Milk Matters App 2.0

Leveraging cloud functionality to improve the milk-donation experience

Background

Milk Matters is a non-profit breastmilk bank located in Cape Town. They work alongside mothers to operate on a community-based donation system which pasteurises and distributes donations of screened breastmilk from healthy donors to premature, ill and vulnerable babies.

This project was a continuation of a UCT Honours project in 2016 done in collaboration with Milk Matters. This project produced an Android application with the aim of improving donor motivation. Due to this application's reliance on hard-coded content, as well as its lack of support for the iOS platform, it did not see widespread adoption and quickly fell out of date. Our aim going into this study was to rebuild that application into a dynamic, cross-platform application with content controlled by Milk Matters to improve the overall donor experience.

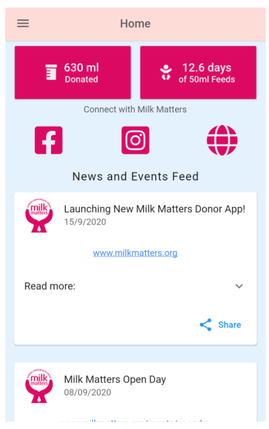
Methodology

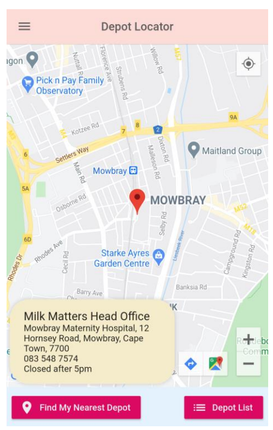
We followed a co-design approach, adapted to work within the constraints of the COVID-19 pandemic. Our co-design process involved 3 stages of engagement with both the Milk Matters staff and the donor participants.

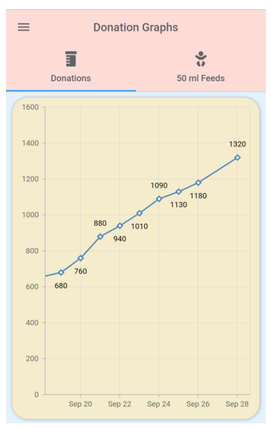
Stage 1 aimed to explore the design space and the project's context through introductory interviews and an online survey. Stage 2 saw the evaluation of two 'digital paper prototypes' (donor app and staff web-app) created using Moqups. Stage 3 involved the final evaluation of both applications, obtaining feedback on the respective designs and functionalities. The final stage also focused on the participant experience throughout the research and their thoughts on socially distanced co-design.

Donor-Facing Application

The donor application was built using the Flutter framework, enabling the creation of a cross-platform application from a single code base.



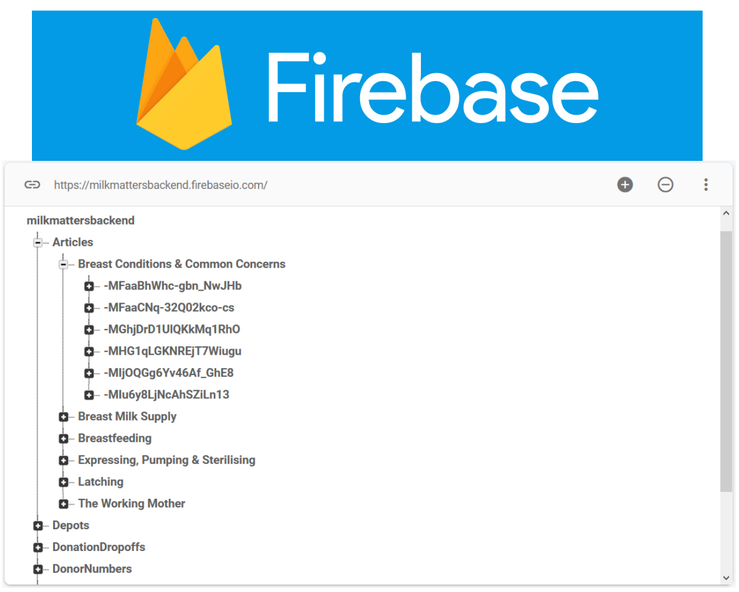




The app has feature parity with the 2016 version as well as new supporting features such as in-app content sharing, declaring donation drop-offs and answering a pre-screening questionnaire.

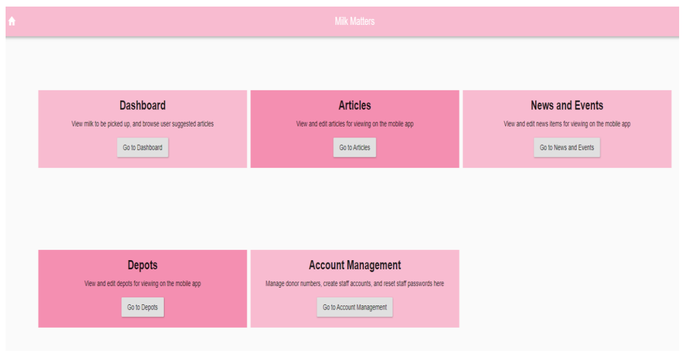
Cloud-Based Backend

Both applications make use of cloud-based functionality provided by *Google Firebase,* namely the *Authentication Service, Cloud Hosting,* and the *Realtime Database*. The use of a cloud provider has several benefits in the NGO context, including an incredibly low associated cost and the elimination of the need for physical hardware and the maintenance associated with it.



Staff-Facing Application

The staff web application was built to manage the dynamic content to the donor application. Its features include the adding, editing, and deleting of educational articles, news and events, and depots. It also allows for some account management from Milk Matter's side such as linking and removing donor numbers from donor accounts.



The web application is hosted on Firebase and uses Firebase's real-time database to provide content the donor application can access. The Flutter framework was used as it allows for easy integration with Firebase, and code reusability with the donor application.

Conclusions

Following the final evaluation of both applications we have deemed this project to be a success. The donor participants were satisfied with the supporting functionality included in the app, as well as its overall look at feel. Milk Matters believed that this project met its expectations and the several initial challenges were effectively solved. Our donor participants felt that the research was conducted professionally and well executed regardless of the limitations imposed by the pandemic.

The dynamic nature of the system's content allows for increased interactivity and communication between Milk Matters and their donors. We believe that this will lead to greater awareness of milk donation, provide improved support for milk donors, and aid Milk Matters staff in their daily tasks.

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Acknowledgements:
Milk Matters
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Gary Stewart