GenesisCare

COMP3850 - Group 16

Project Plan and Quality Manual V1.03 - 20/05/21

Version History

Version Number	Description
1.00 - 1/4/21	All team members Original document submitted for D2 including: - Statement of purpose - Risk management - Resources Management - Team Organisation - Tasks - Timeline - Resources - Process Model - Documentation identified - Assumptions - Quality Manual
1.01 - 14/04/21	Shadman Rahman Project plan updated D3 - Resource management feedback addressed. Resource table added with supporting detail. Human resource, hardware software inclusive. - Team organization and structure feedback addressed. Roles and responsibilities defined. - Resource allocation feedback addressed. Hardware and software use case/allocation detail added. Cost detail included. (Resource table). - Assumptions feedback addressed. System requirement information included and defined. Junyang Qian Quality Manual updated - Reviews and Audits, Testing, Tools feedback addressed. Added agile development principles. - Tracking Change management feedback addressed. Project modification and handling method. - Communication feedback addressed. Some communication modes and used for. - Conflict Resolution feedback addressed. Develop conflict resolution.
1.02 - 29/4/21	Lachlan Submission for D3 including changes: - Added version history - Fixing grammar and punctuation
1.03 - 20/05/21	Shadman Rahman - Assumptions feedback addressed. Business exclusive user focused end to end use assumptions defined (operational case). - Positive table information structure feedback acknowledged. Applicable change tabling updates carried through. - Resource type further defined. Description table added and updated. - Requirements updated. Recommendation based optimized solution performance system specifications added. Lachlan - Added location note to Assumptions

1. Statement of Purpose/Scope/Description

Statement of Purpose

Develop an end to end, programmable data interpretation and transformation solution. The implemented automated digital solution will target the elimination of data collection related processing error factors and external redundancy concerns. Supported by a redefined data processes and embedded controls, overall will ensure a decrease in time/resources and add strategic business value at the client evaluation and outreach level. Desirably to drive positive strategic decisioning at the ELT level based on the all aspects benefit allowance present through enhanced data reporting and insights generation.

Project Scope Description

In-scope deliverables

This project will implement a solution and establish a framework in which.

- Collected data will be AI machine readable and available through an API.
- Data will be interconnected with the associated enterprise database. Integrated with external data.
- All critical data is collected real time in line with key business asks and analysis items are met (no missing data and or errors in data collection).
- Historical data is archived in line with set schema and structure so older data can be used and relationally mapped.
- Software defined/controlled privacy protection is leveraged to enable analytics in line with predefined privacy policies.
- A built data dictionary available alongside full metadata and maturity controls.

Acceptance criteria

1. Successful implementation of the data science solution.
2. Increased data quality, effective implementation data quality controls.
3. Increased operating efficiency, functional embed of refined data processes.
4. Decrease in time/resources, reduction in overall manual data evaluation effort.
5. Efficacious setup of multifaceted reporting arm, reporting based decisioning/outcomes enablement.

Constraints

Design solution, pathways of work and mapped processes to follow Genesis Care business values and or policies. Subject to relevant guardrail sign offs and governance bodies. Business and technical solutions

must be developed off Genesis Care business acceptable tools and software only. In line with time, resources and personnel limitations.

2. Risk Management

Risk management includes risk measurement, assessment and contingency strategy. An ideal risk management is a series of prioritization processes, in which the things that can cause the greatest loss and are most likely to happen are given priority, while those with relatively low risk are postponed.

Therefore, in order to deal with the risks that may occur later, we need to make a risk register in advance

Risk register description

1. **The risk register is a list of potential risk response measures. If a potential risk response measure has been identified in the process of risk identification, it should be recorded in the risk register.**
2. **For potential risk owners. If the potential risk responsible person has been identified in the process of risk identification, it is necessary to record the responsible person in the risk register.**
3. **For the list of identified risks. In the risk register, each individual project risk will be given a unique identification number. Describe the identified risks in the required level of detail to ensure clear understanding.**
4. **The following risk register includes the possible risks of the project, the description of the risks, the possibility of occurrence, and the specific impact on the project etc...**

