

Cambridge Judge Business School

#CAMvsCOVID

PORTFOLIO OF SOLUTIONS

Darius Sultani, Zoey Xiaochen Tan (eds.)



UNIVERSITY OF
CAMBRIDGE
Judge Business School

#CamvsCovid

A social hackathon

Foreword

The Corona virus has confronted communities around the world with a common challenge. In awareness of the trying consequences this crisis has caused and will be causing, we see opportunities for solidarity and collective action to develop novel solutions.

#CamvsCovid is a student-led initiative by The Hack Cambridge Foundation and the MPhil in Technology Policy at the Cambridge Judge Business School (CJBS). With a 72-hour social hackathon as initiating event, we are aiming to harness the creative energy of the Cambridge ecosystem, and to tackle some of the challenges associated with COVID-19.

The event took place virtually on 1-4 May 2020. We offered a mixture of workshops and regular mentoring sessions to facilitate the teams' innovation process along its four stages (i) problem identification, (ii) ideation, (iii) prototyping and testing and (iv) storytelling and pitching. This portfolio is a collection of ideas that resulted from the intense 72h-idea sprint. All submissions have been subject to a jury process by CJBS lecturers and professors at the Computer Laboratory, University of Cambridge. The jury members selected the winning submissions and provided their feedback based on five evaluation criteria (*impact, business value, innovation, feasibility, presentation*). Points raised during this process did not only serve as a guidance for refining the articles in the portfolio; more importantly, they lead the teams on their way forward as they implement their ideas.

While this document naturally falls short of the energy and passion with which each of the teams developed their concepts over the weekend, we as organisers would like to provide a platform to disseminate the solutions and call for support on their path to implementation. We have included links to prototypes, as well as contact information for each of the submissions for supporters to get in touch. Please do not hesitate to reach out – the teams value any type of input.

We would like to thank those who have supported our vision of #CamvsCovid right from the beginning, and who helped us to implement the idea in virtually no time:

Speakers

Dr Iris Good

Dr Ghina Halabi

Dr Chris Coleridge

Dr Jeremy Hutchison-Krupat

Jury

Dr Monique Boddington, Prof Jon Crowcroft, Dr Christos Genakos, Neil Gough, Dr Matthew Grimes, Prof Cecilia Mascolo, Dr Kamiar Mohaddes, Prof Jaideep Prabhu, Dr David Reiner, Dr Thomas Roulet

Further thanks go to Erika Sojkova, Laura Carnicero, the CJBS IT, Alumni Relations and Corporate Communications & Marketing teams, as well as to Brian Bergman and Devin Burnell at the Kelley School of Business, Indiana University.

Lastly, we would like to thank all mentors for their time and invaluable input, and, of course, the participating teams for their commitment and their dedication during the weekend. It has been remarkable to see what an interdisciplinary, entrepreneurial community can achieve in just three days, and we congratulate all teams for their rapid progress and the results they have produced over the course of the event.

The #CamvsCovid organising team

Lena Vogel

Zoey Xiaochen Tan

Chuen Leik Low

Darius Sultani

and Valerie Chuang, Ivan Ivanov, Rohit Kale, Alba Navarro and Peter Ondus

MPhil in Technology Policy
Cambridge Judge Business School



Disclaimer: #CamvsCovid is an entirely student-led initiative. The views and opinions expressed in this portfolio are those of the participating teams and do not necessarily reflect the position of the Cambridge Judge Business School or any of the speakers and jurors.

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#CAMvsCOVID

WINNING SUBMISSIONS

Localing

Ankur Aggarwal^a, Genna Byrd^a, Rob Cann^a, Terrell Ibanez^b, Katie O’Flaherty^c, Deepak Ojha^a, Vishnu Ravi^d, Ashar Waseem^a

^aJudge Business School, University of Cambridge

^bUniversity of Central Florida

^cSt John’s College, University of Cambridge

^dCornell University

Problem category	Time to implementation	Time to impact
Small business survival	Short-term	Short-term

Problem & Solution

The current pandemic has forced millions of small businesses around the world to shut their doors, taking away their livelihoods in the process. Many are struggling to survive the current economic crisis. As overhead costs continue to mount without income to offset them, some businesses may never open again.

Meanwhile, communities are only dreaming of their favourite coffee shops, and missing their hairdressers like never before.

Localing connects customers with local businesses once more. Our platform gives community members the ability to pre-purchase discounted goods from local businesses now, which they will then receive when the businesses re-open. This provides the businesses with the cash flow that they need in the short-term to maintain operations and increases the chance of them being able to open again in the future.

Localing stands out for its highly interactive, localized, and personalized approach. We leverage data to create a personalized experience. Businesses are shown by proximity, with suggestions to the customer based on recent activity. Gamification further encourages sales, with customers earning points based on spending to unlock levels as a ‘Local Hero’, which leads to personalised badges to share on social media.

