Department: Information Communication and Technology Department

Program: Information Technology

Industrial Attachment Report: Software Development Internship at Burera District Headquators.

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DECLARATION

I, **IRADUKUNDA Fils**, hereby declare that this Industrial Attachment Report, titled **"Industrial Attachment at Burera District Headquarters – ICT Department"**, is my original work and has not been submitted elsewhere for any other academic award. All information presented in this report, unless otherwise referenced, reflects my own experiences and findings.
I understand that any plagiarism or academic dishonesty associated with this work will result in academic penalties in accordance with the regulations of my institution.

Signature: _____
Date: **September 10, 2025**

APPROVAL

This is to certify that the Industrial Attachment Report, **"Industrial Attachment at Burera District Headquarters – ICT Department"**, prepared by **IRADUKUNDA Fils** during the academic year 2024‑2025, has been reviewed and approved for submission. The internship was successfully completed at **Burera District Headquarters**, under the supervision of:

College Supervisor: SABUSHIMIKE Donatien.
Job Title: HEAD OF Department
Institution: RP Kigali College
Date: **September 10, 2025**

ACKNOWLEDGEMENT

I would like to sincerely thank everyone who contributed to the success of my industrial attachment.

First, I extend my heartfelt gratitude to **Mr. MIGISHA Gilbert**, my supervisor at **Burera District Headquarters – ICT Department**, for his consistent guidance, mentorship, and encouragement throughout my internship. His expertise in ICT support and systems administration was invaluable in helping me apply theoretical knowledge into practical, real-world experiences.

I am also thankful to the entire ICT team at Burera District Headquarters for their support and for creating a welcoming and conducive learning environment. The hands-on experience I gained while working on various ICT tasks such as hardware maintenance, networking, CCTV setup, and system support has been an invaluable part of my academic and professional journey.

Additionally, I deeply appreciate my family and friends for their unwavering support and encouragement during this internship period. Finally, I am grateful to **IPRC Kigali** for providing me with this valuable opportunity to gain practical skills through the Industrial Attachment Program.

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Date: **September 10, 2025**

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ABBREVIATIONS

Abbreviation Full Meaning

RP   Rwanda Polytechnic

IPRC   Integrated Polytechnic Regional College

ICT   Information and Communication Technology

DBMS   Database Management System

UX   User Experience

UI   User Interface

MySQL   Structured Query Language-based Relational Database Management System

CSS   Cascading Style Sheets

EXECUTIVE SUMMARY

This report presents the experiences and learning outcomes of my seven-week industrial attachment at **Burera District Headquarters in the Information Communication and Technology (ICT) Department**. The primary objective of the internship was to strengthen my practical knowledge and technical skills in ICT support, networking, system maintenance, and user assistance.

The report is organized into four main chapters. Chapter 1 introduces the host institution, its location, mission, vision, and organizational structure. Chapter 2 provides a detailed account of the activities carried out during the internship, presented week by week. Chapter 3 highlights observations, challenges encountered, and lessons learned throughout the program. Finally, Chapter 4 presents the conclusion and recommendations for improving the Industrial Attachment Program.

During the attachment, I engaged in activities such as troubleshooting login issues, performing computer maintenance, configuring networks, managing ICT equipment, and assisting staff with system usage. These tasks enhanced my technical skills, problem-solving ability, and professional competencies, including teamwork, communication, and documentation.

In conclusion, the internship at Burera District Headquarters was a valuable experience that enabled me to bridge the gap between theory and practice. It provided me with essential skills in ICT systems support and strengthened my confidence to address real-world ICT challenges in my future career.

CHAPTER 1: GENERAL INTRODUCTION

1.1 Geographical Location and Historical Background

Burera District Headquarters is located in Butaro Sector, Burera District, Northern Province, Rwanda. The district is well known for its agricultural activities, natural resources, and proximity to the famous Volcanoes National Park. As part of Rwanda's decentralized governance system, Burera District Headquarters serves as the central administrative body responsible for planning, coordinating, and implementing government policies, programs, and services within the district.

The ICT Department at Burera District plays a vital role in supporting the government's broader digital transformation strategy. Rwanda has made significant progress toward becoming a technology-driven economy, as outlined in Vision 2050 and the Smart Rwanda Master Plan. Within this framework, the ICT unit of Burera District Headquarters is tasked with ensuring efficient service delivery through the use of technology, promoting digital literacy, and maintaining ICT infrastructure that supports both staff and residents.