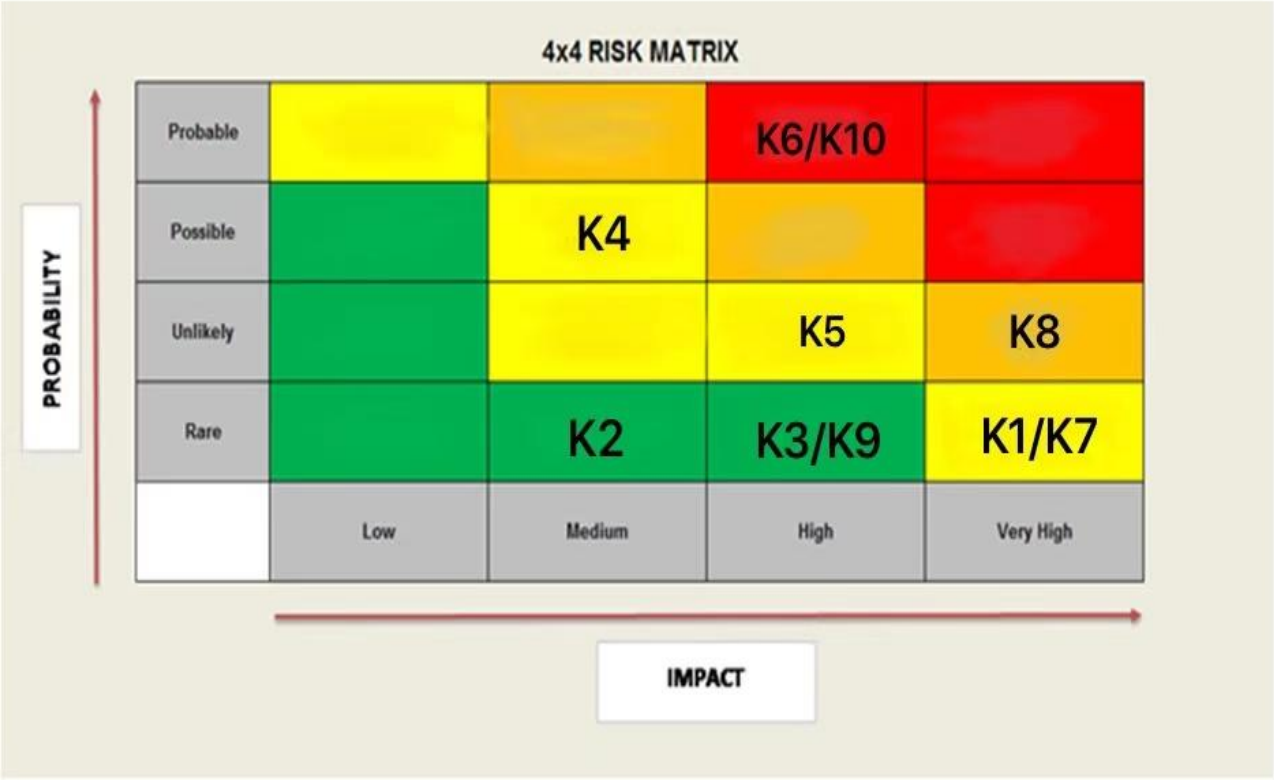
Risk Matrix

It is an effective risk management tool. It can be used to analyse the potential risk of a project, or to analyse the potential risk of adopting a certain method.

- **If the potential problem is in the yellow area, some reasonable steps should be taken to prevent the occurrence or reduce the impact as much as possible.**
- **If the potential problem is in the orange area, a reasonable plan should be arranged to prevent it.**
- **If the potential problem is in the red area, every effort should be made to prevent it from happening**

Risk Key

- **K1. The project was not completed by the deadline.**
- **K2. Group members do not attend group meetings, discussions, etc.**
- **K3. Scope requirements change.**
- **K4. Poor design flexibility.**
- **K5. There is no team member in the team who has mastered a specific skill to complete the task in the project.**
- **K6. Software problems that may occur during project production.**
- **K7. No appropriate communication between the team and the sponsor.**
- **K8. The final project product may not be what the sponsor originally expected.**
- **K9. Internal issues.**
- **K10. The project encountered something unexpected.**



Risk register

No.	Risks Key	Risks Name	Description	Consequences	Probability	Mitigation
1	K1	The project was not completed by the deadline.	The wrong estimation of time or other factors may lead to the delay of the project and eventually the project can not be completed within the set time.	Rare	Very high	Have a well-defined project scope, where each activity/task is outlined by difficulty, date and time. Team members need to ensure that the scope of these projects is completed within the specified time.
2	K2	Group members does not attend group meetings, discussions, etc.	Some team members may not be involved in the project at all for some reason, or they may not be involved in group meetings to share their ideas.	Rare	Medium	Create notes if the members are not active, send the meeting minutes to the team members, and encourage them to respond positively.
3	K3	Scope requirements change	changes requirements and expectations may possibly add or remove certain aspects and requirements from the project.	Rare	High	Ensure that the project requirements are final before development, or if the sponsor requests changes during the project development, the team shall immediately change the plan and make it.
4	K4	Poor design flexibility	system is developed in a way where external changes may present difficulties, or does not entirely understand the external environment of the system.	Possible	Medium	The compatibility of the development system software needs to be verified. Also, the team members need to understand the external environment of the sponsor.

5	K5	There is no team member in the team who has mastered a specific skill to complete the task in the project	In the process of completing this project, the team may encounter a variety of problems. A certain part may require team members to master some specific skills, but no one in the team has the skills to solve this problem.	Unlikely	High	The team will ask the sponsor for help on this problem. If no alternative is found, the team will learn about these skills to complete the project
6	K6	Software problems that may occur during project production	In the process of testing and improving opencv OCR, it may encounter some technical problems, or bugs in the application process.	Probably	High	The team will try to solve the problem or ask the sponsor for help.
7	K7	No appropriate communication between the team and the sponsor.	Sponsor may give limited feedback and have poor response times, or may have a busy schedule and take time to respond.	Rare	Very high	Try to hold a meeting with the sponsor to discuss the project. If the sponsor is too busy to schedule. Take the time to email the project sponsor to ensure that all project activities are carried out with high quality.
8	K8	The final project product may not be what the sponsor originally expected	Because this is a long-term project, the final product of the project may appear to be in the life cycle of the project as originally described, it may be necessary to choose another option to complete the product while still keeping the same functionality with the product.	Unlikely	Very high	To prevent this, the team will report progress to the sponsors on a weekly basis and seek feedback from the sponsors at the weekly meeting

9	K9	Internal issues	May have Arguments or disagreements within the project team, perhaps poor communication and team work.	Rare	High	Team members should use cooperation and compromise to resolve conflicts, and members should create a positive working environment for members to help each other.
10	K10	The project encountered something unexpected	Although we can foresee most of the risks of the project, we can't be sure of all of them. Therefore, these unexpected risks may make us have accidents in the process of developing the project, and thus delay the development process of the project.	Possible	High	Obviously, the risk can not be fully foreseen. Therefore, the risk that has not been considered before occurs, the team will judge the severity of the risk and make corresponding solutions according to the severity.

