PROJECT MANAGEMENT 3

GROUP PROJECT MANAGEMENT

DELIVERABLE 2

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 06, 2023

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EXECUTIVE SUMMARY

The covid-19 outbreak has highlighted the connection issues that most businesses face. There were regulations that we needed to follow in our campus (Ibika campus). We've encountered some issues that are related to Ibika ITS system for student allocation into residences not operating, registration taking time to be finished due to poor internet connection that has short response time whereby it makes allocation and registration take long time to be completed. We have found that our system is not automated enough to carry out many services concurrently and run smoothly, our main focus is ensuring the reliability and smooth operation for our network infrastructure.

We also found that there is no biometric internet of things sensors that safely guard our students and staff to verify their fingerprints using sensors when they enter the campus in the gates. Our security is not tight enough, so our campus is entry free without being detected or confirmed as a member or not a member of our institution.

The II project has been created to also implement biometric IoT sensors that will analyze fingerprints or eye scan the individuals who enter in our gate entrance to authenticate Ibika campus members. The data generated will be stored in cloud server, and the big data of 500 zettabytes will be generated per year. To process data, we will use AMQP IoT data protocol because of its security and reliability which will allow low power usage to retrieve and transmit data stored on the server when there is a user input for authentication.

In our campus the Wi-fi devices does not carry enough bandwidth that support many devices. Sometimes the internet is slow which makes it hard for students and staff to connect in our campus.

In Ibika Campus we use IPv4 and IPv4 addresses typically does not have much larger addressing space and the limited IPv4 creates inability to do IoT implementation for security in our gate entrance. IPv4 that we use has causes challenges that include inability of direct communication between IPv4 enabled devices with IPv6 enabled devices.

The industrious irises project has been created to correct and improve security, network and IoT in our campus to prevent delays in registration, allocation and provide a crime free area.

PROJECT PURPOSE/JUSTIFICATION

In our campus we face challenges that include slow system for student allocation and registration, and there is no tight security that IoT will provide for Ibika campus. We also don't have reliable connection, sometimes the connection is slow due to many users who access it at the same time. There are other challenges to our web servers for student allocation, learning platform whereby they don't provide accessibility to our users in most required times or busy times.

The purpose of this project is to improve network and security in our WSU Ibika campus to make it more efficient, reliable, and productive. We will provide biometric IoT sensors that will safely guard and permit individuals who access the Campus to prevent unauthorized users to enter and access our Campus resources. We will also provide security for devices that access our websites to be registered with limited devices for login credentials, to enable good connection and security. Improve our network from IPv4 to IPv6 because IPv6 will provide a better solution to allow many devices to connect because of its great features that provide dual stacking, tunnelling, address translation, speed, and security.

BUSINESS NEED/CASE

The Industrious irises project has been created to enhance network and security for better connection and safety in our WSU Ibika campus to prevent data loss, theft, deliberate damage. We need to have network security also the network should be able to work under any circumstances, so we need to have scalability. We also need to provide wireless network connectivity to make it more reliable and resilient.

On campus we have identified the challenges of poor internet connection because IPv4 lack quality of service support to allow required bandwidth for smooth operation to most of our applications, so we'll change that by implementing IPv6.

We had some challenges of unauthorized access to our campus where members who are not part of our institution gain entrance and access to our campus. By introducing the solution of internet of things where we can access entrances by swiping student or staff card or using fingerprint this IoT solution will restrict unauthorized gain to our campus. All these need budget that will cover all these expenses for example we need to analyze and have quote of everything that we will need for this improvement to be a success.

BUSINESS OBJECTIVES

- Involves securing smart devices and networks connected to the IoT such sensors
- Upgrade network from IPv4 to IPv6
- Configure quality of service to priorities most critical applications
- Provide wireless connectivity
- Upgrade Wi-Fi routers every after 3 months
- Test the connectivity within 60 days
- Build firewalls to prevent unlicensed access

PROJECT DESCRIPTION

The Industrious Irises will provide increased network cyber security to WSU Ibika campus using software's such as firewalls to prevent attacker/hackers, network devices such as wireless access points, switches, routers, and cables. We will also install sensors in our entrances, so we'll be able to use fingerprints, eye opener when a person is entering the gate.

In our campus we have problems of outdated routers We will make sure that we enhance a fixed-wireless connection by keeping our routers updated. Other challenges include slow internet connection that have short response time for users with low bandwidth. Using IPv4 also causes security issues to our network that we must resolve by implementing IPv6. In our solution we will have to control and protect the connectivity to avoid threats that will try to affect our campus system by making changes to the configurations resulting it to be at risk to the attackers such as viruses. We will also increase network bandwidth by updating routers, configure quality of service and running antiviruses.

We had also found our technology equipment, which is placed in dusty environment, we will improve that making sure we provide a filter dust to ensure safety and clean environment where network equipment will be placed since this might affect device performance.

PROJECT OBJECTIVES AND SUCCESS CRITERIA

- The project completion time is 4 months 19 days so by then the project should have satisfied its criteria including the triple constraints e.g., scope, time, and cost goals.