To grow users organically and foster network effects, we incentivise customers to refer friends to further earn points. Our marketing plan also promotes organic growth by leveraging influencer campaigns, unique rewards for purchases, and partnerships with local councils and food delivery apps.

Most importantly, Localing connects customers directly with local businesses. We allow customers to track a shop’s live operating status, and view safety features, such as social distancing and

sanitization measures, that businesses have taken to mitigate the infection risk from coronavirus. We take a hyper-local, connected approach that allows business owners to easily communicate with customers.

Business Model

Localing will operate as a limited company that connects customers with local small businesses. Each pre-purchase from a local business will include a small service fee, following a tiered pricing model, to support Localing's operation. Once established we predict 200% growth in the number of transactions each month from a baseline of 200 per month.

This is a social initiative established to support small businesses during the coronavirus pandemic. As the effects of coronavirus ease, Localing will leverage its national user base to transition to a sustainable business model, allowing customers access to goods and services at a discounted price, with rewards for their loyalty and support of their high street, and in turn enabling local businesses to grow.

Market Size

Localing is a platform reaching out to both small businesses and local consumers. On the business side, there are over 5 million small businesses in the UK, many of which have had to close [1]. In Cambridge alone there are over 100 pubs [2], and countless other cafes, barbers and other small businesses that have had to shut.

On the consumer side, our survey has demonstrated that 89% of respondents would consider pre-purchasing goods and the average per capita pre-purchase spend would be £60.

As Localing scales to multiple towns and cities the number of businesses and consumers on the platform will grow exponentially.

Competitors

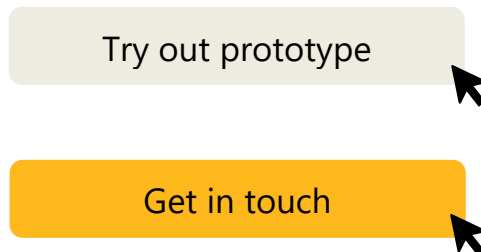
A small number of businesses have established their own pre-purchase systems to support themselves during the crisis. However, these individual efforts do not have the potential reach or scale of Localing, and rely on businesses having large online followings.

Groupon offers similar services but takes a hefty fee and is not focused on the customer's local community. No other existing platform integrates location services or social media.

Risk Management

Unfortunately, a business may be forced to permanently close even after a campaign on Localing. This could result in consumers not receiving goods that they have pre-purchased and the business not being able to provide a refund. We want our consumers to understand this risk when making pre-purchases so will make it clear during the ordering process. We will also limit individual

transactions to a maximum of £50 to prevent large financial losses. We believe consumers will understand this risk and will still be willing to pre-purchase goods in order to support their local community. In the longer term, we will look to establish other means to protect consumers such as an option to insure their pre-purchases.



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Team 12: Swipe Street

Alice Birch^a, Josh Cowan^b, Abhinav Heble^a, Evonne Lee^a, Vineet Mudupalli^a, Rebecca Tyson^c, Suzie Welby^a

^a*Pembroke College, University of Cambridge*

^b*Clare College, University of Cambridge*

^c*Christ's College, University of Cambridge*

Problem category	Time to implementation	Time to impact
Small business survival	Short-term	Short-term

Our approach aims to help small businesses and their customers adapt to social distancing by creating a platform which will replicate the feeling of browsing the high street online.

Both independent shops and their customers are missing the traditional high street experience during lockdown. Smaller businesses struggle to build an online presence but need a way to advertise their services and connect with both new and old customers. The absence of the physical high street makes it impossible for small businesses to compete with large companies with multi-million pound advertising budgets. Without the personal interaction and accessibility provided by the high street, small businesses struggle to compete with the lower prices and ease of use provided by larger retailers. Although there have been government initiatives to protect small businesses, they have mostly been focused on keeping businesses financially solvent, as opposed to adjusting to the new normal. With social distancing measures likely to remain for the foreseeable future, small businesses will need to adapt.

Our solution is "Swipe Street", an app that provides an alternative to the physical high street, connecting customers and small businesses. Customers can swipe through the shop fronts and easily chat with shop owners. Our app allows customers to personally ask for recommendations or arrange delivery without losing the unique attention that small businesses can provide. Users will be able to mark and easily find their favourite shops. From the business' perspective, each shop can easily create a profile detailing the goods and services they provide, as well as their contact information and any current promotions. This will help give a sense of normality to shop owners and a better connection to their customers.