3. Resources Management

Resource Table Summary				
Resource Type	Resource	Quantity	Cost	Use Category
FTE	FTE worker	5	Nil	Human resource
Hardware	Laptop high range	2	Nil (personal device)	Build and implementation
Hardware	Laptop medium range	3	Nil (personal device)	Analysis and planning
Hardware	Mobile handset	5	Nil (personal device)	Communication
Software	GitHub	Installation multiple	Nil (free software)	Hosting and sharing
Software	Spyder	Installation multiple	Nil (free software)	IDE (coding)
Software	Visual Studio	Installation multiple	Nil (free software)	IDE (coding)
Software	Google Tesseract	Installation multiple	Nil (free software)	OCR
Software	NumPy	Installation multiple	Nil (free software)	Python module
Software	Py-Tesseract	Installation multiple	Nil (free software)	Python module

Software	CV2	Installation multiple	Nil (free software)	Python module
Software	os (python inbuilt)	Installation multiple	Nil (free software)	Python module
Software	time (python inbuilt)	Installation multiple	Nil (free software)	Python module

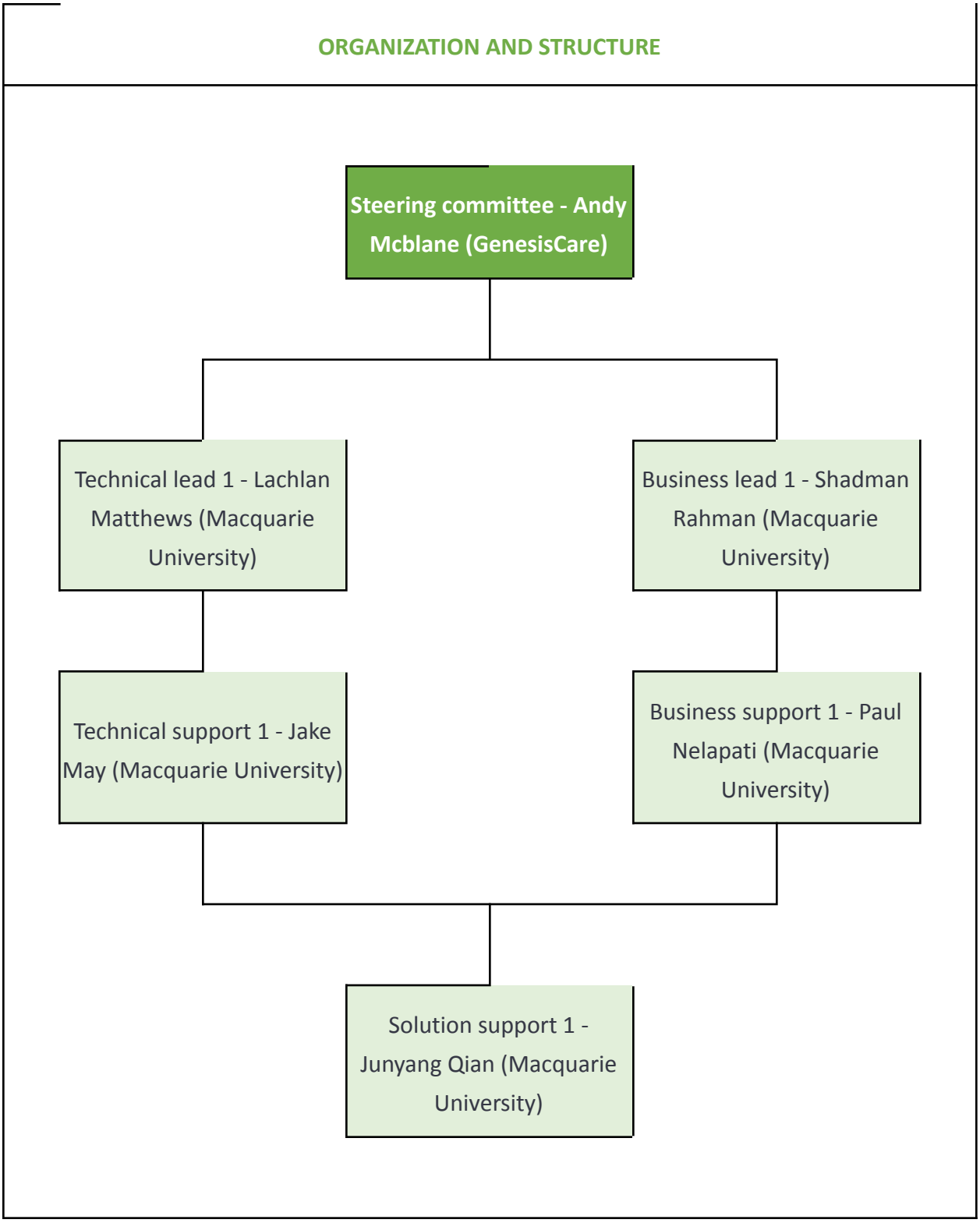
Resource type description

Resource Type	Description
FTE	Full Time Equivalent (FTE) is a human resource of calculated hours to be worked. Specifically focusing on the scope and development of the overall project solution. Allocated to tasks involved in consideration off available skills. Subject to associated cost value.
Hardware	Physical resource (tools/devices) used in the project through ideation to embed to enact delivery. Subject to associated cost value.
Software	Digital resource (electronic programs) used in the project through ideation to embed to enact delivery. Subject to associated cost value.

HIGH LEVEL RESOURCE MANAGEMENT PLAN (FTE)			
PROJECT PHASE	**TASK**	**COMBINED EFFORT HOURS - TASK**	**RESOURCE TYPE (EFFORT HOURS)**
Design	Business solution design	10	Business lead 1 (4), Business support 1 (4) and Solution support 1 (2)
	Technical solution design	10	Technical lead 1 (4), Technical support 1 (4) and Solution support 1 (2)
Analysis	Business solution analysis	10	Business lead 1 (4), Business support 1 (4) and Solution support 1 (2)
	Technical solution analysis	10	Technical lead 1 (4), Technical support 1 (4) and Solution support 1 (2)
Execution	Business solution build	20	Business lead 1 (8), Business support 1 (8) and Solution support 1 (4)
	Technical solution build	20	Technical lead 1 (8), Technical support 1 (8) and Solution support 1 (4)
Embed	Business implementation	10	Business lead 1 (4), Business support 1 (4) and Solution support 1 (2)
	Technical implementation	10	Technical lead 1 (4), Technical support 1 (4) and Solution support 1 (2)
Testing	Embedded solution testing	20	Business lead 1 (4), Business support 1 (4) and Solution support 1 (4), Business lead 1 (4) and Business support 1 (4)
	TOTAL	120	

RESOURCE EFFORT SUMMARY	
RESOURCE TYPE	**COMBINED EFFORT HOURS - PROJECT**
Business lead 1	24
Business support 1	24
Technical lead 1	24
Technical support 1	24
Solution support 1	24
TOTAL	120

4. Team Organisation and Structure



