PROJECT MANAGEMENT 3

GROUP PROJECT MANAGEMENT

DELIVERABLE 3

GROUP NAME AND MEMBERS

GROUP NAME	INDUSTRIOUS IRISES PROJECT
Student Numbers	Members
1) 220370842	**ANALO PRECIOUS GCEBA**
2) 220366748	**NONKULULEKO MKWENKWE**
3) 220457026	**SONELISE HLABENI**
4) 220276595	**ANDILE NOMAQHIZA**
5) 220205922	**MBUYISELI CIMELA**
6) 220602034	**THABISO MOHALE**
7) 220425272	**LUPHIWE NYAWO**
8) 220103739	**WANGA BALEMINI**
9) 220201722	**ABONGILE DOTYE**
10) 219309124	**AKHULE KILILI**

Project Title: ENTERPRISE-WIDE INTERGRATION OF AUTOMATION AT WSU IBIKA CAMPUS

BY

INDUSTRIOUS IRISES

PROJECT START DATE: MAY 09, 2022

PROJECT END DATE: JANUARY 6, 2023

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PROJECT SCOPE STATEMENT

PROJECT OBJECTIVES

In our campus we experienced poor internet connection, our campus network has a small bandwidth, short response time and it does not cover the whole campus. Poor security (internal and external) our gates are entry free, and our firewalls need to be updated because our system is easily hacked so this project is created to improve network and security of our WSU Ibika campus, since covid 19 outbreak things haven't been the same so e-learning and other online services had to be introduced. The following needs to be done in a specific period and according to the budget allocation. We will need to schedule the time it will take, develop a budget, design project chart, and define the scope of the project within 4 weeks, by the end of 5 weeks we will have a complete list of necessary hardware and software that fulfills the budget allocation, then we will start developing and configuring the necessary network solutions in 5 weeks. In 2 weeks, we will install IoT sensors in our gates so we'll be able to produce a fingerprint when entering and on the last 3 weeks we will test troubleshoot and correct any issues we may encounter.

DELIVARABLES

- Fast, efficient, and smooth biometric IoT solution that will authenticate Ibika campus members.
- Implemented security to ensure out network is secured, and no unauthorized user will benefit from it.
- The system is protected from malware and malicious.
- Design presentation to make stakeholders understand our project goals.
- Build a real-time processing system for our IoT solution that will use IoT date protocol and transmit data in low power without the need for internet connection in case of load shedding.
- simulation that will show how the solution will be implemented
- The Project is concluded with lessons and motivations
- Documentation of the project charter plan and scope statement
- Work schedule and Gantt chart are developed to assist with proper planning and tracking of the project progress
- Maintain and manage resources that we will use throughout the project

MILESTONES

Event/Deliverable	Target Date	Status	Responsible
Initiating			
• Project Stakeholders identified	07/07/2022	Completed	Resource Managers
• Project Charter Plan	21/07/2022	Completed	Project Manger
• Project Charter Signed	26/07/2022	Completed	ICT Department
• Team Contract Signed	29/07/2022	Completed	Project Members
Planning			
• Scope Statement	04/08/2022	Pending	Project Manager
• Work Breakdown Structure	12/08/2022	Pending	Project Manager
• Schedule and Cost Baseline	06/09/2022	Pending	Project team
• Design Gant Chart	13/09/2022	Pending	Project Manger
• Investigate current and required IoT, Network and Security	20/09/2022	Pending	Network Engineers
• Inventory Report	04/10/2022	Pending	Project Manager
• Network Solution Approval	24/10/2022	Pending	WSU ICT Department and Project Sponsor
Presentation			
• Project plan and simulation presentation	10/11/2022	Pending	project members
Execution			
• Implement the solution	05/12/2022	Pending	Network Engineers
Conclusion			
• Completion	06/01/2023	Pending	Network Engineers

• Sponsor Sign-off for project Completion	10/01/2023	Pending	Project sponsor
• Project ending lessons identified	17/01/2023	Pending	Project members

TECHNICAL REQUIREMENTS

FUNCTIONAL REQUIREMENTS

Our IoT must be able to do the following:

- **User authentication:** Verification and identification of the user attempting to gain access to the network to confirm user's authenticity of WSU Ibika campus.
- **Unlimited connection:** End users which are students and staff members should be able to connect at any time when they need internet access.
- **Availability**: The likelihood that a product will perform as expected at a specific moment when utilized in a real-world or realistic operating and support context.
- **Confidentiality**: maintaining legally permitted limitations on the disclosure and access to information, including safeguards for preserving proprietary information and individual privacy.
- **Data processing and integrity**: Maintaining data is a core focus of this project, it must be consistent and accurate over its lifecycle.
- **Enabling QoS for critical applications**: To enhance network performance and management of data traffic and offering prioritization of critical data for most needed applications.
- **Integrating IoT connection**: The connection of smart devices and sensors to our campus network.