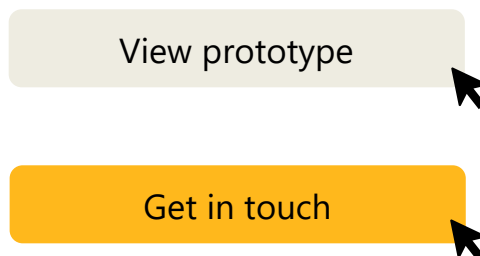
Customers can swipe through the virtual shop fronts, swiping left if they are not interested in that shop and swiping right if they want to find out more information. They can then choose to 'Favourite' or 'Message' the shop if they wish. Shops will also be able to list their inventory and sell goods through our platform. There will be flexibility for businesses' inclusion, ranging from a description of goods and services they are offering e.g. local deliveries, reduced opening times, zero contact

collections, to a contact number or link to an existing online platform. This caters for the range of potential customers and businesses, allowing them to register on the platform with minimal effort but immediate presence.

Our main competitors are other directory services such as Google Maps and Yelp. However, we offer personal in-platform contact and transaction support, as well as a novel format of presenting shops in a way that orders by location but also permits easier exploration. Additionally, we are oriented towards small businesses and will make our platform as supportive of them as possible. Users will come across shops they were looking for, but also will discover new ones with whom they can easily transact with similar convenience to that of ordering online.

Our business model is a not-for-profit with a minimal fee for on-platform sales to cover server hosting. Our pilot city is Cambridge, a smaller city with a limited number of independent shops to onboard and a technologically-literate customer base. This would involve starting in a small neighbourhood, such as around Rose Crescent, in order to allow for further testing and refinement of the system, before expanding to include more of the city. Using the platform will be free and easy for both small businesses and customers. As businesses struggle to connect with customers during this challenging time, our platform will become an indispensable tool for both businesses and customers, leading to our platform's organic growth. Monetisation through advertising provides further growth opportunities as our app becomes integral to the new high street experience.

Swipe Street will provide a new way to maintain old habits. Customers can browse their local high street from the safety of their home while businesses continue through and beyond the crisis.



perfeXia: TeleHealthMonitor

Pratyay Poddar^{a,b}, Usama Saffeer^{a,b}, Miro Svetlik^c, Rishabh Gupta^d, Vicky Feliren^e, Nadia Gracias^a

^aperfeXia Health Technologies Ltd

^bUniversity of Cambridge

^cContentwise

^dBangalore Institute of Technology

^eMonash University

Problem category	Time to implementation	Time to impact
Help for people at risk	Short-term (<2 months)	Medium-term

COVID-19: A Push Towards Digital Healthcare

COVID-19 has stretched the NHS to its limits. As a result, there is reduced access to GPs, the general population are delaying treatments, and diagnostic labs are overwhelmed with Covid-19 tests. To ensure that people can still access important medical services, a tool is needed to remotely monitor patient health.

perfeXia's TeleHealthMonitor (THM) will widen access to health services, by integrating key vital signs (heart rate, respiration rate and oxygen saturation) to present a holistic image of user's health. Our GDPR compliant app will utilise Edge AI and ML (i.e. all user data will be processed locally on users' devices) to extract health markers from users' video. The app will equip physicians with useful data - enabling integrated healthcare decision making and improving patient outcomes.

This solution will help target COVID-19 in three ways: remote monitoring; fast detection of patient deterioration and individualised patient attention.

Affordable and remote patient monitoring towards predictive healthcare

With the advent of Machine Learning and scientific progress in detection techniques, we see new possibilities on how to implement this at scale.

1. Quality Data

To acquire labelled data to train our system we are requesting people to place, oximeter, smartwatch or other certified measuring tools in the camera image. We then extract readings using OCR and matching them with our data. We are also working on other methods to acquire these reference measurements using smartphone sensors to lower the threshold.

2. Rigorous analysis and detection

Detection of variables happens by analysing micro-movements, colour changes and frequency in the audio signal. We will employ several techniques such as Fast Fourier Transform (FFT), Independent Component Analysis (ICA) and Principal Component Analysis (PCA) to extract identified variables for further processing.

3. Machine Learning and actionable insights

All acquired readings are further processed by our state-of-the-art AI model to detect anomalies and infer missing variables. In the second stage, we will perform binary classification based on pre-processed anonymised data. Our model can then link specific patterns to actual disease and through transfer learning and reinforcement learning we will be able to extend our model to detect new diseases in the future. These efforts will not only enable detection of diseases but also help to predict them.

Market validation, potential & use case

Telemonitoring using wearables is currently underway in the clinical environment (e.g. the John Radcliffe Hospital). Avoidable emergency admissions make up 23% of all hospital admissions. Vital monitoring at home would allow doctors to access data on patients and triage efficiently and effectively.

