GROUP 12
SUBMISSION ONE : PROJECT PLAN

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Submission One: Project Plan

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Table of Contents

Introduction **4**

Project Organization **5**

Risks **7**

3.1 Risk Identification 7

3.2 Risk Analysis 9

3.3 Risk Planning 9

Requirements **11**

4.1 Hardware and Software Resource Requirements 11

Work Breakdown **13**

Project Schedule **15**

References **16**

Introduction

The company John Fernandes Limited is currently facing a problem with the current system of accountability among employees when it comes to equipment management and active hours of work. Equipment is currently going unaccounted for and being reported as damaged without any sort of responsibility on the employee level.

The current solution is a paper based system which is currently being exploited and the proposed solution is a digital database system incorporating the use of RFID tags installed on each piece of equipment and employees' work ID. The incorporation of this system provides an analytical advantage that is to mainly track equipment usage and provide accountability on the employee level, it also provides additional support for an overview of employee active work hours and location tracking of equipment within the company on a day to day basis. Not only would the system provide advantages for upper management but lower leveled employees may benefit from this, as it provides a solution for the social aspect of accountability, removing the need for accusation or assumption among each other.

It is expected that the installment of this system will take approximately 8 months given the budget the team is working with and an additional month to provide full functionality.

Project Organization

The team is composed of 5 members, namely, Tyreck Paul, Ricardo Narine, Zane Bishop, Reynard Etwaroo, and Shivesh Mohamed. The client for whom this project is being designed is John Fernandes Limited, who will be the sole financers throughout the course of the project. The individual assignment of the team members/project participants is as follows:

Name	Responsibility	Description
John Fernandes Limited	Sponsor	Supplies the requisite resources to bring the project to completion.
Tyreck Paul	Project Manager	Responsible for the overall project execution and outcome from the initial design all the way to completion.
Tyreck Paul	Database Administrator	Ensuring that the database runs efficiently and securely.
Tyreck Paul	Database Engineer	Responsible for the design and maintenance of the database.
Ricardo Narine	Network Administrator	Ensures the stable operation of the computer databases/servers.
Ricardo Narine	Website Administrator	Develops and maintains the website where information from the database can be displayed and accessed.
Ricardo Narine	Webpage Designer	Designs the webpage where information from the database can be displayed and accessed.
Ricardo Narine	Webpage Engineer	Develops the webpage where information from the database can be displayed and accessed.
Ricardo Narine	Programmer (Hardware)	Codes the scripts that enable the RFID devices to interface with the database.
Zane Bishop	Webapp Designer	Designs the webpage where information from the database can be displayed and accessed.
Zane Bishop	Webapp Engineer	Develops the webpage where information from the database can be displayed and accessed.

Zane Bishop	Cyber Security Lead	Oversee the cybersecurity team or a particular or a particular department within it and is in charge of making sure that teams are productively pursuing the appropriate objectives.
Zane Bishop	Network Engineer	Ensures the stable operation of the computer databases/servers.
Zane Bishop	Programmer (Cyber Security)	Codes the data protection measures.
Reynard Etwaroo	Data Analyst	Reviews the data collected by the database algorithms and publishes findings to the company executives.
Reynard Etwaroo	Installation Technician	Instates the requisite hardware aspects of the system (RFID readers, tags).
Reynard Etwaroo	Technical Architect	Coordinates with all of the other project members to ensure the system runs smoothly.
Reynard Etwaroo	Systems Administrator	Ensures all of the software and hardware is up to date.
Reynard Etwaroo	Tester	Subjects the system to various conditions to observe its performance.
Shivesh Mohamed	Database Developer	Creates the database and ensures its operation is efficient.
Shivesh Mohamed	Operations Analyst	Identifies ways of expanding the services offered by the system/uses of the dataset.
Shivesh Mohamed	Programmer (Database)	Codes the data manipulation algorithms to be used in conjunction with the database.
Shivesh Mohamed	Installation Technician	Instates the requisite hardware aspects of the system (RFID readers, tags).