NON-FUCTIONAL REQUREMENTS

The system must be fault tolerant

- **Reliability:** The system must perform in its required functions under its stated conditions for a specific period. we will upgrade to IPV6 so that our campus network will be fast, smooth, cover the whole campus and be able work to the restricted number of devices.
- **Scalability**: Adding resources to the system to handle the increasing volume of work we will complete so we will purchase more routers and keep them updated, we will configure quality of service, and run antiviruses by that we will be increasing our campus bandwidth, we will also store our campus data to cloud computing infrastructure because it is not costly, and it is flexible and disaster recoverable.
- **Privacy:** Restriction of access to the data, only authorized users should be able to access the encrypted data using the passwords that are provided.
- **Security:** The security protects the systems integrity from accidental or malicious damage and ensures that unauthorized access to the system and its data is not permitted.

- The access permissions for system data can only be modified by the systems data administrator. The system data server and client must encrypt all external communications.
- **Maintainability:** This ensures that the network is up and running efficiently, we'll also include IoT data protocol (AMPQ is efficient, portable, multichannel, and secure) so that they'll be able to connect when there's load shedding because it doesn't require much power.

BUSINESS RULES

The current system that is used in our campus has issues, we are experiencing poor internet connection and it has a short response time, so we will upgrade from IPV4 to IPV6 and for one to be connected to the newly installed network he/she must be given a permission to be the authorized user so this means our solution must be compatible with the current system. It must be an unlimited connection. Our campus gates are entry free so we will install biometric security sensors so that we will provide fingerprints when entering. The system must support all types of devices including phones, printers, and other gadgets. Registered users will be given a link in their student mails that will have limited attempts for one to register and verify his/her devices or gadgets. Email updates must be sent to customers whenever there is an upgrade or other modification to the network infrastructure. The project must stay under the set spending limit and be finished within a specified timeframe. During implementation, we will be testing and documenting to ensure that our solution will satisfy the users.

QUALITY REQUIREMENT

The network connection type for our campus is Local Area Network (LAN). When there are multiple routers and switches server-based AAA is more appropriate.

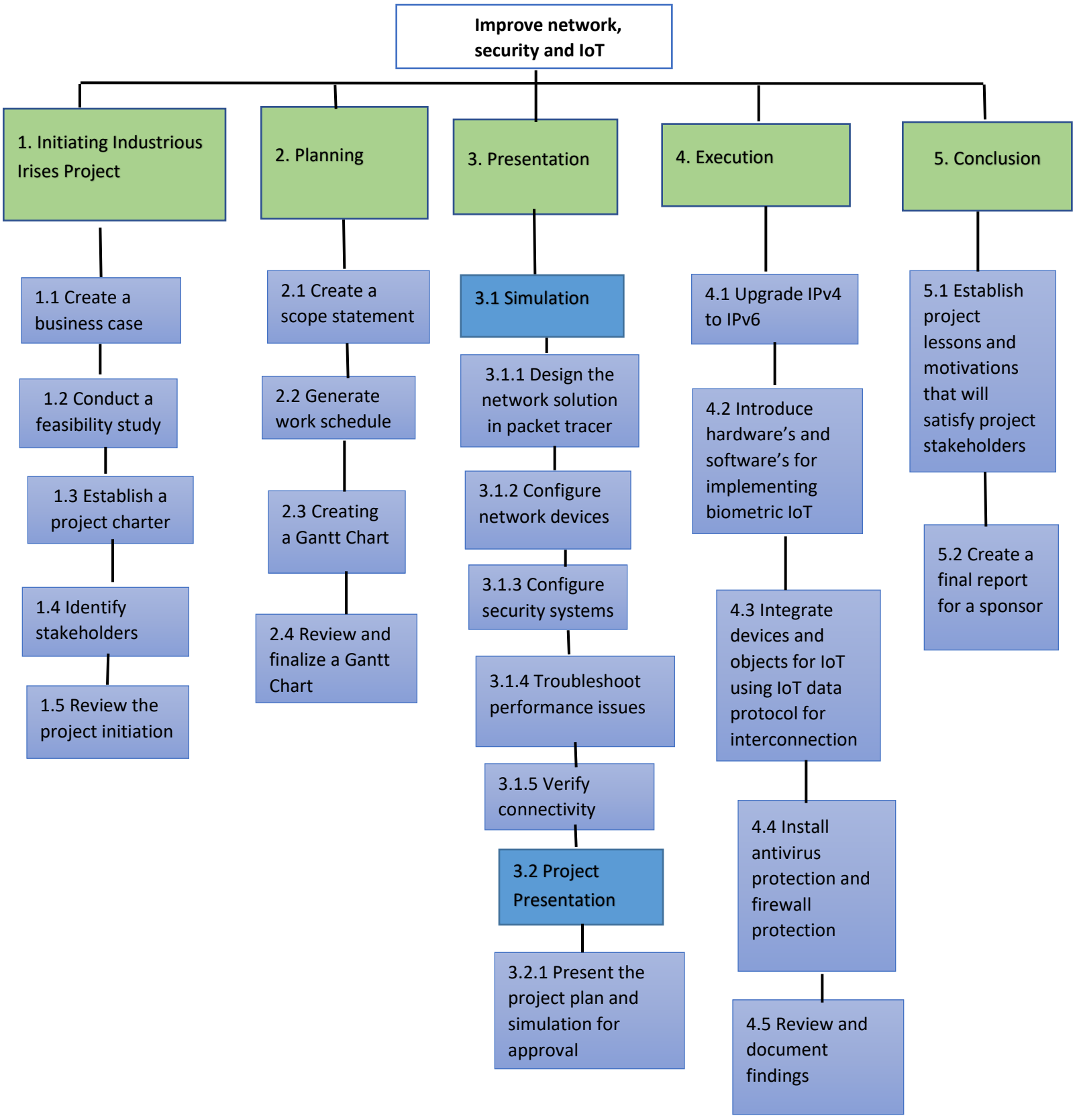
- **TACACS+** – Allows full encryption authentication packets as they cross the network between the server and device. TACACS also verifies your login details before redirecting you to the page you want so this means the security will be improved.
- **IEEE 802.11/HIPERLAN 2** – Provides users the ability to remain connected whilst moving within our campus so the frequency is 5GHz and the bandwidth is 54Mbps with a range of 150 meters with 450 feet.
- **802.1x** – Enhances the security of local area network by providing an authentication framework allowing users to authenticate to a central authority
- **Security monitoring** – The security will be tested and monitored regularly by being proactive, we can identify areas of weakness and adjust.
- **IoT data protocols** – Are used to connect low-power IoT device, they provide communication with hardware on the user side without the need for any internet connection. The connection is through a wired or cellular network.