The telemonitoring market was valued at \$2 billion in 2019 and is estimated to grow at CaGR 14%. There is a multitude of key players in the market and so it is highly fragmented with many competitors and competition from sister industries (e.g. sports equipment manufacturers) present as well. Moreover, the NHSX government unit was established in 2019 to enable the creation of an integrated data-driven ecosystem. This indicates that the regulatory environment will be favourable for our proposed solution.

Our Competitive Advantage

Easy Installation: Our USP is centred around the collection of vital signs in a non-clinical environment without requiring an additional medical device and the subsequent integration and transmission of this data.

Total Anonymity: Protecting the privacy of our users' data is at the heart of our business, acquired data are processed locally on users' devices. App storage is encrypted with industry-standard key for higher security.

Plan 2020

Go-To-Market Strategy: Our prototype is ready to be tested. The initial market entry would be targeted towards COVID patients whose disease progression is well-documented. Using the feedback from our early adopters, we will train and improve our interactive platform. Following this,

we will approach clinical trial units to seek clinical validation. Subsequently, we will be rolling out to healthcare organisations around the world.

Data management is key to audience targeting: One challenge with this project will be the scaling process which we plan to encounter through our Audience Targeting Strategies.

We will start with the individual target, including demographics, online behaviour, and spending patterns. We will decide whom to target based on data profiles, segments and other model-based targeting mechanisms with steps below:

1. Expand reach with Google's In-Market Audiences
2. Re-market with Google Ads
3. Facebook custom audiences and re-targeting
4. LinkedIn for keyword research
5. Prioritise SEO
6. Start tracking

This can be a new and amazing way of targeting our audiences. We are intrigued to see where audience targeting is going with those new technologies.

Get in touch



#CAMvsCOVID

APPROVED SUBMISSIONS

Mind Connect

Iqraa Haq^a, Shad Asinger^a, Rania Kolaghassi^b, Pavlos Nicolau^b, Marco Santopietro^b, Zhang Chen^c

^aImperial College London

^bUniversity of Kent

^cUniversity of Cambridge

Problem category	Time to implementation	Time to impact
Socialising & mental health	Medium-term (<6 months)	Medium-term

The Problem

Financial uncertainty, physical isolation from our social circle, worry for our loved ones and work-life frustrations are among our current anguish. One of the most unsettling effect of the pandemic is the worsening impact on our mental health. These will deteriorate rapidly in the face of poor access to timely and appropriate support. [1]

Communities have eagerly and rapidly mobilised to provide support amidst the pandemic. The NHS Volunteer Responder Scheme saw 750,000 sign-ups within a few days [2], and local volunteering initiatives saw medical students deployed to hospitals. However, many volunteering initiatives failed to utilise and coordinate volunteers. [3]

Therefore, there is an urgent need to virtualise volunteering efforts. We provide emotional support and companionship to ease the burden of mental health in the community through MindConnect.

The Solution: MindConnect



MindConnect is a mobile application (available on iOS and Android) developed by a team of medical students, engineers and computer scientists.

In short, we provide a platform to connect users to a trained volunteer for one-to-one Cognitive Behavioural Therapy (CBT) support. The trained volunteer would have an AI-powered algorithm analysing the texts from the user and then recommending suitable responses to the trained volunteer.

Unique Value Proposition

Feeling lonely during the pandemic? Connect, match and keep your mind healthy!

Research efforts have automated the field of CBT, with well-defined developed strategies and procedures codified and therefore automated into rigorous treatment programs. Computerised CBT is now able to administer the full course of a CBT treatment without the involvement of a therapist. [4]

However, everyone's mental health is unique, why shouldn't our support be?

We take advantage of the core elements of an AI-powered algorithm chatbot, which is its low cost, time savings benefit and accuracy, to provide an additional safety net, save time & effort on the volunteers' end, so that they can serve more users [5]. However, we use AI-powered algorithm only to advise the volunteer on how to react and the key talking points recommended. Chatbot interactions in retail sector have left much to be desired for, inviting criticisms that it is "too human" or "not human enough". [6] When chatbots are applied to the mental health sector, it is essential for a human element to be present as chatbots lack the empathy that gives rise to the "human touch" in therapy sessions. Therefore, the volunteers would be able to turn the recommendations from the algorithm into personalised responses according to what they understand of the user and how best to communicate with the user on a deeper emotional level.

Our app is targeted to users with mild symptoms who seek an affordable counselling option. Users with severe symptoms that warrant clinical diagnosis will be signposted to professional medical services.

Value Delivery: Key Offerings

1. One-to-one personalised support

A trained volunteer with DBS (Disclosure and Barring Service) certification will be assigned to the user using recorded preferences. Users can request to talk to a different volunteer and can edit their preferences whenever they want.