ROLE DESIGNATION & SKILLS MATRIX

NAME	STUDY AREA	SOFTWARE DEVELOPMENT	PROGRAMMING	SYSTEMS ANALYSIS	BUSINESS ANALYSIS	PROCESS REENGINEERING	DATA MANAGEMENT	ROLE DESIGNATION
Shadman Rahman	Business (Information Systems)	2	2	3	4	4	4	Business lead 1
Paul Nelapati	information technology business analysis	3	2	3	3	3	3	Business support 1
Lachlan Matthew	Engineering (Electronics) and Science (Software Technology)	4	4	4	2	2	3	Technical lead 1
Jake May	Information Technology (Software Technology)	4	4	4	2	2	3	Technical support 1
Junyang Qian	IT(Data Science)	3	4	3	3	2	4	Solution support 1

LEGEND

1	2	3	4	5
Basic	Novice	Sufficient	Advanced	Expert

Role Designation	Role & Responsibilities
Business	● “Gathering, validating and documenting business requirements. ● Modelling business processes and identifying opportunities for process improvements. ● Identifying issues, risks and benefits of existing and proposed solutions and outlining business impacts. ● Creating functional specifications for solutions. ● Estimating costs and identifying business savings. ● Support implementing and testing of solutions. ● Supporting business transition and helping to establish change. ● Identify gaps in the design and operating effectiveness of controls and any opportunities for improvements, including design and development of policy, procedures and best practices to improve the standards and governance process.” (Hudson, 2021)
Technical	● “Develop and deliver technical solutions as per the requirements, policies and procedures. ● Support the detailed design phase, including technical solution design and documentation. ● Serve as a technical adviser and assist in preparing project estimates and timelines. ● Assist with evaluation of solutions and preparing project estimates and timelines. ● Prepare detailed technical to define effective solution design. ● Identify gaps in the design and operating effectiveness of controls and any opportunities for improvements, including design and development of policy, procedures and best practices to improve the standards and governance process. ● Manage the Integration environments by implementing Integration Maintenance and Patching Process, including patches, hot fixes and cumulative updates.

	● Ensure the integration solutions are correctly configured across the development, testing and production environments. ● Actively contribute to reduce the single point of dependency by promoting and sharing the knowledge.” (Hudson, 2021)
Solution	● Support strategy and project plan activities. ● Understand the objective in depth and be able to provide solutions. ● Identify and scope potential new developments based on feedback. ● Research, troubleshoot, diagnose and recommend solutions to complex business and technical problems. ● Work with a team to define and translate strategic business ideas into requirements and solutions. ● Work with Business and Technical leads to build out functionality, usability and features of the final solution. ● Formulate formal solutions of action teams and key stakeholders.