Historically, the introduction of ICT in Burera District has been part of the nationwide effort to modernize governance and bridge the digital divide. Over the years, the district has invested in computer systems, internet connectivity, biometric attendance systems, and e-governance tools, which are essential for transparent and efficient public service delivery.

1.2 Vision, Mission, and Core Values
Vision: To provide modern, reliable, and efficient ICT services that enhance service delivery and support Rwanda's digital transformation agenda.

Mission: To strengthen ICT systems in Burera District by maintaining digital infrastructure, supporting government employees in ICT-related tasks, and promoting innovation for improved governance and citizen engagement.

Core Values:

- Innovation: Leveraging modern technologies to improve public service delivery.

- Integrity: Ensuring transparency and accountability in the management of ICT resources.

- Service Orientation: Prioritizing the needs of both staff and citizens in ICT support and services.

- Collaboration: Working closely with other departments and stakeholders to achieve the district's goals.

- Sustainability: Building ICT systems that are secure, reliable, and future-ready.

1.3 Product Offerings and Key Departments

The ICT Department at Burera District Headquarters provides a wide range of services that enable efficient daily operations of the district administration. Its key responsibilities and service areas include:

- System Administration and Maintenance: Ensuring that computers, servers, printers, and other ICT equipment function effectively.

- Networking and Internet Connectivity: Managing wired and wireless networks within the district headquarters to support communication and information sharing.

- Database and Records Management: Supporting digital record-keeping systems, staff attendance systems, and secure data storage.

- User Support and Troubleshooting: Providing technical assistance to staff for issues such as login errors, software installation, and hardware maintenance.

- ICT Training and Capacity Building: Assisting staff in adopting ICT tools and improving digital literacy.

The department works closely with other administrative units to ensure smooth coordination of digital services, including e-Government platforms that allow citizens to access public services more efficiently.

1.4 Placement Department

During my industrial attachment, I was placed in the ICT Department of Burera District Headquarters. My role primarily involved assisting with system troubleshooting, setting up and maintaining ICT equipment, configuring networks, and providing technical support to staff members.

Working under the supervision of the District IT Officer, I participated in activities such as computer formatting, printer maintenance, server management, and troubleshooting user login issues. I also gained practical exposure to handling ICT infrastructure in a government institution, which required strict attention to detail, documentation, and adherence to ICT policies.

This placement not only enhanced my technical competencies in computer maintenance, networking, and system support but also improved my soft skills in teamwork, communication, and time management. The experience gave me valuable insight into how ICT services are managed within a government institution and how technology supports governance and service delivery at the district level.

CHAPTER 2: ACTIVITIES PERFORMED

2.1 General Activities

During my industrial attachment at Burera District Headquarters – ICT Department, I was actively involved in both general and technical ICT tasks. My daily duties included:

- Assisting staff with troubleshooting computer and system-related issues.

- Maintaining and formatting computers to ensure smooth operations.

- Configuring printers, scanners, and biometric devices for daily use.

- Supporting the setup and monitoring of surveillance cameras within the district premises.

- Participating in server room management, including cable organization and power optimization.

- Providing technical support for multimedia systems during meetings and conferences.

These activities helped me bridge the gap between theory and practice by exposing me to real-life ICT support services in a government institution.

2.2 Specific Activities by Week

To provide a structured overview, below is a breakdown of the specific activities I performed each week during my attachment:

- **Week 1: Design web prototyping**
  I studied audiovisual systems and their applications in networking. I installed **Cisco Packet Tracer** to design and simulate network topologies, performed subnetting, and configured routing protocols (RIP) both at the router and switch level. This experience deepened my understanding of computer networks and their importance in system connectivity.

- **Week 1:** Introduction to the ICT Department, orientation on district ICT systems, and observation of staff operations. Assisted with computer maintenance and software installation.