2. Mood Tracker

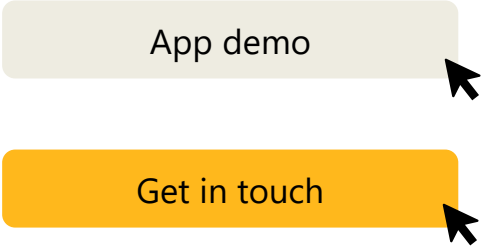
Feelings and mood can be logged day-to-day using interactive evidence based 12-item W-BQ12 Assessment Questionnaire. [7] [8] Notifications will be sent to inform volunteers and users of progress and enable timely support [9], after analysing the data from questionnaire, AI and volunteer responses. The 3 sources of data also serve as a barrier of defence each to detecting severe cases that require medical attention.

The Future of MindConnect

Long-term effects of the pandemic on psychological well-being are yet to be realised, but will be profound. Therefore, we expect demand for our solution to increase. Starting from the hackathon, we have developed an MVP and conducted alpha testing through implementation in app store.

MindConnect will then undergo the second phase of development following the “build-measure-learn” lean business approach. [10] [11]

Phases	1 Beta Testing (2-4 weeks)	2 Expansion (4-8 weeks)	3 Post COVID-19
Target	University, students as lead users	Expand to public	Transition to a freemium model (e.g. first session free, continued sessions at added fee/cost based on time. Creating paid therapist-user channels or adding premium services.)
Volunteer recruitment	Imperial College Medical School, targeting 10 medical students with virtual training course	UK-based medical schools/universities, targeting 50-100 volunteers	Testing beyond medical students. Implement brief but accredited virtual training courses.
Users	From wider college community, targeting 20-50 users. (feedback via forms/questionnaires and focus groups)	Wider public communities via soft marketing channels such as social media.	
Partnership		Mental health charity and helpline (e.g. Mind, Samaritans etc.).	Explore B2B opportunities to help NHS Community Mental Health Teams to monitor patients (e.g. IAPT). Potential integration with professional therapists.



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OAISAV

Harish Sasikumar^{a,b}, Muhammad Sajeer P^{a,b}, Chinmaya KV^{a,b}, VS Nihal^{a,b}, Arjuna Sathiaseelan^{a,b}, Sarbani Banerjee^{a,b}, Satyajit Mitra^{a,b}, Abhilash Thendiyammal^{a,b}, Siddharth Ghosh^{a,b}

^aOpen Academic Research UK CIC, Cambridge

^bOpen Academic Research Council, Hyderabad, Telangana, India

Problem category	Time to implementation	Time to impact
Information dissemination	Medium-term (<6 months)	Long-term

Open Automated Interpretation of Social Awareness Videos (OAISAV)

During this international public health emergency, beside developing important healthcare technologies, we should put our attention to the low and middle-income countries (LMIC) where we trade heavily and where manual scavenging is still practised. Unfortunately, the world has completely ignored manual scavengers - those who are fundamental to keeping society clean in many LMICs. We would like to use this hackathon as a unique opportunity to shine light into the lives of manual scavengers, why they are fundamental to our society and why they need to be looked after during COVID-19. We hope our project would have a long-lasting positive impact on these amazing selfless humans.

Manual scavenging involves people cleaning clogged sewage and human excreta. Prohibition of Employment as Manual Scavengers and their Rehabilitation Act of India, 2013, forbids the employment of any person for the task of manual scavenging by any agency or individual. However, many LMIC societies which are mainly guided by the caste system have thrust this practice on people from specific low caste communities. India is home to 5 million sanitation workers (Dalberg Advisors 2017). The work that they engage in is of utmost importance as without them the cities will come to a standstill. Due to insufficient access to information, manual scavengers are prone to face the debilitating effects of the virus.

Access to information is also very challenging for the manual scavengers as they are less literate and are from poor socioeconomic backgrounds. The social stratification along with other cultural barriers also impedes their access to information. Given the nature of the work that the manual scavengers engage in, it is important that an education and information hub is created for easy access of content in vernacular languages sensitising about COVID-19 and remote training for prevention and control of the virus can be imparted to them. So we need a solution that can act as an information hub

acting in a bidirectional way. We need to hear from them about their needs and address those needs with proper information shared in the information hub. The general educational contents for low-income communities could be obtained from Gram Marg and Spoken Tutorial projects at the Indian Institute of Technology, Bombay whereas specific contents for manual scavengers would be custom made by us or other interested parties.

One of the biggest problems in developing an information hub for audio-visuals is the language barrier within India. We have at least 22 languages, so dubbing in all the languages is not feasible. In this proposal we introduce a new solution to address this problem and by converting the audios by a software application, which we call Open-Automated-Interpretation-of-Social-Awareness-Videos (OASAV). We demonstrate conversion of audios into 5 different languages. We have received encouraging responses agreeing that the translated video was functionally equivalent to the initial version. The nuances specific to each language was a bottleneck, however we think we will be able to solve it by upgrading our current software application. The solution also has a wider scope, internationally as most of the awareness contents are in English and in a few other languages.

