TEAM MANAGEMENT PLAN

COS70004 – User-Centred Design

Deliverable - 1

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Team Code: - Tuesday 08:30 batch - Group 3

Student Name	Student ID
Arun Ragavendhar Arunachalam Palaniyappan	104837257
Marcus Tran	105149160
Le Yen Chi Pham	103430040
Tserennadmid Battulga	103830530

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ACKNOWLEDGEMENT OF COUNTRY

We, Marcus Tran, Le Yen Chi Pham, Arun Ragavendhar Arunachalam Palaniyappan, and Tserennadmid Battulga, appreciate the Traditional Owners of the land on which we live and work as we complete this project. We honour their Elders, past, present, and emerging. We acknowledge their continued connection to land, water, and community, and we extend that respect to all Aboriginal and Torres Strait Islander peoples today.

CONTRIBUTION STATEMENTS

Name	Role	Contribution to this assessment task
Marcus Tran	Researcher, Editor	Researched on the psychological impacts that caregivers might have during the period of assisting the person with dementia. In addition, researched on the motivations of the caregivers and the pre-existing relationship (if any) with the person with dementia. Proofread the last draft. Team profile Communication section
Le Yen Chi Pham	Team Organizer, Researcher, Developer	Research on the ethics of current assertive technologies for tracking individuals with the perspectives of caregivers, people with dementia and developers. Manage the tasks via Trello, manage the documents on One Drive. Team Profile and Task Management section, document formatting.

Arun Ragavendhar Arunachalam Palaniyappan	Team Leader, Researcher, Planner, Developer and Technical Specialist	Led the research and study of current technologies, offered technical comparison and analysis, helped with background research, and helped with Risk Management and Mitigation Strategies, document organisation and formatting. Team Profile: Technology - Background Research Risk Management and Mitigation Strategies
Tserennadmid Battulga /Nandia/	Researcher, Team contributor	Research on characteristics of people with Dementia for the purpose of designing a monitoring system that can effectively alert caregivers to potential dangers. Have done my own Team Profile. Provided feedback on each member's tasks.

1 BACKGROUND

There are currently 47 million people with dementia worldwide and it is expected to increase to 131 million by 2050 **(Alzheimer Disease International, 2016).** There are several types of dementia which are Alzheimer's, Vascular, Lewy Body, Pakinson's disease and Frontotemporal Dementia and each Dementia has a unique profile, characterised by cognitive and behavioural difficulties. **(James et al., 2017).** The relationship between caregivers and people with dementia are often complicated, as it is often the case that the caregivers are relatives to the person with dementia **(Cheng, 2017).** This becomes more complicated as caregivers could suffer from physical and psychological harm due to aggressive behaviours caused by the person with dementia **(Wang et al., 2013).** This highlights the need to assist caregivers in their daily responsibilities.

The purpose of this project is to use today's advanced technology to assist caregivers in helping them track and manage people with dementia. The core idea is to strap on a smartwatch with a Sim card and GPS to the people with dementia and track their location and vitals through a wandering detection app which is accessible and is connected to the caregiver's mobile **(Lin et al.,2014).**

The app and the watch together assist the caregiver to set a 'safe geographical' fence by analysing the GPS trajectory, to track and instantaneously locate the person with dementia **(Qiang et al., 2018).** It also analyses the collected data through data mining techniques and algorithms to sense movement patterns and anomalies to predict and deduce the wandering behaviour of a particular person with dementia, which can effectively help the caregivers in their monitoring and tracking process **(Lin et al., 2012).**

Although some technologies have been successfully developed, the ethical aspect has not been adequately addressed. Most technologies only consider factors such as autonomy, non-maleficence, and beneficence but overlook justice, interdependence, and privacy **(Ienca et al., 2018)**. This is reflected in the perspectives of users. While caregivers focus on the effectiveness of technological solutions to help them track individuals, people with dementia feel a lack of privacy **(Robinson et al., 2007)**. From the developers' point of view, they recognise the importance of ethics in tracking technologies but can only intervene during the development process. The remaining ethical responsibilities are then passed on to the end users **(Howes et al., 2024)**.