- **Week 2**: Performed hardware-related tasks such as assembling a desktop computer and formatting multiple PCs to enhance performance. Repaired and configured printers for office use.
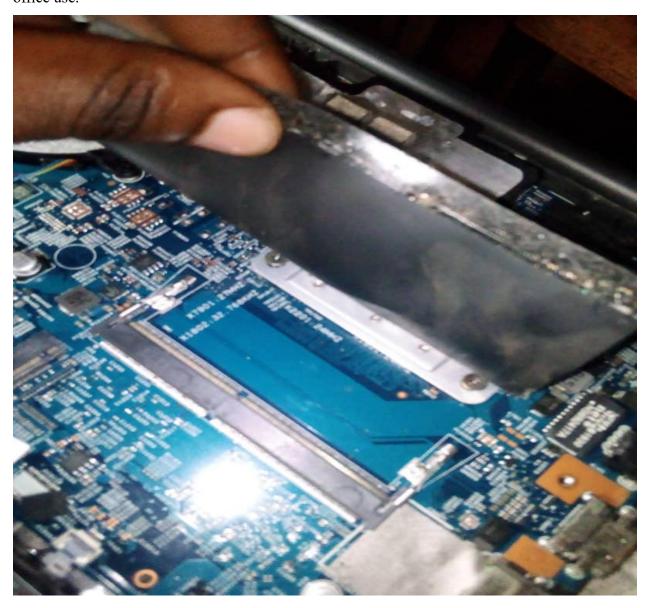

Figure 1

- **Week 3:** Engaged in power and cooling system inspections at the Mukungwa Hydro Power Plant. This included checking generator cooling systems and participating in maintenance of the lighting system.

- **Week 4**: Supported camera installation by helping mount surveillance devices and configure them to the internet for monitoring. Also assisted in displaying camera feeds on designated screens for security use.

Figure 2: Sign in page with Google option

- **Week 5:** Participated in server room activities such as rack organization, power management, and cable management. Learned about network stability and how server uptime is maintained.
- **Week 6:** Took part in registering employees into the facial recognition system to strengthen digital attendance tracking. This task ensured that all staff data was properly stored and accessible in the system.
- **Week 7:** Assisted in troubleshooting login issues in the district's internal system. Worked on multimedia system setup in the conference hall to support official meetings and presentations.

- Debugging errors in React improved my patience and critical thinking in dealing with frameworks.
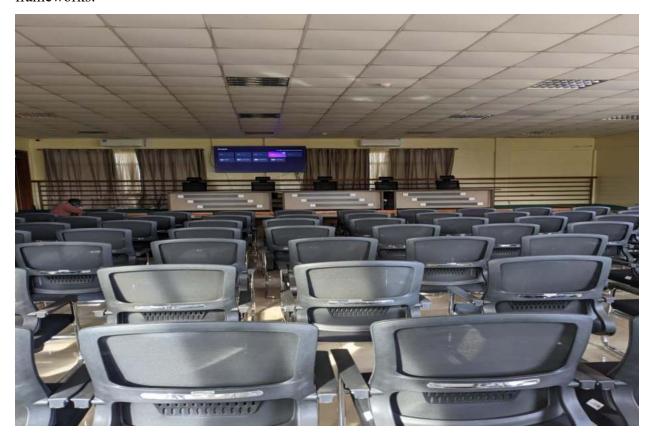

Figure 3

2.3 Knowledge and Skills Acquired

The attachment provided me with a broad range of skills that are essential in the field of ICT and software development. Key skills and knowledge areas include:

- **Software Design & Architecture**: I learned to design systems that are scalable, modular, and maintainable, ensuring functionality and ease of future upgrades.

- **Testing & Debugging**: I developed skills in writing reliable test cases, using debugging tools, and proactively addressing system issues to improve performance and stability.

- **Database Management**: I gained practical experience in designing efficient database schemas, writing complex queries in **MySQL**, and ensuring data integrity and optimization.

- **Soft Skills**: Beyond technical skills, I enhanced my **teamwork, communication, and time management** abilities. I also improved my technical documentation and presentation skills, which are crucial in professional project delivery.

CHAPTER 3: INDUSTRIAL ATTACHMENT EXPERIENCE

3.1 Observations

During my attachment at Burera District Headquarters in the ICT Department, I had the opportunity to observe how ICT services are managed and integrated into the daily operations of a government institution. Key observations include:

- **Strong Team Collaboration and Knowledge Sharing:** The ICT Department emphasized teamwork and cooperation. Staff members supported each other in solving technical problems such as printer issues, network downtime, and system login errors. This created a productive learning environment where interns could easily acquire practical skills.

- **Hands-On and Service-Oriented Approach**: Most tasks were practical, such as assembling and formatting computers, configuring cameras, and maintaining printers. I observed that the department's operations were focused on ensuring all staff had functional ICT tools to perform their daily work.

- **System Monitoring and Security**: I observed the use of surveillance cameras and facial recognition systems to strengthen both security and attendance monitoring. This reflected the district's commitment to digital solutions for efficiency.