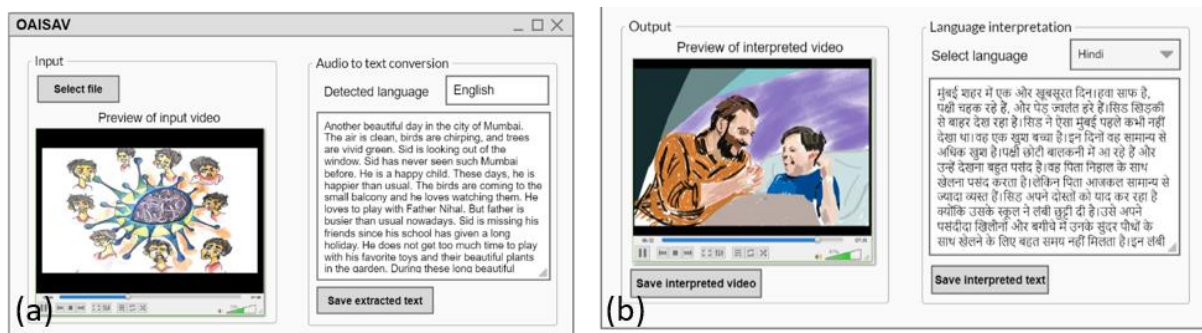


Figure 1: The input and the output sections of the proposed solution. (a) At the input section, a video (with no textual message in the visuals) is given. The audio is then extracted and transcribed. (b) At the output section, text is interpreted into the vernacular language & undergoes minor manual corrections. Then the interpreted audio is generated and is then recombined with the initial video.

For the distribution of our contents to the targeted community, we would use GAIUS Networks which enables a hyperlocal community-based app. COVID-19 and public health education for our focus communities will be distributed by OASAV through the app. We will incentivise the users (through data-packs and smartphones or tablets) who would like to volunteer as peer-instructors from the communities to materialise our interest in open science and advanced education. This as well as for the continued improvement of OASAV requires revenue. We are looking into joint-venture contracts with interested parties like educational content generators by supplying them with value added services.

In addition to the broadcasts, the communities can also upload audio-visual contents for OASAV to communicate with us for the optimal need of the community. Recently, we have set up a hyperlocal community for manual scavengers in GAIUS. The content we are creating is designed in such a way

to let people with poor literacy understand it without any helping aids. We are focusing on nurturing curiosity, which is the prime motto of our team. Curiosity can be driven in a newborn to an adult which can be accelerated with observation. That's what we are providing and letting them binge up. The barrier created due to the lack of reading ability and writing capability will be overcome by the visual and audio aided learning, especially in the vernacular language system.

Get in touch



Sugarwise: Nourish Britain

Rend Platings^{a,c}, Luiz Rosas^{b,c}, Michael Benson^d, Harry Yeo^c, Suzanna Abraham^c, Vinicius Ferreira^{c,e}, Dr Giles Yeo^f, Rory Cragg^c, Valerie Holt^c, Rasik Kotecha^c

^aSt Catherine's College, University of Cambridge

^bJudge Business School, University of Cambridge

^cSugarwise

^dSheffield Hallam University

^eCalifornia Institute of Technology

^fMetabolic Research Unit, University of Cambridge

Problem category	Time to implementation	Time to impact
Help for people at risk	Short-term	Medium-term

Problem & Mission

Almost a fifth of UK households have children going hungry, a number that has doubled since lockdown began, as millions of already vulnerable families, now battling a loss of income, struggle to afford food. Compounding the problem, packages of food that are getting through, from charities, food banks or the government are often lower in nutritional value. We know that being under-privileged and having a poor diet increases the chances of having underlying health conditions, which in turn leads to poorer outcomes if and when infected by COVID19. Many who desperately need it are unable to access nutritious food or contact free deliveries or both.

Our mission is to ensure that everyone has convenient and contact free access to nutritious food, which is vital to slow the spread of the virus and support health.

Challenges

(1) Scale of families experiencing hardship and need for immediate response

621,000 children had been accessing free breakfasts, and these were living in such poverty before the pandemic it was established they had to be fed breakfast by the school as they were spending their entire mornings just waiting to eat. Now only 136,000 of these children are being provided with an alternative. Almost a third of families on benefits that entitle them to free school meals are not getting any substitute, leaving more than half a million children without any food provision.