2 BACKGROUND RESEARCH

Table 1: Research about the background and requirements to implement the project

Student Name	Reference (in APA format)	Reason
Tserennadmid Battulga	James, I. A., & Jackman, L. (2017). Understanding behaviour in dementia that challenges: A guide to assessment and treatment. Jessica Kingsley Publishers.	This book presents statistics on the global prevalence of people living with dementia and highlights how it is increasing rapidly. It also explains the different types of dementia and the stages of dementia, which identify the progression of the disease.
Tserennadmid Battulga	Steeman, E., De Casterlé, B. D., Godderis, J., & Grypdonck, M. (2006). Living with early-stage dementia: a review of qualitative studies. Journal of Advanced Nursing, 54(6), 722–738. https://doi.org/10.1111/j.1365-2648.2006.03874.x	This paper provides a better understanding of living with early-stage dementia and offers guidance on how to interact with people with dementia.
Tserennadmid Battulga	Ellen M. Hickey, & Natalie F. Douglas. (2021). Person-Centered Memory and Communication Interventions for Dementia: A Case Study Approach. Plural Publishing, Inc.	This case study examines eight individuals with dementia, highlighting the challenges they face. It also explores the expectations of people with dementia towards others and society.
Marcus Tran	Brodaty, H., & Donkin, M. (2009). Family caregivers of people with dementia. Alzheimer's Disease and Mild Cognitive Impairment, 11(2), 217–228. https://doi.org/10.31887/dcns.2009.11.2/hbrodaty	This study highlighted how early onset of NPS (individual neuropsychiatric symptoms) in people with dementia were predictive of increasing the caregiver burden the most over time. Notably, in advanced dementia, NPS symptoms decrease, and the

| | | caregiver's main priority is to aid with functional dependencies – which also increases the burden.

Burden score: highest to lowest – NPS, functional/physical dependencies, cognitive impairment. This study gives an insight into the struggles of caregivers in doing their task. |
|---|---|---|
| Marcus Tran | Cheng, S.-T. (2017). Dementia Caregiver Burden: a Research Update and Critical Analysis. Current Psychiatry Reports, 19(9). https://doi.org/10.1007/s11920-017-0818-2 | This study review identified that a large portion of caregivers were family. It went on to highlight a caregiver's possible motivation, as well as their burden and psychological stress and what could be done to help the caregiver. It contended that a person with dementia required support from both family caregivers as well as partnership with doctors and nurses. |
| Marcus Tran | Wang, J., Xiao, L. D., He, G.-P., & De Bellis, A. (2013). Family caregiver challenges in dementia care in a country with undeveloped dementia services. Journal of Advanced Nursing, 70(6), 1369–1380. https://doi.org/10.1111/jan.12299 | This study demonstrated that family caregivers for people with dementia were at a bigger risk of negative health outcomes for themselves. It highlighted a need for professional dementia services, instead of relying on family members to aid their loved ones with dementia. |
| Arun Ragavendhar | Lin, Q., Zhang, D., Chen, L., Ni, H., & Zhou, X. (2014). Managing elders' wandering behavior using sensors-based solutions : A survey. *International Journal of Gerontology, 8*(1), 49–55. https://doi.org/10.1016/j.ijge.2013.08.007 | This research paper examines the different technology solutions that can be used to create a wandering detection app.

Location-Based Prevention: Notifies care takers when patients depart designated safe zones using GPS and geofencing to stop them from wandering.

This is a very effective and accurate approach.

Event Monitoring: This technique tracks movements and door openings, among other recurrent behaviors suggestive of wandering, by using sensors.