- For the first 30 days we will be drafting our work, stating the resources that will be needed and the things that we need to do to complete our project. We will need schedule the time it will take, develop a budget, design project charts, and define the scope of the project.
- We will have a complete list of necessary hardware/software that fulfils the budget allocation within 35 days.
- For the next 45 days we'll be developing and configuring the necessary network solutions.
- For the final 28 days we will test our solutions, troubleshoot, and correct any issues detected

REQUIREMENTS

- The project must fulfil the expectations of Ibika campus by providing biometric IoT sensors that will allow tight security in the gate entrance
- Upgrade of existing network switches which will provide more network bandwidth.
- we will use internet of things that provide security for fingerprint detection in the gate entrance
- The security of the equipment must be always tighter to prevent theft and other network threats.
- The solution must be tested, go through processes such as planning, initiation, controlling and monitoring, execution and lastly the closure.
- We will use wireless connection on out spaces and wired connection on our laboratories (library, offices, and admin)

CONSTRAINTS

- load sheading will affect the progress of our project especially during testing, simulation, and implementation it will create delay of our reschedule
- weather conditions such as wind or stormy weather may affect internet connections causing weak signal interference
- delay of materials that we will need will affect the project completion in time
- Hardware theft causes a loss in the budget of the project

ASSUMPTIONS

- We also want our project manager to connect with the upper management and provide us with feedback on each job completed
- Our project manager is a specialist in detecting risks and assisting in their resolutions.
- The project must follow guidelines and organizational standard.
- All equipment must be in good condition
- The supplier deliverable of goods in time
- Team members all have the required skills
- Adequate documentation and tracking to ensure proper management of workflow
- Conducting a feasibility study during project initiation to determine the likelihood of the project success after considering all factors that are binding to the project

PRELIMINARY SCOPE STATEMENT

The industrious project will include the review of pre-existing WSU Ibika campus network. All our gate entrance will be comprised of sensors that detect student cards and fingerprint for students and staffs in our IoT solution.

All network resources will be analyzed in a simulated environment before implementation and all the required resources will be documented. Regular network maintenance will be performed by network engineer with up-to-date documentation when the network has been implemented to ensure resilience of the system. To ensure network functionality, the network operation and security will be tested, and network maintenance will be done in the IT department. Our network administrator will help us check the strength of the bandwidth, troubleshoot the connection.

RISKS

The II project is determined to minimize the following risks:

- Unauthorized access to the network
- Changes in company or team process like unexpected shifts in team members roles.
- Changes in weather conditions
- Loadshedding which may cause the project to delay

PROJECT DELIVARABLES

The following deliverables must be met to ensure that II project will be optimistic

- 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 sites
- Design presentation to make stakeholders understand our project goals
- Build a Real-time processing system for our IoT solution that will use IoT data protocol and transmit data in low power without the need for internet connection in case of load sheading
- Maintain and manage resources that we will use throughout the project
- Planning and documenting project charter plan, scope statement
- Creating a work schedule and establishing Gantt chart
- The project is initiated through by identifying project stakeholders, and creating a business case
- reviewing project phases to determine the project progress
- simulation of the network before presentation and deployment of the solution
- The Project is concluded with lessons and motivations

SUMMARY MILESTONE SCHEDULE

Project Milestone	**Target Date**
Project initiation	
• Identifying key stakeholders	07/07/2022
• Project charter plan	21/07/2022
• project charter signed	29/07/2022
Planning	
• Establish a scope statement	04/08/2022
• Prepare scheduling and cost baseline	06/09/2022
Executing	
• Survey and analysis	20/09/2022
• Report design solution	04/10/2022
• Project plan and simulation presentation	10/11/2022
• solution approval	22/11/2022
• Acquired network infrastructure for implementing biometric IoT	09/12/2022
• Deploy and test the solution	12/12/2022
• Simulation with new network infrastructure for IoT	06/01/2023

Closing	
• Final project report	10/01/2023
• lesson learned identified	17/01/2023

SUMMARY BUDGET

The following table is a summary of budget which consist of estimated costs on the planned components required for the success of the project.

Project component	**Component cost**
• Personnel resources	R3, 956,200
• hardware	R40,382, 138,86
• software and licensing	R75, 000
• Hardware installation	R150, 000
Total	R4,042,395,086

PROJECT APPROVAL REQUIREMENTS

When the project needs are met, including the discoveries and documentation that will be done by the network administrator in collaboration with the network engineer and the project meets the triple restrictions, the industrious irises project will be a success. All of this must be reviewed by Mr. Ngini our project sponsor, for the project to be completed.

PROJECT MANAGER

This project's manager is Ms. A. Gceba, who works for the Industrious Irises Project. Her responsibilities include planning and defining the project scope, initiating the budget needed to purchase the resource (for which she will be assisted by our company's financial specialist), and performing a computer system analysis to ensure that the budget is accurate (meaning that no money will be wasted or instead become short). Ms. A Gceba may be required to prepare charts and timelines to track the project's progress, as well as identify risk and devise strategies to address it. She must also provide full support to the team, ensuring that each person participates in the project, for example, by assuring commitment to move the project forward.

AUTHORIZATION

Approved by the sponsor and key stakeholders

_____DATE_____

Project Sponsor – Mr. Ngini

_____DATE_____

Project Stakeholder – Mr. B Silwane

_____DATE_____

Management Accountant – Mr. S Songwevu

_____DATE_____

Deputy Finance Officer -Mrs. N Mjaji

_____DATE_____

Project Manager – Ms. A Gceba