

# Milk Matters: Further Improving Milk Donor Engagement

[Utilising a Client-Server Model to Enhance the Existing Application]

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## 1 Project Description

*Milk Matters*<sup>1</sup> is a community-based, non-profit human breastmilk bank based in Cape Town. Their organisation's goal is to distribute pasteurised donor milk to premature and vulnerable babies in Neonatal Intensive Care Units (NICUs). Due to the difficulty and time intensive requirement of breastmilk donation, it is important for *Milk Matters* to maintain donor retention and return. *Milk Matters* is currently operating with three staff members, which means they must be efficient with their time to complete all required activities. This project aims to aid *Milk Matters* by providing them with a system that will improve donor engagement, and which contains updatable content. The system will be a reconstruction of the existing *Milk Matters* mobile application, developed by Wardle et al. [17] in 2016. A back-end will be implemented to serve content to all user interfaces, and an additional *Milk Matters*' user interface will be implemented to allow for editing of the content.

This project represents a continuation of both this partnership and research. *Milk Matters*' official lines of communication with its donors, currently include email communication, telephone, WhatsApp, SMSs, Instagram and a Facebook page. The small research group of donor mothers from previous research have expressed the desire for some platform for communication with other donor mothers. However, *Milk Matters* has previously expressed reservations about such a platform. A platform to satisfy both parties will be investigated. This project aims to explore the best technologies for facilitating donor-to-donor and donor-to-bank communication while keeping to the requirements of the milk bank, with the interest of the organisation and donors as a priority.

This project will have mixed elements of research and Software Engineering. The research will rely on Human

Computer Interaction (HCI) techniques as we are working with a sensitive research demographic. The software engineering will comprise of the further development and redesign of the previously mentioned mobile application. The mobile application will be improved with the implementation of a client-server architecture, with a remotely hosted server feeding information to the application. The project will be divided into a front-end interface for the donor mothers, a front-end interface for the *Milk Matters* staff, and a back-end system to support these interfaces by providing database and middle tier functionality.

### 1.1 Importance of the Project

The World Health Organization (WHO) defines human milk as a vital medical resource and the best source of nutrition for infants [16]. Human milk is essential for babies in NICUs as they often cannot get nutrients from other sources and require the benefits from breastmilk [15]. The breastmilk required by NICUs is usually obtained from human milk banks; however, the demand for human milk is higher than the supply [13, 14]. Milk donation is a demanding task, as mothers worry about not having enough milk for their children, and producing excess milk is a lot of work [14]. This leads to most mothers not donating milk, and even mothers who naturally produce more usually store it for their own children [13]. Therefore, milk banks need a way to incentivate milk donation. Using technologies to improve donor-to-donor and donor-to-bank communication can increase donor satisfaction, leading to an increase in milk donation.

### 1.2 Project Issues and Difficulties

By studying the work of Wardle et al. [17] and analysing the nature of this project, our team identified difficulties that could occur during the project. The first issue identified is that some of the donors' suggestions might be unfeasible to implement in the sensitive environment of milk donation. Since *Milk Matters* has more experience in this field, we will consult with them about these, and defer to their guidance in

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<sup>1</sup> <http://milkatters.org/>

this regard. The second issue is due to the COVID-19 pandemic, and restricted movement, we will not be able to meet any of the research participants physically; our methods to conduct research will be discussed further in this paper. A difficulty linking to this is access to participants. We will rely on *Milk Matters* to be able to connect us with their donors, but there is uncertainty as to whether we will be able to recruit them as we do not know how many of the donor mothers will be willing to participate. Lastly, all our user testing and prototyping will have to be done online, which will rely on the participants' computer literacy.

## 2 Problem Statement

### 2.1 Problem Statement

Our team is looking to address one greater scope issue affecting *Milk Matters* that was not suitably addressed by the previous application: "*Milk Matters* and their donors cannot update their application's content."

### 2.2 Aims

As a result of UCT's previous collaboration with *Milk Matters*, a mobile application was developed with the intention of improving the donor experience [17]. This application was completely static in nature, with all content being hardcoded into it. This resulted in an application that, while useful, quickly became outdated.