Trajectory tracking: Employs gadgets like RFID tags, GPS, and biomechanical |

		sensors to record precise motion trajectories to identify wandering patterns. These patterns can be converted into usable data using data mining.
Arun Ragavendhar	Qiang, L., Xinshuai, L., & Weilan, W. (2018). GPS trajectories based personalized safe geofence for elders with dementia. In *2018 IEEE SmartWorld, Ubiquitous Intelligence & Computing, Advanced & Trusted Computing, Scalable Computing & Communications, Cloud & Big Data Computing, Internet of People and Smart City Innovation (SmartWorld/SCALCOM/UIC/ATC/CBDCom/IOP/SCI)* (pp. 505–514). IEEE. https://doi.org/10.1109/SmartWorld.2018.00111	This study suggests utilising past GPS trajectory data to develop customised geofences for senior citizens suffering from dementia through a data mining-based method. Partitioning GPS trajectories into line segments, extracting characteristic points, and utilising these points to define a safe geofence as an arbitrary polygon are the three primary steps of the approach. This customised geofence deters boundary violations and elopement by using a graph model of frequent outside movements.
Arun Ragavendhar	Lin, Q., Zhang, D., Huang, X., Ni, H., & Zhou, X. (2012). Detecting wandering behavior based on GPS traces for elders with dementia. In *2012 12th International Conference on Control, Automation, Robotics and Vision (ICARCV 2012)* (pp. 672–677). IEEE. https://doi.org/10.1109/ICARCV.2012.6485238	This research paper suggests a real-time GPS-based detection technique. Mobility trajectories with loops representing wandering behaviours are used. The method uses an innovative methodology to find loop-like patterns after preprocessing GPS data with online mean shift clustering to eliminate noise. Using GPS data from the wandering movements, the method tests and achieves high accuracy and detection rate, and a very less false alarm rate. The technique is efficient and successful in recognising wandering behaviours that can be represented graphically in the app.
Le Yen Chi Pham	Ienca, M., Wangmo, T., Jotterand, F., Kressig, R. W., & Elger, B. (2018). Ethical design of intelligent assistive technologies for dementia: a descriptive review. *Science and engineering ethics*, *24*, 1035-1055.	This research indicates that most intelligent assistive technologies for dementia have not considered ethics in the design and development processes. Ethical aspects such as autonomy, non-maleficence, and beneficence are primarily taken into account. However, factors such as justice, interdependence, and privacy

		seem to be rarely incorporated during the technology development process.
Le Yen Chi Pham	Robinson, L., Hutchings, D., Corner, L., Finch, T., Hughes, J., Brittain, K., & Bond, J. (2007). Balancing rights and risks: Conflicting perspectives in the management of wandering in dementia. *Health, Risk & Society*, *9*(4), 389-406.	The paper explores the perspectives of carers and people with dementia on the use of assistive technologies for managing wandering behaviors in people with dementia. It highlights the conflict between maintaining autonomy and ensuring safety, particularly with electronic tagging and tracking devices. Carers appreciate electronic tagging and tracking devices for their peace of mind and efficiency in locating lost individuals but worry about impacts on autonomy, privacy, and stigmatisation. People with dementia are concerned about potential embarrassment from noisy devices and the theft of mobile phones used for tracking, preferring not to be monitored continuously, with their acceptance of monitoring varying based on the monitor's identity.
Le Yen Chi Pham	Howes, J., Denier, Y., Vandemeulebroucke, T., & Gastmans, C. (2024). The Ethics of Electronic Tracking Devices in Dementia Care: An Interview Study with Developers. *Science and Engineering Ethics*, *30*(3), 17.	This research indicates developers' perspectives on ethics in the construction of electronic tracking devices. Although developers feel a strong sense of ethical obligation towards this topic, they can only be aware of its importance during the product development stages they can control. This results in a clear boundary between the development and the use of this technology, with some ethical responsibilities being shifted to the end-users.

3 TEAM PROFILE

Table 2: Team Profile - Marcus Tran

Preferred working hours	Unavailable during weekday evenings (from 4-9pm)
Communication Preferences	Face-to-face, online meetings, messages
How I learn best	Practical experience, watching tutorial videos, discussing about the content
Things I am good at	Planning, communication, writing
Things I struggle with	Adapting when things go wrong
Things I would like to improve on	Team management skills, presentation skills
Anything else team should know about me...	I like open communication; if there is any problem with a team member or the group in general, I would love to discuss it in a constructive and honest manner.