(2) Poor nutritional quality in food provision requires investment to solve

Analysis of food banks show parcels provide energy, carbohydrate and sugar significantly exceeding the Daily Recommended Values (DRVs) with sugar at 643% of the DRV, and 71.5% total energy as carbohydrate. Vitamin D and retinol content has also been found to be significantly lower than recommended, meeting on average only 26% of needs. It is a challenge to deliver good nutritional quality at a reasonable price and we are working to achieve this collaboration with producers e.g., Mornflake have pledged to donate 1000 units of oats and Diablo 1000 packets of sugar free biscuits.

(3) Logistical challenges in providing food deliveries

People are struggling to access contact free food deliveries even with the money to buy food, we would like to logistically be able to source a solution for our own boxes. However, our minimum viable product (MVP) consists of food boxes with provision and delivery outsourced. Through commissions we earn on the sales of these boxes going to our charity we can create a more sustainable mechanism ensuring that we can feed more families in need.

Solution

We have developed a platform that gives people access to contact free deliveries of nutritious food while supporting their favorite food producers and ensuring the most vulnerable during the coronavirus lockdown are provided convenient and healthy foods. It has three functions:

1. Help those who don't have access to food by delivering food boxes directly to their homes
2. Create new opportunities for food producers, farmers and wholesalers
3. Support those in need by ensuring everyone has access to good nutrition.

We deliver this using a website alongside an app. The website and the app will enable people to strengthen their connection with food producers whose ethical position in terms of nutritious food is one they can get behind. Both provide three categories of food provision with an option for recurring box deliveries: (1) prepared meals, (2) fresh foods, and (3) treat foods such as low sugar jam, chocolate spread and snacks.

User 1: Individuals/Families

People who do not have easy contact free access to nutritious food. A typical user likes the idea of receiving deliveries directly to their homes while supporting charity and their favorite food producers.

User 2: Food producers

Small and medium sized businesses providing wholesome and nutritious food are under strain as they are being set aside by retailers who are focusing on larger brands who can reliably deliver at volume or are not in control of their logistics. They may have also lost their export trade.

User 3: Organizations supporting the most vulnerable

Food banks, charities, councils and schools who are looking for alternatives to typical jams and biscuits incorporated into packages so that people they serve who need to or want to limit their sugar intake are given a convenient means of doing so.

How you can support this project

As online engagement is catalysed by the pandemic this provides an opportunity to drive food quality improvement especially among the vulnerable. Our team has impacted on the diets of over half a million UK children reducing their sugar intake at schools so we are confident we can do this with your help. Our background developing labels that influence food choice, links with food producers and abilities to obtain media coverage are resources we will draw on.

Get in touch 

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Voiceback

Vanessa Bieg^a, Ondřej Kácha^a, Elizaveta Karmannaya^a, Kayla Pincus^a, Anandita Sabherwal^a, Josefína Weinerová^a

^aDepartment of Psychology, University of Cambridge

Problem category	Time to implementation	Time to impact
Data sharing/tracking	Short-term	Short-term

There has long existed a communication gap between government and citizens, amplified now by Covid-19. It results in the government not knowing if citizens understand their rapidly changing Coronavirus policies, and citizens feeling confused, frustrated and disengaged from the decision-making process. For example, confused about policy guidelines, a citizen asked, “Can I get two bits of daily exercise if one of them is to buy groceries?” [1]. Since the government is unaware of such concerns, it is unable to clarify them. This increases the rate of non-compliance, and depletes government resources. For instance, several police officers had to be urgently deployed in Kent to break up a funeral gathering of 150 residents. Such non-compliance subsequently increases the rate of infection spread, requiring greater government healthcare resources.

Solution



We developed VoiceBack – a behavioural science-backed platform, which gives individuals a voice on Coronavirus-related policies, and provides useful feedback to the government. Unlike polling agencies that seek individuals’ opinions on broad issues, VoiceBack is a **fast and streamlined** way for individuals to **share opinions** on *specific and frequently-changing* policies.

VoiceBack’s **automated data collection and analysis** make it convenient to operate with minimal human intervention. By hosting surveys on Qualtrics (security statement: see [2]), we **mitigate risks to user data**, even in case of a security breach of our website. By inhibiting several responses from a single IP-address, we also **mitigate the risks** of the platform being **hijacked by special interest groups**.

Having developed a technologically-sound prototype, we will now **establish connections** with pre-existing organisations such as Behavioural Insights Team [3], or Government Communication Service [4], which consult the government on policy. Such a collaboration will allow us to be a **non-governmental (unbiased) entity**, while gaining credibility among government and citizens. **Government officials** and **behavioural scientists** have expressed keen interest in VoiceBack [5]. It

is also likely to appeal to a **high volume of users**, especially amidst social distancing, which increases confusion about policies, but limits the channels of communication with the government.