In this project, we aim to update the application in such a way as to facilitate the updating of it in some form. This will ultimately allow for relevant content in the application, increasing its utility and relevance. In addition, this functionality could pave the way for communication tools, which in turn could result in more motivated donors. This work aims to uncover what features donors and *Milk Matters* expect out of such an architecture, and of these which would be ethically justifiable for inclusion. We also aim to, where possible, augment any already-established functionality.

### 2.3 Requirements

This research project will ultimately result in the production of a piece of software, making it akin to a software engineering project. The application itself needs to meet several requirements, laid out both by *Milk Matters* itself and by our supervisor. These include:

- A remote back-end, used to serve the user interfaces content
- Separate user interfaces for *Milk Matters* staff and donors
- Easy-to-use tools for *Milk Matters* to update content stored on the backend with

- A multi-platform mobile application targeted towards milk donors.

Further functionality will be finalised during the initial research phase. However, it is imperative that all functionality present in the old application be maintained in some capacity. These features are:

- Per-mother donation tracking and visualisation
- A *Milk Matters* depot locator
- A breastfeeding education feed
- A milk-donation education feed
- A donor screening tool

## 3 Procedures and Methods

The sections to follow detail the methods we will use in the project; namely how software development will occur and be managed, the manner in which we will engage with our research participants and finally focusing on how we will evaluate and analyse the qualitative and quantitative data gathered.

### 3.1 Development Processes and Methods

The system developed throughout this project will consist of three parts, a donor facing mobile application, a *Milk Matters* facing interface and a back-end system to store and manage the mobile application's content. The introduction of a back-end will allow them to maintain and update the mobile application's content through a *Milk Matters*' administrative interface. The mobile application will be built using a framework allowing for both an Android and iOS application to be built using a single code base, while the *Milk Matters* interface will be developed using a web development framework (Flutter/ React). The back-end will utilise cloud services (AWS, Google Cloud or Azure) to provide scalability, availability and leverage the pay-per-use cost model (instead of paying a fixed rate for server costs regardless of usage, only the costs associated with the specific usage are incurred). A high-level system architecture is included in Appendix (A).

All researchers will participate in the system's design, allowing critical discussion to ensure good design practices are followed. All researchers review each other's code to maintain a correct and concise codebase and test suite. The initial design of the system will simplify integration, identifying it before development begins. As the mobile application, *Milk Matters*' interface and back-end system are tightly coupled, integration will be managed throughout development, developing each feature and its supporting back-end component concurrently. Dependencies between the mobile application and the back-end system are limited to the content being provided by the back-end and consumed by the application. If necessary, the user interface of the mobile

application will be completed using mock data instead of relying on back-end data. Throughout the design of the mobile application we will focus on elements of the user experience which could be improved through persuasive design.

Development will follow a scrum methodology. Daily meetings will allow researchers to share information and progress, creating a space for discussion as well as ensuring that the project remains on schedule. Daily meetings will take place at a set time each day via video calls in order to retain their value during the lockdown. The agile nature of scrum will allow us to make the most of the project's short duration and provide the capability to account for changing requirements and participant feedback. An iterative cycle – design, develop and prototype, test – will be completed several times throughout the project. The increased risk of miscommunication due to social distancing and requiring *Milk Matter's* approval for the provided functionality led us to decide on an iterative approach for this project; allowing any potential issues to be resolved quickly. Git will be used as the version control system, using GitHub<sup>2</sup> to remotely host our codebase.

### 3.2 Participant Engagement

This project involves communication with two groups of stakeholders – milk donors and *Milk Matters* staff. *Milk Matters* will facilitate the recruitment of milk donors for the project, with the goal of recruiting at least five. Donors will be requested to be interviewed to determine the desired features and provide feedback on prototypes and design decisions. Through interviews and surveys, we will also gain insight into their experiences as milk donors to further guide design and development. Online tools, such as *Moqups*<sup>3</sup>, will be used to share prototypes with evaluators. Two members of the *Milk Matters* staff will provide insight into their requirements, constraints, and feedback on features and designs.