5. Tasks/Activities/Phases

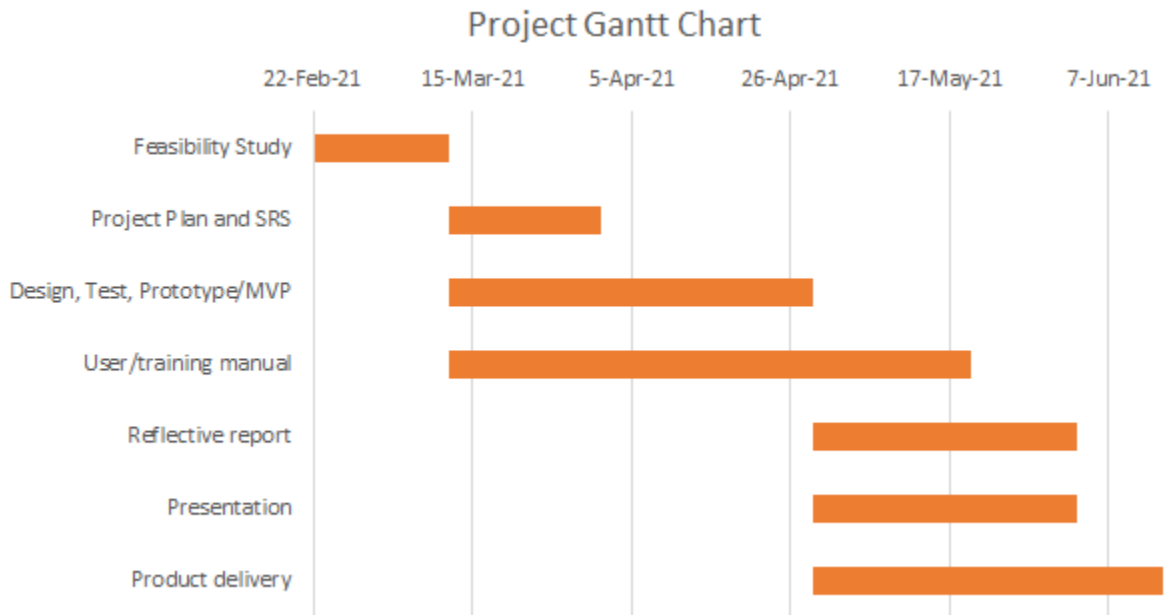
In order to facilitate the team members to have a clear understanding of which tasks need to be performed at the right time, we have set up a timetable, and we also provide the Gantt chart below to provide information about tasks, progress and activities.

Task	Durati	Start	Finish	Predeces
1. Initiating	16 days	Thu 25/02/21	Fri 12/03/21	
1.1 build a team	1 day	Thu 25/02/21	Thu 25/02/21	
1.2 meeting with sponsor	1 day	Thu 25/02/21	Thu 25/02/21	2
1.3 create Feasibility Report	1 days	Fri 26/02/21	Fri 26/02/21	3
1.4 Group meeting and Allocated	1 days	Sat 27/02/21	Sat 27/02/21	4
1.5 Completed Feasibility Report	13 days	Sun 12/03/21	Fri 12/03/21	5
2. Project planning	19 days	Mon 15/03/21	Thu 01/04/21	
2.1 Strat Project planning	1 day	Mon 15/03/21	Mon 15/03/21	6
2.2 Allocated work to group members	1 day	Mon 15/03/21	Mon 15/03/21	7
2.3 meeting share ideas	1 day	Sat 20/03/21	Sat 20/03/21	8
2.4 Clear Risk register and Quality Manual	9 days	Wed 24/03/21	Wed 24/03/21	9
2.5 Draft project pianning & SRS to sponso	14 days	Sun 28/03/21	Sun 28/03/21	10
2.6 Final version of Project planning	18 days	Thu 01/04/21	Thu 01/04/21	11
3. SRS	19 days	Mon 15/03/21	Thu 01/04/21	
3.1 meeting dicuss skill for SRS	1 day	Mon 15/03/21	Mon 15/03/21	12
3.2 Division and cooperation	1 day	Mon 15/03/21	Mon 15/03/21	13
3.3 Dicuss obstacles and solve	1 day	Sat 20/03/21	Sat 20/03/21	14
3.4 Draft SRS & Project planning to sponsoı	14 days	Sun 28/03/21	Sun 28/03/21	15
3.5 Final version of SRS to submit	18 days	Thu 01/04/21	Thu 01/04/21	16
4. Text Cases	26 days	Sat 20/03/21	Wed 15/03/21	
4.1 Develop Cases	2 days	Sat 20/03/21	Mon 21/03/21	17
4.2 Collect source(image etc..)	5 days	Sat 20/03/21	Wed 24/03/21	18
4.3 Text Cases	6 days	Sat 10/04/21	Wed 15/03/21	19
5. Prototypes	37 days	Fri 12/03/21	Sun 18/04/21	
5.1 Develop Draft Prototype	15 days	Fri 12/03/21	Fri 26/03/21	20
5.2 Text Draft Prototype	3 days	Mon 29/03/21	Wed 31/03/21	21
5.3 Develop Prototype	15 days	Thu 01/04/21	Thu 15/04/21	22
5.4 Text Prototype	3 days	Fri 16/04/21	Sun 18/04/21	23
6. Final report and presentation for Rollout	7 days	Thu 20/05/21	Thu 03/06/21	
6.1 Final version of report to submit	1 days	Thu 20/05/21	Thu 20/05/21	24
6.2 Present Final report	1 days	Thu 03/06/21	Thu 03/06/21	25
6.3 Final Product	1 days	Thu 03/06/21	Thu 03/06/21	26

6. Timeline

The Deliverables on the project listen below form a continuous set or progress demonstrations which maintain progress to continue to a finalised solution to present to the client on-time.