LIMITS AND EXCLUSIONS

The following are limits and exclusions of this project, for which the company will not be held accountable for them:

- Future state of the network
- Funds over a fixed budget
- The possible loss of resources
- Purchasing the network devices that are not compatible with the network size
- A sufficient number of hardware and software required
- A completion date set before project end

1. **Work Breakdown Structure**



2. WBS Dictionary for the WBS

1. Initiating Industrious Irises Project

WBS item 1.1: Creating a business case

The Industrious Irises project will start by creating a business case which is a document that explains how the benefits of the project overweigh the cost and why it should be executed, the business case created will then be reviewed by the project sponsor and key stakeholders.

WBS item 1.2: Conduct a feasibility study

After the business case is approved by relevant stakeholders the Industrious Irises project will then run a feasibility study to make sure the work can be done effectively. The study will analyze the viability of the project and to identify potential issues and problems that could arise while pursuing the project.

WBS item 1.3: Establish a project charter

The project charter will be created to identify the purpose of the project and defining deliverables, benefits, risk, listing of stakeholders and setting of the budget.

WBS 1.4: Identify stakeholders

Our Business Analyst will start identifying stakeholders process as soon the sponsor signs the project charter. During this process, she will identify our project's stakeholders and record this information in the stakeholders' register. This information may include interests, influence, and impact on our project.

WBS 1.5: Review the project initiation

It is the first phase of the project management life cycle and in this stage, we will decide if the project is needed and how beneficial it will be for students. The two metrics that are used to judge a proposed project and determine the expectations from it are the business case and feasibility study.

2. Planning

WBS item 2.1: Create a scope statement

The project will create a scope statement that will encompasses all the work needed to deliver our product, and it will consist of project goals, deliverables, tasks, project members, deadlines, milestones, statement of work and a work breakdown structure.

WBS item 2.2: Generate work schedule

The work schedule generated will follow this:

In II project we work 5 days a week, 8hours per day

We split work to individual to everyone so that we can all participate, team members must have skills for every job they are assigned for. We must make sure that we have time management so that we can complete our project in a scheduled time, and we will have to make sure that we stick to the allocated budget.

WBS item 2.3: Creating a Gantt Chart

We will use Microsoft project when creating this Gantt chart each bar in the Gantt chart represent critical information such as who is assigned to what, duration of tasks, and overlapping activities in a project, it is reviewed by the database administrator.