The nature of the COVID-19 pandemic requires us to conduct remote research using online tools. We will conduct interviews and meetings via online conferencing tools, such as *Skype*<sup>4</sup> or *Zoom*<sup>5</sup>. Interviews with all participants will be one-on-one to help make interviewees more comfortable and recorded if consent is granted. Recordings will be used by the remaining group members when conducting analysis. Surveys will be used to gather information (their general mobile app usage, feature preferences, etc.) and general feedback from donors. Discussion, an integral aspect of co-design, will be managed through platforms such as *WhatsApp*<sup>6</sup> or *Facebook*<sup>7</sup> groups. Privacy will be maintained by only inviting specific

participants who agree to take part in discussions. However, their identities will be visible to other group members.

### 3.3 Evaluation Techniques

This project will be evaluated quantitatively and qualitatively. The scope and length of this project presents certain challenges to its evaluation. Certain aspects, such as whether the system encourages more lactating women to become donors, or if the persuasive techniques used lead to more milk donations, will be impossible to measure due to the project's length. In addition, the tracking of a milk donor's donations to evaluate the impact of the project would be unethical (elaborated upon in section 4) and may not provide a true evaluation of this goal of the system. However, aspects of the mobile application (such as usability and design) and the *Milk Matters* interface (such as the ease of use and ability to update necessary content) can be. Evaluations have been broken into qualitative and quantitative methods.

#### 3.3.1 Quantitative

Quantitative methods will be used to determine the usage of both the mobile application and the *Milk Matters* interface. Usage will be tracked on the mobile application using logs stored on the back-end, anonymously logging each time a user signs into the application as well as their feature usage. The mobile application's performance will be evaluated by tracking application crashes, the number of errors which occur during its usage and whether the dynamic content was loaded correctly from the back-end system.

*Milk Matters'* interface will have similarly focused quantitative measures. Usage logs will be used to track and measure how system usage, which content is updated and how often it is being updated. Errors and system malfunctions will also be tracked, providing insight into its performance.

A 5-point Likert scale will be used with questions relating to the system and its usability in surveys for both *Milk Matters* staff and milk donors. Using a Likert scale will provide quantitative measures of user opinions, such as ease-of-use and usefulness, of the system's components.

#### 3.3.2 Qualitative

The current situation brought about by COVID-19 will limit the qualitative evaluation methods available, with online interviews and usability assessments being our primary tools. Observation will not be possible, forcing us to rely on insights and informal usability interviews with our users. The qualitative methods used will be semi-structured, providing space for our interviewees to voice their opinions.

Milk donors who have used the mobile application for a week will be asked to participate in interviews about their experiences with the application. The interviews will determine the usefulness of the application to mothers: whether it simplified the act of donating milk, if they believe it improved their motivation to donate, does it provide useful

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<sup>2</sup> <https://github.com/>

<sup>3</sup> <https://moqups.com/>

<sup>4</sup> <https://www.skype.com>

<sup>5</sup> <https://zoom.us/>

<sup>6</sup> <https://www.whatsapp.com/>

<sup>7</sup> <https://www.facebook.com/>

and informative content, and if it facilitates communication between donors.

Similarly, *Milk Matters* staff members who make use of their interface will be interviewed to determine its usability and perceived impact on donor engagement. Questions around improvement of communication with mothers, the functionality and usefulness of their interface, and how intuitive the system is to use will help guide our assessments.

We will be analysing the qualitative data gathered using grounded theory, the generation and continuous reassessment of 'grounded' theories about the users and data to better understand them, their positions, and opinions [1, 3]. Thematic analysis, through tagging and coding, will be used to identify and link themes we uncover throughout our analysis, ultimately helping us build grounded theories about our users.

## 4 Ethical, Professional & Legal Issues

Performing research in the sensitive context of milk donations is complex. We have identified several ethical issues we need to remain conscious of throughout the project. Importantly, ethical clearance will be obtained before any interaction with our research participants takes place.

### 4.1 Ethical Implications of a Persuasive Mobile Application

The use of persuasive design within the application presents numerous potential ethical concerns [11]. Persuasive systems change behaviours and attitudes based on the intended goal and design of the system. This introduces many ethical dilemmas: the potential abuse of power, mistakes that may impact users, and unintended consequences to name a few.