ID	Name	Date	Description
1	Feasibility Study	12 March 2021	Business Case for the project
2	Project Plan and SRS	1 April 2021	Preliminary plan for project and solution
3	Design, Test, Prototype/MVP	29 April 2021	Updated design documentation and testing as well as Minimum Viable Product
4	User/training manual	20 May 2021	Documentation for users to explain using the developed system
5	Reflective report	3 June 2021	Reflection on things achieved and not
6	Presentation	3 June 2021	Presentation of project with demonstration
7	Product delivery	3-24 June 2021	All files and documentation related to the product



7. Resources/Task Allocations

Resources are allocated proportional to the knowledgebase of individual members capabilities to a task.

TASK DESIGNATION MATRIX					
Task	SFR	PN	JYG	LM	JM
Feasibility Study	4	4	4	4	4
Project Plan and SRS	4	4	4	4	4
Design, Test, Prototype/MVP	3	3	5	5	5
User/training manual	4	4	4	4	4
Reflective report	5	5	4	4	4
Presentation	4	4	4	4	4
Product delivery	4	4	4	4	4

EXPECTED WORKLOAD LEGEND				
1	**2**	**3**	**4**	**5**
Basic	Novice	Sufficient	Advanced	Expert

8. Process model

The process of the creation of this system is done via an agile SDLC model. Model is shown below for genesis care user medication information upload system upgrade.

System definition

- Define system goals
    - Implement a solution where user medical data is automated to collect and read information through a digital image submission process, then outputs an effective interpretation of the data.
- What does the system aim to achieve
    - end to end, programmable data interpretation and transformation solution in which users will be able to see improved data medication data record management, allowing for better business insights and creating a competitive advantage.
- Competitive advantage
    - Genesis care will be advantageous as automation of the digital imaging will reduce cost
    - Increased revenue and increased profits as less storage, staff wages are paid for.
    - Data will be more accurate & consistent as the automation will be programmed to make less errors
- Define system scope
    - All user data inputs should be automated by the application program interface, able to be made error free and used by the Genesis cares database, integrated with external data. This should also have the ability in which software can be used to enable data analytics to maximise benefits.
- What is included in system and what is not

included	Not included
● Correct image to text data ● Automation features to ensure even bad image quality can produce effective results ● Software programmable controls to ensure redundancy, inaccurate, inconsistent data can be fixed ● Privacy restrictions (e.g only authorised users can view personal files.	● Users having the ability to change vital information ● All Staff having access to all files ● Loopholes to not submit correct ID verification documents ● Data input lag ● Data output lag

Requirements Analysis

- Define requirements
    - Photos taken by users should be of workable quality so data can be evaluated in accordance to accuracy, relevance, completeness and consistency expectations.
- Requirements analysis
    - Results will vary but initial test images will be reviewed and continuing all images will be validated through quality assurance checks and pre-embedded data monitoring controls
- User interviews questions for requirements
    - “What features would you like to see on the website”
    - “How would you want to upload your images (inputs)”
    - “How long should you think you should wait for the process to be completed”
    - “Would the new automation system be beneficial to you”
- Evaluating existing systems
    - The current system at GenesisCare collects user medication information through an online digital form submission process which is filled out manually by the patient, or when the doctor physically writes the data in the patient's file as told by them.

Component design

1. design/determined hardware
    a. New automation devices need to be purchased

    b. More computation power should be attained
2. design / determine software
    a. New software to program the automation for genesis care should be attained
3. Design database
    a. Same database can be used but must be linked to the new devices
4. Design procedures
    a. Installation of the automation system should be designed aligning with genesis care's requirements
5. Design user roles/job descriptions
    a. New user role and job description should be formally written and updates on all incorporated platforms

Implementation

Implementation goes through 4 phases

1. Build: units components are built separately and then combined
2. test: components separately and after integration, system is also tested
3. Train: training end users' manual, videos, workshops.
4. Convert: the old system to the new one until it is a complete replacement.

Maintenance

System maintenance for genesis care steps:

Any issues should raise a ticket

1.1. Action should be required for change/update
    1.1.1. No action results in failure of system
    1.1.2. Action taken results in enhancements

Failure of the system:

1.2. How do you fix it:
    1.2.1. Patch (program that is used to fix security loopholes)
    1.2.2. Service pack (minor enhancements, fix bugs)
    1.2.3. New release (major enhancements, newer version)

9. Documentation Identified/Discussed

There are 7 submissions, of which 6 are written and 5 are to be given to GenesisCare for procurement or review (ID 1-4, 7). Each of these documents will contain diagrams, charts, pictures, and other content. For example:

- SRS: Context Outline Diagram
- Project Plan: Gantt Chart

Each document will need to be analysed prior to completion with both content and rubric to confirm that all required submissibles are produced and included for submission

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10. Assumptions

Assumptions are split between Project Plan, Design Document, and Testing Document.