Risk Assessment

3.1 Risk Identification

Risk Type	Possible Risks	Risk Affects
Estimation	1. The projected timeline is possibly underestimated due to the unprecedented nature of the project in the domain of Guyana and the inexperience of the development team with handling this kind of system.	1. Project
	2. The system's lifespan can be overestimated. The software itself might not be able to withhold its projected life expectancy. The system and how long it thrives with in Guyana's local environment is undocumented and without a precedent. As of such, the time it continues functioning without critical software and hardware upgrades may be overestimated.	2. Project
	3. Evolution costs might prove more expensive as anticipated. As with risk 2, little, if any, documentation is available detailing the existence of a RFID system in the context of Guyana. Due to this, it is difficult to estimate the various maintenance costs.	3. Project
Organizational	4. The employees of the organization may reject or under utilize the system due to it seeming overly complicated and unnecessary. From an employee's perspective, it might prove to be a hindrance to their workflow. This may lead to a reduction in allocated funds.	4. Business, project and product
People	5. The development team is inexperienced with this particular type of system. It is not one that has been knowingly implemented and well documented in Guyana's context. While in theory, the staff possess the knowledge base for the creation of such a system, lack of experience can prove to be detrimental to its design and implementation.	5. Project and Product
Requirements	6. Due to the use of a waterfall approach, the system's fulfillment of user requirements will only be confirmed or denied within the final stage of the project. At such a point, it will become costly to implement major changes in	6. Project and Product

	cases of denial or unfulfillment. 7. Requirements collected in the initial stage may prove to be non-applicable, untimely to implement or not what the user actually intended due to the users' lack of understanding of RFID's systems.	7. Project, product and business
Technology	8. The number of hardware technologies required to implement the system may be underestimated. For example, as the company continues to expand and the number of equipment increases, the initial number of RFID tags that the system was created to process and accurately track might expand beyond the hardware's capacity. 9. Software implementations may not work as anticipated. RFID technology is temperature sensitive and as such, the readings provided by the technology are prone to some discrepancy. The errors in reading may affect the accuracy of the software in tracking and monitoring equipment.	8. Product and business 9. Product

3.2 Risk Analysis

Risk No.	Probability	Effect
1	Moderate	Serious
2	High	Tolerable
3	High	Tolerable
4	High	Tolerable
5	Very High	Serious
6	High	Serious
7	High	Serious
8	Moderate	Catastrophic
9	Moderate	Serious

3.3 Risk Planning

Risk No.	Strategy
1	Allocate additional time to the projected timeline. This will be a period of free reign that can be under utilized in the event that everything goes according to the initial plan.
2	Prepare a monitoring patrol that overlooks the system after implementation on a weekly basis. Monitoring and collecting data on the system's operation will allow the team to better predict its life expectancy and compare to see if it sits within expected parameters. If it does not, consultation with the organization and readjustments to the evolution process will have to be discussed.
3	Similar to the prior risk, this is dependent on how well the system functions prior to implementation. The same monitor protocol can be established. However, additional emphasis will be placed on cost projections to further calculate and determine if maintenance costs exceed that which was predicted. If not, budget reallocations and further financing will be required of the organization.
4	Prepare well documented user guides for use of the system and emphasize simplicity of any and all graphical user interfaces that employees will be expected to utilize. In addition, briefings and explanations can be given to the organization's work staff detailing the importance and usefulness of the system.

5	Experts can be brought in for consultation and briefings with the development team. If possible, such experts can also be contracted to work as a member of the development team.
6	Despite a waterfall model being the dominant approach, some agile aspects can be implemented where the development team seeks out user feedback at each milestone stage.
7	Experts as well as the development team can brief the organization in the basic expectations of what a RFID system can and will provide. This will allow the users to have a better understanding of the system so that requirements can be more accurately specified.
8	Additional hardware can be bought and stockpiled. In addition, a document that estimates and details the total size capacity that the system can handle can be created. This document will give the business a hard cap on the degree to which they can expand while the system remains functional and within expectations. Any further, and critical as well as costly system adjustments will have to be made.
9	The testing phase will account for varying degrees of temperature. The system can be tested during varying weather conditions such as rain, extreme heat, etc. and adjustments to the software can be added to cater for any discrepancies that occur.