A persuasive system designed to improve donor motivation implemented without remaining conscious of potential ethical concerns could lead to negative consequences for the donors. These may be feelings of worthlessness due to the inability to donate a self-perceived 'sufficient quantity' of breastmilk, or even potentially placing greater value on milk donations rather than their child's well-being. The gamification of milk donations also introduces similar un-ethical consequences, turning the selfless act of donating milk into an unhealthy exercise fueled by virtual rewards.

There is also a concern that the use of the mobile application during feeding may have adverse effects on building the mother-child relationship, with mothers reporting feelings of guilt when using a smartphone during feeding [18].

While the concern that persuasive features may have negative effects on users, following a co-design approach with milk donors will reduce this risk dramatically. Involving users in the design and development, as well as remaining conscious of this risk as well, will ensure that the features implemented will not have adverse effects.

### 4.2 Ownership Implications

The system code will be made open-source with the goal of promoting and aiding milk donor initiatives with our work. In addition, Open Source licensing follows current UCT Intellectual Property policies [12]. The mobile applications will be freely available on the App Store and Google Play Store. Any intellectual property created during the project will remain the property of the researchers and the University of Cape Town. Any content presented on the application will be controlled and owned by *Milk Matters*.

### 4.3 Research Participants

This project requires frequent involvement with stakeholders, namely donor mothers and *Milk Matters* staff. In line with UCT research policies, we will ensure that we obtain ethical clearance before any participant interaction takes place. Our participants will be given a clear description of the project and their potential role in it.

Due to the COVID-19 pandemic we will be obtaining consent by sending participants a copy of the consent form, providing them with a brief description of the project and their requirements as participants. They will be able to ask any questions they may have and can provide consent by either providing oral consent or providing consent via text communication (email, WhatsApp, etc.).

### 4.4 Data Concerns

All data created throughout the project will be stored securely and only accessible by the researchers. Furthermore, all information obtained from research participants will be anonymised. Privacy within the mobile applications will be upheld using a privacy policy and secure data storage and management.

### 4.5 The Ethical Concerns of Research in a Pandemic

The ethical implications of not performing COVID-19 pandemic related research in a pandemic also need to be considered. While the research is extremely valuable and stands to benefit milk donors, *Milk Matters* (an NGO) and the larger milk banking community, it involves participants that are invariably affected by the pandemic.

### 4.6 Concerning Bandwidth Constrained Users

We need to remain considerate and support users of the mobile application who are bandwidth constrained. In order to provide the application to all users at minimal data costs we will follow design and development methodologies that aim to reduce the mobile application's data consumption. These include but are not limited to maintaining assets (i.e. images, icons, etc.) on the device, only retrieving remote content if a change has occurred and storing content locally until that

point and minimizing network requirements for feature operations. There also exists the potential to allow users to use a setting for a 'low-data' version of the application, which will only use data if connected to a Wi-Fi network.

## 5 Related Work

Wardle et al. and Balaam et al. provide techniques for designing with mothers and discuss the importance of designing for and with breastfeeding mothers, and the importance of including their baby in the process [2, 17]. Key factors of co-designing with mothers are: interrupted interactions, single-handed interaction, elements that might distract babies, empowerment through feedback and choice, and positive reinforcement [17]. They also cover the importance of having educational materials and the use of gamification on motivating donations.

The lack of research surrounding technology's influence on breastmilk donation was bridged with research on blood donations due to their similarities [10]. Research has shown that mobile applications, social media features, and donor satisfaction are all influential factors on donation rate and donor retention [10,13,22]. Foth et al. discuss the different type of blood donation application and how user engagement, social media, and tracking can increase motivation [7].

It is important to understand why new mothers and donors are turning to the internet for advice on parenting. According to Dizon, they want to improve confidence as a mother, and they need to be more than 'just' a mother [4]. This is beneficial to our project, as understanding new mothers use of technology can help us understand the behaviour of donor mothers.

Persuasive technologies in a breastmilk donation environment can be harmful. This led to us using the term "Affirming technology", which is the use of persuasive technology in a sensitive context. We do not want mothers to feel forced to donate, or to feel inadequate with the amount they donate. This is why we will use Affirming technologies to give mothers the motivation to donate milk, as well as assert to them that every drop is valuable. We used two design paradigms to better understand persuasive technologies: Fogg's Behavioral Model and Persuasive System Design [5, 6]. Literature around persuasion shows that to remain ethical the user should be greatly involved in the design [2].

