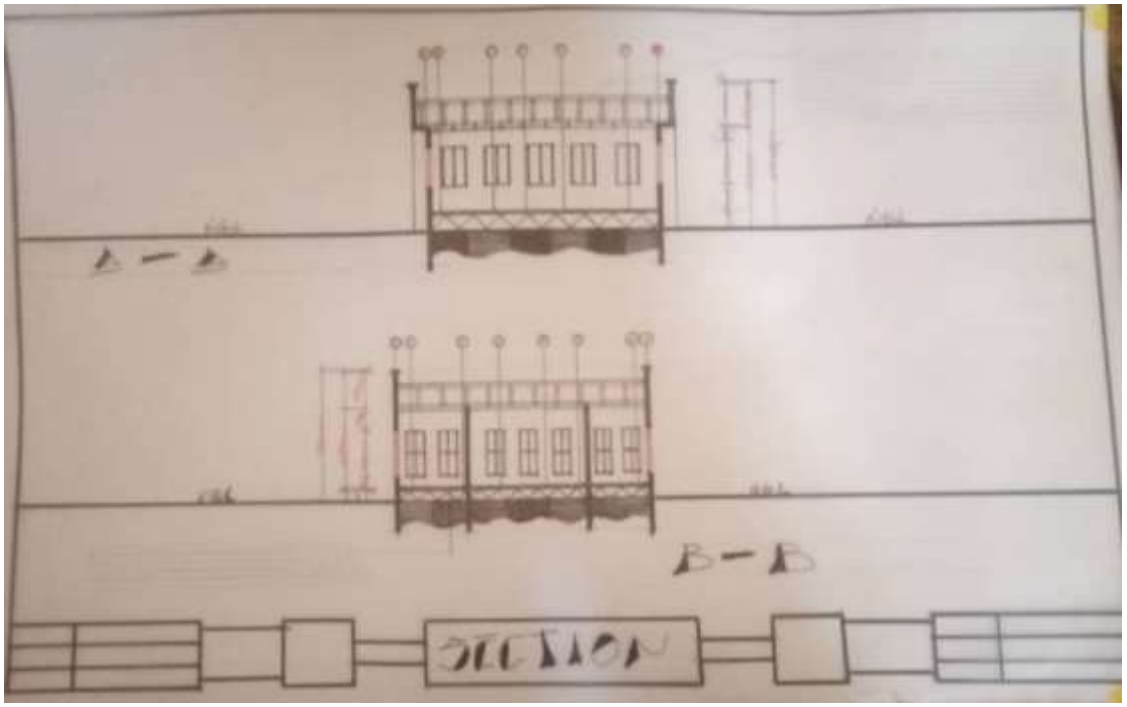
APPENDICES






ROOF PLAN


ELEVATION


A – A
B – B
SECTION

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