Table 3: Team Profile - Le Yen Chi Pham

Preferred working hours	Available 8:00 – 21:00 everyday
Communication Preferences	Face-to-face, online meetings, email
How I learn best	Study the lectures and videos carefully, and do more research at reputable sources Discuss with members about the collected content Ask for feedback from members about my tasks to improve Ask for feedback from the lecturer and tutor about the group's performance to improve
Things I am good at	Have experience as a leader and organizer Ability to check progress and manage teamwork Always active in team communication Good time and task management
Things I struggle with	Express ideas and give feedback to teammates
Things I would like to improve on	Communicate and actively contribute ideas and suggestions to other members. Presentation skills

Anything else team should know about me...	I hope members can respond and contribute ideas effectively. I really appreciate the feedback (both good and bad points) from members to be able to improve and provide the best quality of work.

Table 4: Team Profile - Arun Ragavendhar Arunachalam Palaniyappan

Preferred working hours	Available 08:00 – 22:00 on all days.
Communication Preferences	Microsoft Teams, email, phone calls
How I learn best	As a first step, I like to research and learn theoretical concepts in depth. Then I look to apply the concepts learnt to solve a real-world problem with a practical approach. I believe that this approach helps in active learning and improving problem solving skills.
Things I am good at	Leadership and Organizational skills, technical analysis, software development, problem-solving, Research, Reflection and Inference
Things I struggle with	Sometimes I overwork and aim for too much perfection.
Things I would like to improve on	I am focusing on enhancing my delegation skills and trusting team members to handle their responsibilities. This will foster a more collaborative environment and distribute tasks effectively.
Anything else team should know about me...	I am an honest and straightforward person, and I am committed to delivering high-quality work, and I would like to expect the same from my team members. I prefer open communication; therefore, if there is an issue with a teammate or the group, I would be happy to talk about it in an open, sincere, and productive way.

Table 5: Team Profile - Tserennadmid Battulga

Preferred working hours	Weekdays 08:00-16:00, Weekends any time
Communication Preferences	Microsoft Teams, Phone call, Text, Email
How I learn best	Self-study, practice, brainstorming
Things I am good at	Design, User Interface, Documentation
Things I struggle with	Coding

Things I would like to improve on	Strategic Planning
Anything else team should know about me...	I am responsible person with open communication. Also respectful of every member's availability and opinion.

4 TASK MANAGEMENT

- **Weekly Meeting:**
  - **Online Meeting:**
    - **Time**: Every Saturday, 10:00 AM to 12:00 PM
    - **Purposes**: report and discuss weekly progress, review and feedback completed tasks, plan and assign upcoming tasks for each member, address any issues and concerns.
    - **Format**: Online via Microsoft Teams, Face-to-face workshop meetings
  - **Face-to-face Meeting:**
    - **Time:** Workshop Tuesday 8:30 AM to 10:30 AM
    - **Purposes:** check progress and get feedback from tutor

- **Content Work:**
  - **Responsibilities**: Each team member is assigned specific tasks to be completed by Saturday evening, allowing for mid-week review and feedback.
  - **Deadlines**:
    - Weekly drafts are due by Tuesday to get feedback from tutor.
    - Team review and feedback provided by on the same day, and objectives are set for Saturday meetings.
    - Final edits and completion by Friday evening of the week that the assignment is due.

- **Review/Editing Deadlines:**
  - Each section must be reviewed, and feedback provided by Saturday meetings.
  - All content must be finalized and ready for submission by Friday evening (the week that the assignment is due)

- **Task Management Tool:**

    o **Microsoft Teams**: communicate, raise and solve problems of the tasks.

    o **Trello**: assign and check progress of the tasks.