## 6 Anticipated Outcomes

### 6.1 System

This project aims to create a system composed of three parts; a mobile application for donor mothers to improve their donor experience, a *Milk Matters* interface providing the capabilities to update the content presented to donors through the mobile application (see Appendix A), and a back-

end system to store and serve the relevant content. The mobile application will be available on both iOS and Android operating systems. It will provide the core functionality listed in the Requirements section of this proposal. Much of the functionality and user interface will be re-designed and ported from the no-longer available application developed by Wardle et al. [17].

Throughout the project we need to remain conscious of the complex contexts of motherhood, milk donation and breastfeeding. Remaining sensitive to the context of our users will allow us to develop a more useful and valuable application. We will also need to remain aware of the constraints of *Milk Matters*, in terms of the operational overhead of the back-end system and their staff's computer literacy when developing their interface.

### 6.2 Expected Impact

We expect the completed system to improve communication between Milk Matters and their donors. The introduction of persuasive technology will allow the mobile application to provide donors with support and increased motivation, improving their donor experience by making donating easier. This will, hopefully, lead to more lactating women becoming milk donors and encouraging existing donors to continue donating. This will lead to an increase in the availability of donor milk for premature babies in Neonatal Intensive Care Units.

### 6.3 Key Success Factors

Due to the project's short duration, we will be unable to assess whether the completed system leads to increased milk donations. As such, the project's success will be determined by whether the systems implemented are fully implemented and integrated. Some key success factors we will monitor are:

- 80% of mobile application users utilise the application more than 5 times after initial sign-up.
- 95% of donor participants gave positive feedback on the mobile application's design, usability and overall donor experience after it has been publicly released.
- The back-end sees an uptime of 95% during the first two weeks after deployment.
- At least two updates of the mobile application's content are performed by *Milk Matters* without the assistance of the researchers.
- The application runs on 100% of devices on which it is installed.

## 7 Project Plan

### 7.1 Risk Management

The Risks and Risk Management/Mitigation matrix is found under Appendix B. Overall, while some risks exist, they ultimately can be managed effectively if they come to fruition. One particularly topical risk that we will discuss here, in light of the pandemic, is the potential loss of a group member. Such an occurrence would effectively represent the loss of one-third of the available manpower. However, we can take steps to both mitigate and manage this risk. Mitigation can be achieved by assigning each group member tasks in a manner that both spread the tasks evenly among them and allows for the easy reassignment of these tasks if need be. The management, then, simply becomes the act of redistributing the tasks belonging to the now-missing member. Additionally, some tasks have been assigned to multiple researchers, and in the event of a vacancy the responsibility for the task will shift to one of them.

### 7.2 Project Timeline

Our project timeline and Gantt chart can be found under Appendix C. Gustavo will be responsible for most of the research-oriented tasks, Dino will be in charge of the design and implementation of the front-end, and Gerhard will be in charge of the design and implementation of the back-end. Each bar on the Gantt chart is colour-coded, depending on who is ultimately responsible for the task. Blue tasks are Gustavo's responsibility, yellow are Dino's, red are Gerhard's, and green are everyone's.

### 7.3 Required Resources

While this project will not require cutting-edge technology, it will still require some level of funding in order to acquire some necessary services. Some funds will be required to cover the hosting of the project back-end, which will probably utilise some form of cloud-hosting service. Development computers for each researcher will also be required. Additionally, developer accounts for both the Apple App Store and the Google Play Store will be required in this case. We will also require Apple iPhones and Android devices in order to test native mobile applications. The researchers will be able to provide everything listed above, other than the funding, themselves.

However, most of the resources required by this project will be similar to Wardle et al. 's project in that they are people related. Once again, *Milk Matters'* input will be an important resource, as this project can ultimately only progress with their consent and support. Additionally, they will be providing access to their donor mothers.