Requirements

4.1 Hardware and Software Resource Requirements

Requirements	Hardware	Software	Estimated Cost (GYD)	Delivery Schedule
RFID tags	The rfid tags placed on each piece of equipment containing relevant information about that item.	_	$6000 per tag	Can be delivered after design phase prior to implementation
RFID antennas	Multiple antennas secured at varying points at relevant locations.	_	$54 000 per piece	Can be delivered after design phase prior to implementation
RFID readers	RFID readers to accompany and collect data received by the antennas. These readers will then input the collected data into the database.	_	$104 000 - $167 000	Can be delivered after design phase prior to implementation
Computer Systems	Computer systems with proprietary software installed. These computers must also be connected to the database server.	Database Management Software to assist with managing and accessing the database.	Company computer systems on site can be utilized. SQL developer software plan can be installed on each system for free for some SQL options such as Microsoft's SQL.	Computer systems could be present on site at time of specification. DBMS software can be downloaded and installed anytime prior to implementation.
Server and Networking	Servers which serve as the local storage point for the database as well as required networking hardware to create a LAN.)	SQL Server Software	Server and networking hardware can be expected to cost $60 000 to $85 000. Microsoft SQL server licensing software for	Can be delivered after design phase prior to implementation

			standard edition cost approximately $187 000. Other options can be discussed. The price will vary depending on the SQL option chosen and plan selected.	
Cameras	Cameras to record image data of equipment before and after use. This image data can then be uploaded into the database.	_	$11 000 - $42 000	Can be delivered at after design phase prior to implementation