WBS item 2.4: Review and finalize a Gantt chart

The Gannt chart will be reviewed in this way:
Every activity is connected to a few other activities in some way.

There are predecessors and successors for every action, with the exception of the first and last.

Activities must be sequenced by using the appropriate relationships to place them in the proper order. Verify that all scheduling risks have been addressed by reviewing the schedule, check the inclusion of response strategies and schedule backups.

3. Presentation

3.1 Simulation

WBS item 3.1.1: Design the network solution in packet tracer

On our PC, we will simulate, build, and test a network using packet tracer. This will assist us in building a new network topology for our Ibika campus.

WBS item 3.1.2: Configure network devices

this will support the flow of traffic through network to improve network security and improve network stability.

WBS item 3.1.3: Configure security devices

security system will reduce unneeded cyber vulnerabilities when constructing and installing computers and network equipment.

WBS item 3.1.4 Troubleshoot performance issues

The main goals of troubleshooting are to determine why something doesn't function as planned and to offer a solution to fix the problem.

WBS item 3.1.5 Verify connectivity

assure that hardware, software, and network configurations will run without errors or unforeseen problems, IT teams employ network verification tools.

3.2 Project Presentation

WBS item 3.2.1: Present the project plan and simulation for approval

The project manager of industrious irises will present the project plan and simulation to stakeholders for approval. The presentation will contain all the work needed to successfully meet the project goal.

4.Execution

WBS item 4.1: Upgrade IPv4 to IPv6

Network engineers of II project will migrate the system from ipv4 to ipv6 so that the network in our campus can fulfill the need of internet to the users. Ipv6 uses multicast in place of broadcast, with multicast data can be sent to multiple destinations faster.

WBS item 4.2: Introduce hardware's and software's for implementing biometric IoT

We will purchase enough IT infrastructure according to the scope plan that will be used when implementing biometric IoT.

WBS item 4.3: Integrate devices and objects for IoT using IoT data protocol for interconnection

We will install hardware's and software's and use AMPQ IoT data protocol that use less energy and integrate new devices with the current campus devices.

WBS item 4.4: Install antivirus protection and firewall protection

Antivirus software will help us in this project to protect the file system against unwanted programs and will firewall helps to keep attackers or external threats from getting access to your system in the first place.

WBS item 4.5: Review and document findings

After the installation of all the appropriate devices, configuration, testing and troubleshooting, the results will be recorded as needed to provide evidence of progress of the project.

5. Conclusion

WBS item 5.1 Establish project lessons and motivations that will satisfy project stakeholders

Lessons learned are the documented information that reflects both the positive and negative experiences of a project. They represent the organization's commitment to project management excellence and the project manager's opportunity to learn from the actual experiences of others.

Keep Stakeholders informed of project risk and potential impact at all times.

WBS item 5.2: Create a final report for a sponsor

The II project is created to improve network and security of our Ibika campus. Out of all the challenges we encountered we've provided solutions for them especially in security we have come to a decision that we will install biometric security devices in our gates, increase bandwidth of our campus network, as far as we are concerned, we believe that we sticked to the allocated budget. We hope that this project will be a success and our sponsors will be satisfied.

Roles and Responsibilities Metrics

Area of focus	Project Manager: Miss A.P Gceba	Business Analyst: Miss N Mkwenkwe	Data Technician: Mr S Hlabeni	Database Administrator: Mr A Nomaqhiza	IT Auditor: Mr M Cimela	Resource Managers: Mr T Mohale and Mr L Nyawo	Financial Analyst: Mr W Balemini	Network Engineers: Mr A Dotye and Miss A Kilili	Experts
Initiating Industrious Irises Project	R&A	R&C	I&C	I	R&C	R	I&A	R	I, C & A
Establish a project charter	R&A	R&A	I&C	I	R&C	R	I&A	R	I, C & A
Planning	R&A	R&C	I&C	I	R&C	R	I&A	R	I, C&A
Create a Scope statement	R&A	R&C	I&C	I	R&C	R	I&A	R	I, C&A
Presentation	R	R	R	R	R	R	R	R	I&C

Present the project plan and simulation for approval	R	R	R	R	R	R	R	R	I&C
Execution	R	I	R	I&C	R	I	I	R	I&C
Implement the solution	R	I	R	I&C	R	I	I	R	I&C
Conclusion	A&R	R	R	R	R	R	R	R	I
Establish project lessons and motivations that will satisfy project stakeholders	A&R	R	R	R	R	R	R	R	I

R: Responsible: A group of people who are responsible for task completion of deliverables.

A: Accountable: Individual or members who signs off on the task or has an authority for it

C: Consulted: People who are consulted by those who are responsible for advice and expertise

I: Informed: People who are updated and notified when task is completed

Customer Review

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