### 7.4 Deliverables

While this project's most notable result will be the improved mobile application and its accompanying back-end, other artefacts are also to be produced. The full list of project deliverables includes:

- 3 literature reviews, one from each researcher
- This project proposal
- At least one prototype, in to-be-determined digital formats
- Written evaluations of each prototype, incorporating user feedback
- Video recordings of donor interviews
- Write-ups for each round of interviews
- A demonstration of the software's feasibility
- A project website
- A project poster
- The final project report

### 7.5 Project Milestones

Our Gantt chart lists our project milestones (see Appendix C). These include both the above-listed deliverables, as well as softer design/development milestones.

### 7.6 Allocation of Work

Work will be largely divided along categorical lines. Pieter Gerhard Serton will be focusing on the design and development of the application back-end, while Dino Bossi will be focusing on the design and development of the donor-facing front-end. Finally, Gustavo Amicis M. de Souza Mendes will oversee the design and development of the *Milk Matters* facing front-end. Research will be conducted with all researchers present. Each researcher will be responsible for formulating questions related to their own development duties, to be asked during these interview sessions. Due to this approach, all researchers are considered jointly responsible for research-related tasks.

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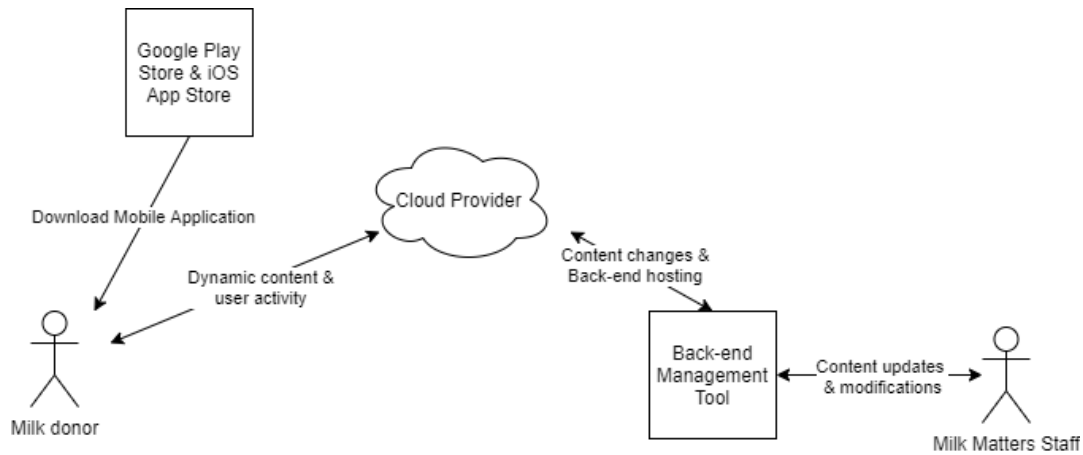
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**APPENDIX**

**A. High Level System Model**



**B. RISKS AND RISK MANAGEMENT/MITIGATION**

Risk Number	Risk Description	Impact (1 - 4)	Probability (1 - 5)	Management/Mitigation
1.	Distributed Surveys are not responded to by enough participants.	3	4	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>The project is structured in such a manner as to be viable with absolutely no survey information.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>The project proceeds without survey information.</li> </ol>
2.	We are unable to secure/maintain a suitable licence for a cloud-based web services provider, either due to a funding issue	3	2	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>Prior to development, we will explore multiple solutions and subscription plans in this space. If no suitable licence is found, we will settle on a non-cloud based, local solution that isn't tied to a subscription.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>We will immediately shift to a non-cloud based, local solution that isn't tied to a subscription.</li> </ol>
3.	We are unable to develop a solution that satisfies <i>Milk Matters</i> .	4	1	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>We work with <i>Milk Matters</i> to determine project requirements that are satisfactory to them.</li> </ol>