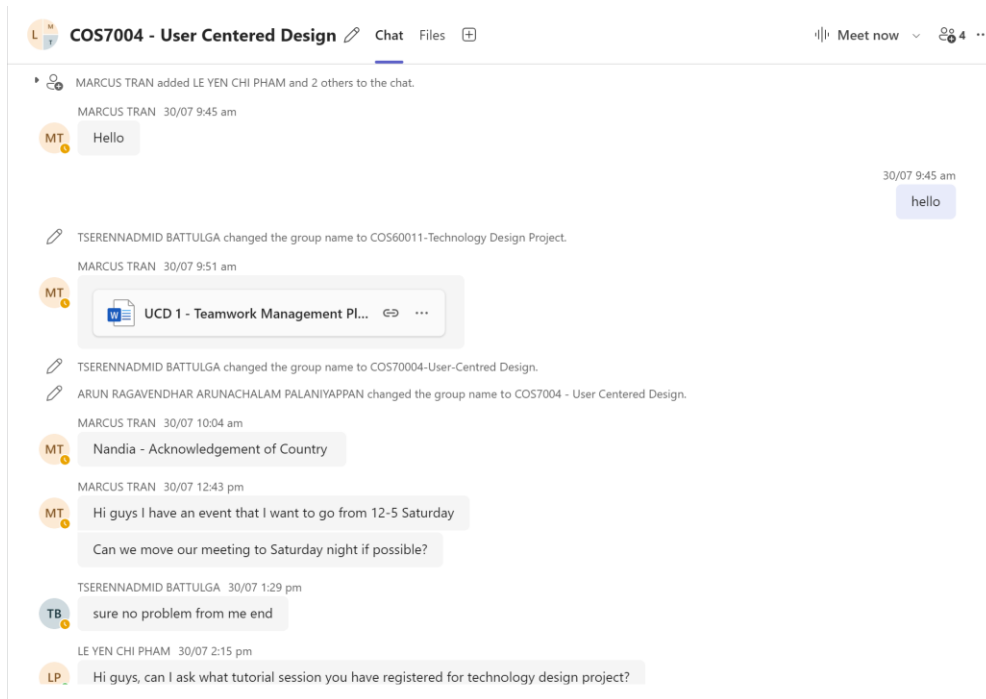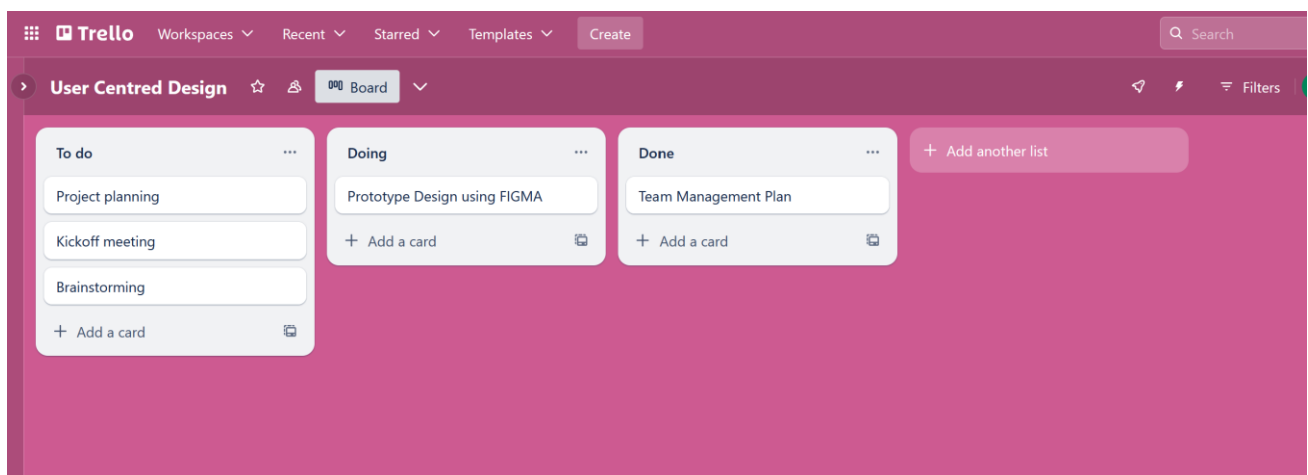Figure 1: MS Teams Group chat created for Team discussion and management