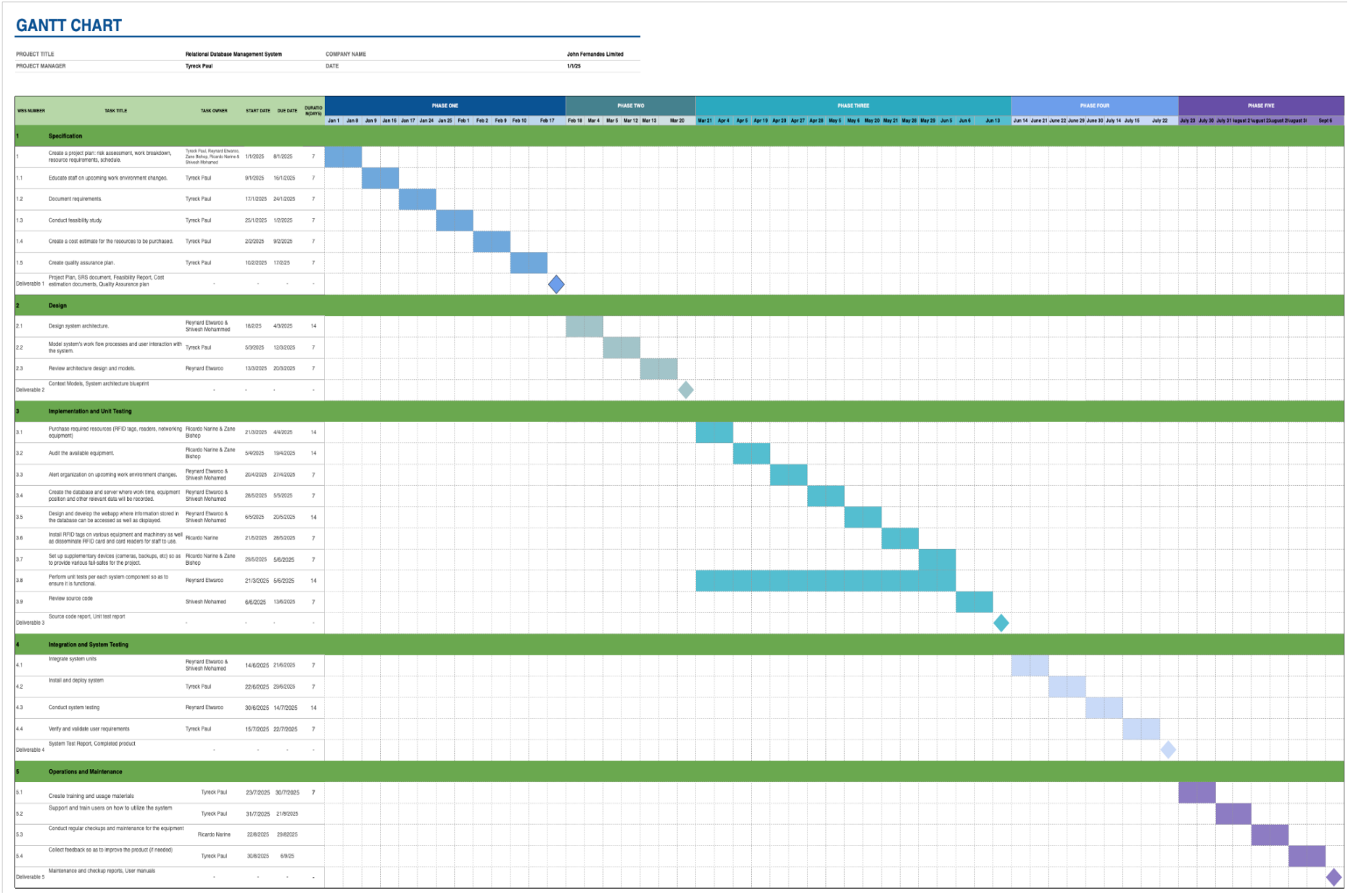
Work Breakdown

WBS	Task Description
Phase 1 - Specification	
1.0	Create Project Plan: Risk Assessment, Work Breakdown, Resource Requirements, Schedule
1.1	Interview users and conduct ethnographic study
1.2	Document and review requirements
1.3	Conduct feasibility study
1.4	Create a cost estimate for the resources to be purchased.
1.5	Create quality assurance plan
Deliverables	Project Plan, SRS document, Feasibility Report, Cost estimation documents, Quality Assurance plan
Phase 2 - Design	
2.1	Design system architecture
2.2	Model system's work flow processes and user interaction with the system
2.3	Review architecture design and models
Deliverables	Context Models, System architecture blueprint
Phase 3 - Implementation and Unit Testing	
3.1	Purchase required resources (RFID tags, readers, networking equipment)
3.2	Audit the available equipment.
3.3	Alert organization on upcoming work environment changes.
3.4	Create the database and server where work time, equipment position and other relevant data will be recorded.
3.5	Design and develop the webapp where information stored in the database can be accessed as well as displayed.
3.6	Install RFID tags on various equipment and machinery as well as disseminate RFID card and card readers for staff to use.

3.7	Set up supplementary devices (cameras, backups, etc) so as to provide various fail-safes for the project.
3.8	Perform unit tests per each system component so as to ensure it is functional.
3.9	Review source code
Deliverables	Source code report, Unit test report
Phase 4 - Integration and System Testing	
4.1	Integrate system units
4.2	Install and deploy system
4.3	Conduct system testing
4.4	Verify and validate user requirements
Deliverables	System Test Report, Completed product
Phase 5 - Operations and Maintenance	
5.1	Support and train users how to utilize the system
5.2	Create training and usage materials
5.3	Conduct regular checkups and maintenance for the equipment.
5.4	Collect feedback so as to improve the product (if needed)
Deliverables	Maintenance and checkup reports, User manuals

Project Schedule

Google sheets link to a more legible version of the chart below:
[https://docs.google.com/spreadsheets/d/1QJAKMF6LtcyINEsIUFvVSxHYngKEK6zNagx_xLnAQng/edit#gid=1115838130]



GANTT CHART

PROJECT TITLE	Relational Database Management System	COMPANY NAME	John Fernandes Limited
PROJECT MANAGER	Tyreck Paul	DATE	1/1/25