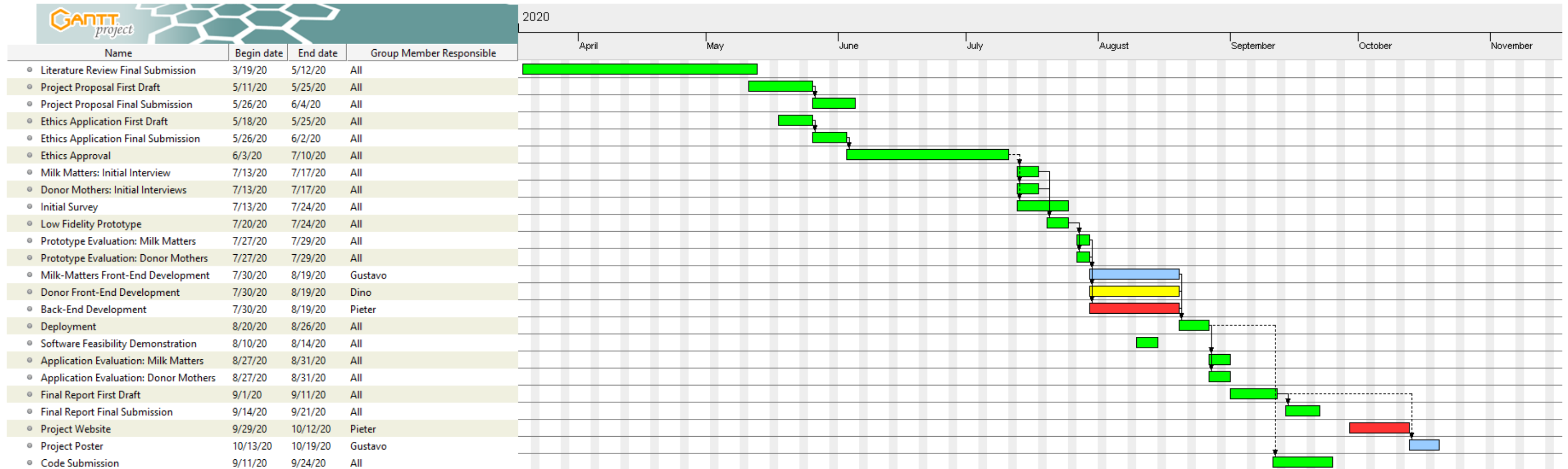


Milk Matters: Further Improving Donor Engagement

				<p>Management:</p> <ol style="list-style-type: none"> <li>Parts of the project that do not satisfy them are not deployed, even if this includes the entire project.</li> </ol>
4.	The project's scope develops out of our reach and cannot be developed in time.	4	2	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>The project's scope is developed conservatively.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>The scope is reduced appropriately.</li> </ol>
5.	The national lockdown extends to span the entirety of the project timeline.	1	3	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>The project is structured in such a manner as to be viable even if conducted entirely during lockdown.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>The project proceeds as normal throughout the lockdown period.</li> </ol>
6.	One or more team members are unable to complete their assigned tasks.	3	1	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>Team members are assigned tasks that can be transferred to other team members easily.</li> <li>Assigned tasks are distributed in such a way as to not overwhelm team members.</li> <li>Tasks are, where deemed necessary, allocated to multiple researchers.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>The tasks in question are reassigned to other team members.</li> </ol>
7.	A member of the <i>Milk Matters</i> staff is, for any reason, unable to contribute to the project in any meaningful capacity	2	1	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>All <i>Milk Matters</i> staff are consulted early and frequently about the project, in order to encourage participation.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>The project progresses, relying wholly on information gleaned from donor mothers and the available staff member.</li> </ol>
8.	Mothers are ultimately unhappy with the application and opt not to use it.	2	2	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>Donor mothers are consulted early and frequently about the project.</li> <li>Donor mothers are asked to evaluate prototypes.</li> </ol>

				<p>Management:</p> <ol style="list-style-type: none"> <li>1. <i>Milk Matters</i> ultimately decides whether to continue hosting the application.</li> </ol>
9.	Mothers are driven by the application to donate more milk than they can spare.	4	2	<p>Mitigation:</p> <ol style="list-style-type: none"> <li>1. The application is designed from the outset to implement responsible persuasive design.</li> </ol> <p>Management:</p> <ol style="list-style-type: none"> <li>1. Any features driving this unhealthy persuasion are disabled.</li> </ol>

### C. PROJECT TIMELINE



Colour	Researcher Responsible For Task
Green	Input required from all / Equal responsibility
Blue	Gustavo Amicis M. de Souza Mendes
Yellow	Dino Bossi
Red	Pieter Gerhard Serton