Figure 2: Trello Boad has been setup for project planning and task management

5 DOCUMENT MANAGEMENT

For document sharing and collaboration, the team will utilize **One Drive**. This platform offers several advantages:

- **Real-time Collaboration**: Multiple team members can work on documents simultaneously, ensuring efficient teamwork.
- **Version Control**: Changes are tracked, and previous versions can be restored if needed.
- **Accessibility**: Documents are accessible from any location, facilitating remote collaboration.

File Structure on One Drive:

- **Main Folder**: UCD Group 3
  - Subfolders: Assignments
    - **Research**: All research materials and resources
    - **Drafts**: Initial drafts of each section
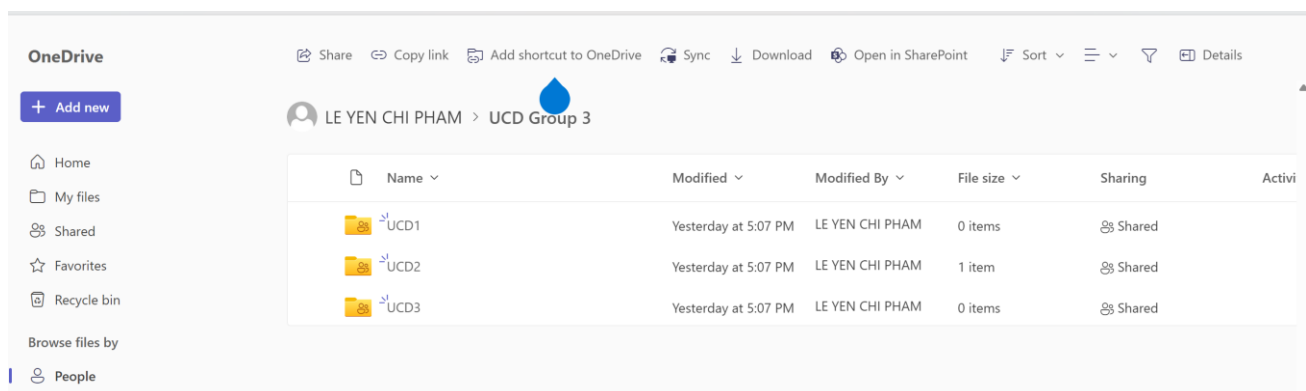   - **Final Versions**: Completed and edited documents

Figure 3: A One drive group folder created for document sharing and management

6 COMMUNICATION PLAN

Microsoft Teams is the main mode of communication. The reason why we choose this platform is due to three reasons:

- **Messaging and sharing resources**: Members can send messages and files. The files are saved in Cloud so it will be updated to the latest version once a team member has edited the file.
- **Team calls:** Microsoft Teams has a call function and records videos, making it simple to do video demonstrations and facilitating weekly group meetings. Furthermore, calls are timestamped, helping the team to keep track of the progress.
- **Calendar**: The team can schedule future meeting sessions with the calendar, so people are aware and reminded of what the upcoming meeting will take place.

Response time expectation:

- **Weekdays**: within 24 hours
- **Weekends**: within 48 hours (about 2 days)
- **Urgent matters**: messages via Microsoft Teams, or emails, with an expectation of prompt response

Rescheduled meetings: At least 24 hours before the weekly meeting.

7 RISK MITIGATION STRATEGIES

7.1 Risk Matrix

Probability of the Risk event	Impact of the Risk Event			
	(2) - Low	(3) - Medium	(4) - High	(5) - Extreme
Improbable / Highly unlikely	Failure / Interruptions with design software and tools			
Might be probable		In-accurate Context of Use leading to final design misalignment with the actual user needs	Deviation of Project scope	Team Member becomes unavailable
Probable		Conflict/non-agreement between team members on project design choice and decisions	Possible technical difficulties with Software and Tools:	Delay or issue with Main project Delivery
Highly Probable		Incorrect communication		

Table 6: Risk Matrix indicating the type of risks, their impacts and their probability of happening.