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION (DAYS)
1	**Specification**				
1	Create a project plan: risk assessment, work breakdown, resource requirements, schedule.	Tyreck Paul, Reynard Etwaroo, Zane Bishop, Ricardo Narine & Shivesh Mohamed	1/1/2025	8/1/2025	7
1.1	Educate staff on upcoming work environment changes.	Tyreck Paul	9/1/2025	16/1/2025	7
1.2	Document requirements.	Tyreck Paul	17/1/2025	24/1/2025	7
1.3	Conduct feasibility study.	Tyreck Paul	25/1/2025	1/2/2025	7
1.4	Create a cost estimate for the resources to be purchased.	Tyreck Paul	2/2/2025	9/2/2025	7
1.5	Create quality assurance plan.	Tyreck Paul	10/2/2025	17/2/25	7
Deliverable 1	Project Plan, SRS document, Feasibility Report, Cost estimation documents, Quality Assurance plan	-	-	-	-
2	**Design**				
2.1	Design system architecture.	Reynard Etwaroo & Shivesh Mohammed	18/2/25	4/3/2025	14
2.2	Model system's work flow processes and user interaction with the system.	Tyreck Paul	5/3/2025	12/3/2025	7
2.3	Review architecture design and models.	Reynard Etwaroo	13/3/2025	20/3/2025	7
Deliverable 2	Context Models, System architecture blueprint	-	-	-	-
3	**Implementation and Unit Testing**				
3.1	Purchase required resources (RFID tags, readers, networking equipment)	Ricardo Narine & Zane Bishop	21/3/2025	4/4/2025	14
3.2	Audit the available equipment.	Ricardo Narine & Zane Bishop	5/4/2025	19/4/2025	14
3.3	Alert organization on upcoming work environment changes.	Reynard Etwaroo & Shivesh Mohamed	20/4/2025	27/4/2025	7
3.4	Create the database and server where work time, equipment position and other relevant data will be recorded.	Reynard Etwaroo & Shivesh Mohamed	28/5/2025	5/5/2025	7
3.5	Design and develop the webapp where information stored in the database can be accessed as well as displayed.	Reynard Etwaroo & Shivesh Mohamed	6/5/2025	20/5/2025	14
3.6	Install RFID tags on various equipment and machinery as well as disseminate RFID card and card readers for staff to use.	Ricardo Narine	21/5/2025	28/5/2025	7
3.7	Set up supplementary devices (cameras, backups, etc) so as to provide various fail-safes for the project.	Ricardo Narine & Zane Bishop	29/5/2025	5/6/2025	7
3.8	Perform unit tests per each system component so as to ensure it is functional.	Reynard Etwaroo	21/3/2025	5/6/2025	14
3.9	Review source code	Shivesh Mohamed	6/6/2025	13/6/2025	7
Deliverable 3	Source code report, Unit test report	-	-	-	-
4	**Integration and System Testing**				
4.1	Integrate system units	Reynard Etwaroo & Shivesh Mohamed	14/6/2025	21/6/2025	7
4.2	Install and deploy system	Tyreck Paul	22/6/2025	29/6/2025	7
4.3	Conduct system testing	Reynard Etwaroo	30/6/2025	14/7/2025	14
4.4	Verify and validate user requirements	Tyreck Paul	15/7/2025	22/7/2025	7
Deliverable 4	System Test Report, Completed product	-	-	-	-
5	**Operations and Maintenance**				
5.1	Create training and usage materials	Tyreck Paul	23/7/2025	30/7/2025	7
5.2	Support and train users on how to utilize the system	Tyreck Paul	31/7/2025	21/8/2025	
5.3	Conduct regular checkups and maintenance for the equipment	Ricardo Narine	22/8/2025	29/8/2025	
5.4	Collect feedback so as to improve the product (if needed)	Tyreck Paul	30/8/2025	6/9/25	
Deliverable 5	Maintenance and checkup reports, User manuals	-	-	-	-

PHASE ONE: Jan 1 – Feb 17 | PHASE TWO: Feb 18 – Mar 20 | PHASE THREE: Mar 21 – Jun 13 | PHASE FOUR: Jun 14 – July 22 | PHASE FIVE: July 23 – Sept 6

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