- **Mentorship from Experienced Staff:** My supervisor and other ICT officers consistently guided me during tasks such as server room management and system troubleshooting. Their mentorship made it easier to understand complex technical processes.

3.2 Critique
While the attachment was highly beneficial, I identified some areas that could be improved:

- **Limited Exposure to Advanced Networking Tools:** Although I worked on cabling and server rack organization, there was limited hands-on exposure to advanced networking tools or configurations such as routers, firewalls, or VLANs. More practical involvement in these areas would enhance networking skills.

- **Insufficient Access to Specialized Software Systems:** Some systems, like the district's internal databases and management software, were restricted for security reasons. As a result, my exposure was mainly limited to troubleshooting user login issues rather than deeper system administration.

- **Lack of Formal Training Sessions:** Most knowledge was acquired through observation and practice. Organizing structured training sessions on ICT security, server management, or networking tools could further improve the learning experience for interns.

3.3 Key Learnings

The attachment was a transformative experience that equipped me with both technical and professional lessons. The most significant learnings include:

- **Problem-Solving and Critical Thinking:** Each day presented new challenges, such as resolving login issues, repairing printers, or configuring cameras. I learned to analyze problems step by step and apply effective solutions.

- **Practical ICT Maintenance Skills**: I acquired hands-on skills in computer hardware assembly, formatting, printer repair, CCTV installation, and server management. These skills will be useful in future ICT support roles.

- **Documentation and Reporting:** I understood the importance of recording daily activities and keeping track of maintenance tasks. This practice improves accountability and knowledge sharing within the department.

- **Professionalism and Workplace Etiquette:** I learned the importance of discipline, punctuality, and teamwork in a professional environment. Interacting with district staff improved my communication skills and confidence.

- **Adaptability and Learning by Doing:** Since many tasks were practical, I became more adaptable and confident in handling new technical issues without fear of failure.

CHAPTER 4: CONCLUSION AND RECOMMENDATIONS

4.1 Summary

The seven-week industrial attachment at Burera District Headquarters – ICT Department was a highly enriching and practical experience. It gave me the opportunity to apply classroom knowledge to real-life ICT challenges in a professional environment. Through this placement, I gained valuable technical skills in computer assembly and formatting, printer repair, CCTV installation and monitoring, server and power management, and troubleshooting system login issues. I also worked on activities such as configuring facial recognition systems and managing conference room multimedia, which broadened my ICT exposure.

In addition to technical knowledge, the internship strengthened my professional competencies such as teamwork, reporting, communication, and time management. By participating in both daily support activities and special projects, I developed a clear understanding of how ICT services are provided within a government institution and how critical they are to smooth operations. This experience has prepared me to handle future professional responsibilities with greater confidence.

4.2 Conclusion

In conclusion, my internship at Burera District Headquarters significantly enhanced my technical expertise and professional outlook. The combination of hands-on technical tasks, mentorship from ICT staff, and exposure to real workplace challenges helped me grow from an academic learner into a more skilled and adaptable ICT professional.

The experience also reinforced the importance of ICT in improving public service delivery, enhancing security, and ensuring operational efficiency. It has given me confidence in my chosen career path and motivated me to continue building my skills in system administration, networking, and ICT support.

I am deeply grateful to Burera District, my supervisor, and my institution for making this internship possible and for supporting my professional development.

4.3 Recommendations

Based on my experience during the internship, I would recommend the following improvements to strengthen future Industrial Attachment Programs at Burera District and similar institutions:

- **Provide More Exposure to Networking and Advanced Systems:** Allow interns to gain hands-on practice with advanced networking tools (routers, switches, firewalls) and system configurations to expand their technical knowledge.

- **Organize Structured Training Sessions:** In addition to daily tasks, provide short training workshops on ICT security, server administration, and database management.

- **Offer Access to More Specialized Software Systems:** Where security permits, allow interns to observe or practice with internal management systems to gain exposure to government ICT operations.

- **Encourage Client/User Interaction:** Involve interns in user support and training sessions so they can develop customer service and communication skills.

- **Strengthen Documentation Practices:** Encourage interns to prepare detailed reports on troubleshooting and maintenance activities to improve accountability and knowledge sharing.

- **Establish a Feedback Mechanism:** Implement a formal system for interns to share their experiences, challenges, and suggestions, which will help refine the internship program and make it more effective for future students.