We are making an API for the client which they will be able to utilise, reducing the need for human involvement of non-critical medical activities by having a computer recognise medication lists instead of through time intensive human discussion/recording.

We assume that this project will require collaboration with GenesisCare to verify that our solution meets the criteria set out at various stages of completion, through the use of weekly meetings and reviews of work. The project produced must fulfill their needs to make it a viable business decision for them to invest in.

In extensions to the business assumptions considered. Termed as operational case assumptions specifically for use case risk mitigation planning are further considered in relation to the solutions positive end to end completion.

- Technology: moderate proficiency with image capture devices around its correct operation.
- Nework: availability of web connection for digital information exchange. Minimum upload capability measured and available.
- Interpretability: General knowledge and ability to clearly interpret user case directions and distinguish/avoid outlier action impacts.
- Language: high level English readability (designed solution complete English oriented).
- Consent: Conscious sign off to set information management and data collection policies. Minimum age requirements met.
- Hardware & Software: availability of minimal standards compatible physical hardware and platform acceptable software.
- Verification: authenticated user, critical user information stored and pre validated. Security check passed.

Minimum System Requirements (Tested)

CPU Requirements:

Minimum Dual Core 1.8 GHz CPU

RAM Requirements:

Minimum 4 GB available RAM

Hard Disk Requirements:

Minimum 4 GB available hard disk space

Operating System Requirements:

Microsoft Windows 2016, or 2019 (32-bit or 64-bit; Standard, Enterprise)

Recommended system specifications - optimized solution performance (Tested)

Processor

10th Gen Intel® Core™ i7 Processor:

Intel® Core™ i7-10870H (8C / 16T, 2.2 / 5.0GHz, 16MB)

Intel® Core™ i7-10875H (8C / 16T, 2.3 / 5.1GHz, 16MB)

Operating system

Windows 10 Home 64

Windows 10 Pro 64

Display options

15.6" FHD (1920x1080) WVA (144 Hz / up to 5 ms Response Time / 100% sRGB / Dolby Vision® Supported / 300 nits)

15.6" UHD (3840x2160) WVA (60 Hz / 100% Adobe RGB / VESA DisplayHDR™ 400 Certified / Dolby Vision® Supported / 600 nits)

Graphics

NVIDIA® GeForce® GTX 1660 Ti 6GB GDDR6

NVIDIA® GeForce RTX™ 2060 6GB GDDR6

Memory

Up to 16GB Soldered + 16GB SO-DIMM DDR4-32001

Storage Up to 1TB SSD M.2 2280 PCIe NVM

11. Quality Manual

- ### Quality Control and Management

Quality Control is the on-going strive to maintain a method's integrity and reliability in reaching a result. Quality management is the act of controlling different activities and tasks within a body to safeguard the products and services, and ensuring the company's ability to deliver them are steady.

Quality controls at genesis care should be highly regarded as the data we are dealing with is sensitive and confidential. Errors can be quite costly and dangerous, even life threatening e.g if the wrong medical inputs are computed and the user has been given the wrong prescription. All errors should be automated and programmable to be reduced and in time as more data is processed less errors should be made. quality control tools should also be used as listed below.

Quality management at genesis care should be pushed by all managers, senior management, middle managers and even front line managers, this should also be put upon all staff ensuring that the data used is the most precise and accurate. Quality control is a huge part of this system and should have a department for this, management should agree on the level of quality they desire and ensure staff are also looking for the same quality within all information. KPI's for quality can also be made which would aid the company.

- ### Reviews and Audits, Testing

A software audit review should be audited by auditors who are not members of the software development team for genesis care. Also an independent examination of a software product, software process, should be assessed to ensure its compliance with genesis cares specifications, standards, contractual agreements and even the law.

During the software testing inspection the documents should be prepared thoroughly by the reviewers before the meeting. It also involves peers to examine the product.

Genesis care should perform an audit testing process to verify controls for quality assurance, find problems caused by the complexity of certain projects, examine the testing processes, analyse the process, and improve internal resources e.g user data. Moreover, auditing also keeps testing and quality assurance on track.

In addition, the team will follow agile development principles to reveal the existence of errors.

In order to ensure the quality of the project, the following steps should be considered:

1) our highest goal is to satisfy the sponsor by delivering valuable software as early as possible and continuously

2) welcome changes to requirements - be good at taking advantage of requirements changes even in the late stage of project development

3) to continuously deliver available software, the lead time ranges from a few weeks to a few months, the shorter the better

4) during the project, team members must be together (to guide team members to understand the software, team members communicate with each other to understand the project progress, team members communicate with each other to understand each other's ideas)

5) be good at motivating team members, giving them the environment and support they need, and believing that they can complete the task

6) the most effective way to communicate within and between teams is to talk

7) available software is a key indicator of progress

8) agile process advocates sustainable development, and developers and leaders should be able to maintain a constant and stable progress speed

9) the continuous improvement of technology and design will enhance agility

10) it's an art to be concise and minimize unnecessary work

11) the best architecture, requirements and design come from a self-organizing team

12) the team should regularly reflect on how to be more effective and adjust the team's behaviour accordingly.