7.2 Risks and action items to mitigate identified risks

Risk Rating Index	Risk Rating	Description of the Risks Involved	Proposed plans to handle the Risks
4	Extreme	**Team Member becomes unavailable:** It is possible for team members to become unavailable because of personal crises or an illness.	Creating a flexible job assignment plan and having a list of backup team members who are available to step in; promoting a healthy work-life balance and communicating any difficulties promptly to all team members, well ahead of time.
4	High	**Possible technical difficulties with Software and Tools**: Figma tool is planned to be used for the User Interface prototype creation. Unfamiliarity or lack of background in this tool can lead to delays in project delivery and can affect project quality.	Weekly lectures shared in the canvas portal are a great starting point. Communicating openly about issues and seeking support from team members can be a great help. Technically experienced team members can give guidance, suggestions and direction to other members so that they can look to fill in their knowledge gaps.
3	Medium	**Incorrect communication:** This issue might happen when team members do not communicate effectively when they are required to and can lead to project design and content related errors.	Usage of clear and complete documentation throughout the prototype design and development is mandatory. Meeting minutes are to be saved, and prompt action items are to be assigned. Project management tools such as Trello to be used for transparency and logging of weekly tasks.
5	Extreme	**Delay or issue with Main project Delivery:** This could occur due to improper planning and management, lack of technical skills or due to improper concept design of the prototype.	To manage this risk, explicit project timetables are to be created, and internal deadlines set well before the final due date. Frequent progress monitoring and status meetings are to be held to detect and address difficulties early on. Tasks need to be assigned a priority rating and worked

			upon accordingly. A minimum viable product should be developed and verified to ensure on-time delivery of the final prototype.
3	Medium	**In-accurate Context of Use leading to final design misalignment with the actual user needs:** This can happen due to improper or inadequate user research, where the designed prototype does not actually fulfil the needs of the users.	Using an Agile methodology, frequent usability testing sessions are to be scheduled; end users are to be actively engaged in the design process; designs are to be iterated in response to feedback; and feedback implementation is to be recorded and tracked.
4	High	**Deviation of Project scope:** Uncontrolled alterations or growth of the project scope, resulting in delays and resource strain.	The project scope and design, once finalized, can have minor iterative updates and changes as needed. However, the fundamental aspects and core principles of the prototype, derived from the original user requirements, are to be preserved and not altered.
2	Low	**Failure / Interruptions with design software and tools:** The online version of the prototype being worked upon can become inaccessible if there is any technical issue with the FIGMA or MS TEAMS.	This issue is probably not going to happen as FIGMA and MS TEAMS have great software and maintenance support. However, it is always best to keep a local copy of the important version of the documents and the prototype on each team member's system.
3	Medium	**Conflict/non-agreement between team member on project design choice and decisions:** Different team members want to implement different design ideas which might conflict with one another.	Regular casual talks with team members are going to be held to avoid misunderstandings and ensure that everyone is focused on the same goal. Open communication is going to be encouraged and data and user input will be utilized to make decisions, and a clear decision-making process with a designated lead for final decisions will be created.

Table 7: Types of Risk and Mitigation Strategies

8 CODE OF CONDUCT

A separate submission of the Code of Conduct draft has been made. It highlights the following essential ideas:

• **Respect:** Every team member shall behave professionally and with respect towards one another.

• **Integrity:** Transparency and honesty are required in all interactions and tasks.

• **Accountability:** Each participant is responsible for their own contributions and punctuality.

• **Confidentiality:** Any information discussed among team members is kept private and is only utilised for the project.

• **Cooperation:** We respect and promote teamwork, helpful criticism, and assistance from one another.

Agreement: After reading the Code of Conduct, every team member has given their approval.

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