Tools for managing quality

Quality control for the inputs and outputs at genesis care can all be controlled through these tools:

- Data Governance

    i. Data policies and data standards can be set for when the user is taking photos for example a user can only take an image of the medication within the camera's rectangle box in a horizontal manner with a certain amount of lighting, if correct lighting is there the box turns green ready to take an image. These parameters allow for better quality results and removes errors.

- Data Profiling

    i. Genesis cares system should be able to examine data available from its existing data warehouse and collect statistics or informative summaries about that data.

- Data Matching

    i. If multiple records are made for one user this can be used to identify matching records and merge the ones that correspond to the same entities from within genesis cares entire data warehouse.

- Data Quality Reporting

    i. The results obtained from data profiling and data matching can be used for measuring data quality, to better benefit genesis care as better quality data can be advantageous.

- Master Data Management (MDM)

    i. Master data management is a technology tool where business and Information Technology work together to ensure the accuracy, accountability, stewardship, semantic consistency and uniformity of genesis care.

- Product Information Management (PIM)

    i. Product Information Management is a solution that provides a single place to collect, manage, and enrich product information. This can be a good tool to manage quality for genesis care as users can go to the PIM to attain any information they would need. This would help the quality of the business in general as the service genesis care provides shows its focus on the user.

Tracking/Change Management

Due to the nature of software development being an iterative process, it is necessary to have an implementation in place to keep track of changes made to the software through its development lifecycle. Several change management/tracking tools are readily available such as GitHub, or BitBucket. These are advanced platforms that allow developers to keep a log of every change made to the software at every stage of development, roll back to a previous iteration, and ‘branch’ work flows to allow the separation of feature implementation, as well as merge back into the main ‘branch’. Genesis Care has not given any preference for how this is to be handled.

In the project development stage, we will encounter some problems, such as adding some functions, modifying requirements to modify the software, etc.

To add new functionality to a module, team members should discuss and make suggestions and propose reasons for implementation. And then it's up to the team members responsible for the development to discuss whether the new features are feasible. If there is no objection, the proposed features / changes of the plan will be adopted and developed.

To modify the current requirements of the program, the design leader should first propose the modification opinions and answer the questions. Once the team members complete the task, the planned requirements will be modified, and all project stakeholders will accept the proposed changes.

Tools for modifying and adding new features to modules include GitHub or bitbucket, through which we can track any changes to the initial project plan and plan and record everything

Communication

There are several communication tools utilised by Genesis Care for staying in contact such as Microsoft Teams which offers a free version that includes functionality such as chat, voice and video calling, file sharing, screen sharing and more. Genesis Care also utilises Zoom to conduct weekly stand-up meetings for tracking our progress.

Due to COVID-19, the members of the group can not communicate below the line, so we can only communicate online.

1) Facebook

   Our team created a group chat on Facebook in the first week. All the team members joined before the second week. We mainly used it to assign tasks and report work progress. We have been discussing all the information related to this project.

   Group chat should be open so that everyone can follow up. If we face harsh problems, which are inconvenient to chat through text, we will arrange a zoom meeting.

2) Microsoft Teams and Ilearn

   According to the above, Sponsor in charge created a Microsoft team,

   Sponsor in charge will provide us with some images needed by the project, or inform or communicate with us through Microsoft teams.

3) Zoom

   Every Tuesday morning, the team members and the sponsor in charge will have a fixed meeting. At the meeting, our team will explain to the sponsor in charge the progress and difficulties of the team this week, and then the sponsor in charge will provide us with some solutions to the problems and give us some feedback according to our progress.

   Within the team, our team will use zoom to hold meetings from time to time. In the meeting, the team will discuss the task allocation, project progress, difficulties encountered in the project, and discuss solutions according to the existing problems.

Conflict Resolution/Negotiation

The ability to resolve conflict within a team is a crucial skill that is essential to delivering a quality product within a deadline. GenesisCare employee and PACE sponsor Andy McBlane is the closest thing to a project manager that we have, and would be responsible for any conflict resolution or negotiation that could potentially be unresolved by team members alone.

1. Internal conflict

   In the process of the project, there may be conflicts within the team because of their own views. Therefore, the trade-off will be a major problem, because it is difficult to convince the other party. Everyone may argue about the benefits of their proposed plan.

   Therefore, the best preventive measure is to assign their tasks well in advance, so that team members will not conflict with opinions and other issues.

2. External conflict

   During the project period, the team may have differences with the sponsor. The best solution is to first resolve the differences at the weekly meeting, then explain the advantages and disadvantages of various views, and finally, through full communication with the sponsor, we will find the best solution to the problem.

   In addition, we can involve Macquarie staff in any decision. An external perspective often leads to quick solutions.

Standards/Templates/Appendices/Forms

The Institution of Electrical and Electronics Engineers (IEEE) has defined a list of standards that have been adopted by companies in the Information Technology industry over the past decade, including, but not limited to:

- IEEE 830 - Software Requirement Specifications
- IEEE 1008 - Software Unit Testing
- IEEE 1058 - Software Configuration Management
- IEEE 1063 - Software User Documentation
- IEEE 1219 - Software Maintenance

In conforming to these rigorously designed standards, Genesis Care and their clients can expect software to be developed that is built to a familiar standard and degree of quality industry-wide.

Templates, appendices and forms are all aspects of technical documentation that are essential to delivering a quality product.