Our business plan is to remain a **not-for-profit venture** so users can be assured that their data will not be sold. Operating VoiceBack will require £65,240 per year (£60,000 for 4 part-time staff, £5,240 for maintaining website and Qualtrics) [6, 7]. We hope to generate most of this through **public grants** such as the civic innovation grant from the Social Tech trust (£40,000) [8] and Cambridge’s Public Engagement Starter Fund [9]. Additionally, we will independently **license** our technology to other countries and/or companies that seek feedback from their users.



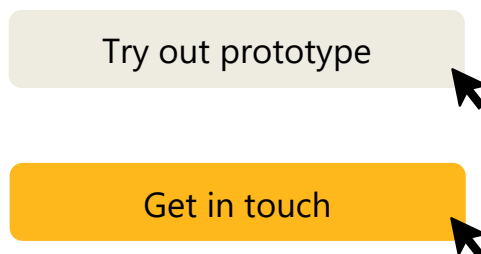
Impact

VoiceBack provides a **novel** mode of **instant 2-way communication** between citizens and the government. VoiceBack is designed to reach and engage people in all corners of society, ensuring the representativeness of our data. This will be achieved through our careful targeting of specific demographic groups, and by highlighting the social value that VoiceBack brings to the users. During data analysis, VoiceBack will also weigh the results by representativeness of the participants with respect to the demographic distribution in the entire population.

Our product can create immense **impact** by helping the government improve its **communication strategy** and incorporate public opinion into Covid-related policy making. Clear government communication will increase the **rate of compliance**, subsequently **reducing** rate of **infection spread**, and government **spending on healthcare**.

For citizens, VoiceBack will provide a **sense of purpose and clarity** and conserve **emotional resources** in a time when they might feel frustrated and disengaged from governance. After a few months of operation, we seek to conduct a randomised controlled trial to compare users and non-users of VoiceBack – we predict that VoiceBack users will express **greater satisfaction with the government**.

By seeking, analysing and communicating citizen feedback, VoiceBack will **strengthen democracy**, resulting in a smarter government and more engaged citizens.



To learn more about our platform, please visit the following links:

R-Shiny: <https://wreadminds.shinyapps.io/COVID-demo/>

Github: <https://github.com/Liza-Karmannaya/CamVsCovid-Hackathon/tree/master>

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Anoroc: CarerConnect

Zi Qi Kok^a, Jonathan Low^b, Sharsindra Pratheen^c, Chieh Lung Ng^d, Shu Hui Leow^a,
Dhinakaran Govindasamy^d, Bao Xiu Tan^e, Belinda Ding^f

^aUniversity of Cambridge, Medicine

^bUniversity of Warwick, Mathematics

^cMonash University, Computer Science

^dUniversity of Cambridge, Engineering

^eUniversity of Cambridge, Biophysics

^fUniversity of Cambridge, Clinical Neuroscience

Problem category	Time to implementation	Time to impact
Online socialising/mental health	Medium-term (<6 months)	Medium-term

Problem and Solution

COVID-19 has led to the cancellation or postponement of many non-essential healthcare services [1]. This has placed an increased financial, psychological and time burden on carers. Young carers aged 12-24 years old¹, already a marginalised group, have been especially hard hit. Anxiety is heightened, and loneliness and mental health issues are exacerbated by social distancing measures [2]. Furthermore, closure of care centres, schools and workplaces means caring has become full-time without respite, while pre-existing in-person support networks such as home visits, home carers or peer support groups are obliterated [3]. The Coronavirus Act 2020 also suspended statutory duties of local authorities to assess and support carers, yet additional institutional support measures and guidance have not been extended to young carers, leading to a lapse in support and centralised information provision [3, 4].

Young carers need, now more than ever, a peer support network, and a centralised information source [5, 6]. Pre-pandemic, no one-stop platform existed to address young carers' needs and provide guidance. We have created a website that provides a moderated peer-to-peer forum that crowdsources information, and one-on-one online mentorship opportunities with professionals (Figure 1). Self-help guides supplement this and include webinars. These will rapidly create an online

¹This age group encompasses young carers (aged under 18) and young adult carers (aged 18-24). While this is an important distinction for policy and legal purposes, the CarerConnect team identified a unique and common set of needs in carers aged 12-24 surrounding the transition from adolescence to adulthood, arising from disadvantages faced by carers but that is not bound by terminology constraints [4]. In this report, carers aged 12-24 are referred to as "young carers" for brevity.

young carer community, allowing crowd-sourcing of solutions to COVID-19 challenges uniquely faced by young carers, as well as provide guidance about changes to grants and services due to COVID-19, mental health advice, and continued access to educational or career development opportunities. The platform will remain relevant beyond the pandemic, continuing to serve these functions, and expanding to provide a knowledge base for caring, personalised career and educational guidance, and updated information on grants and benefits. Ultimately, the heart of our product is a platform where young carers can share knowledge and access specific collated information, through crowd-sourcing or professional telecommunication, as well as build a social support network.

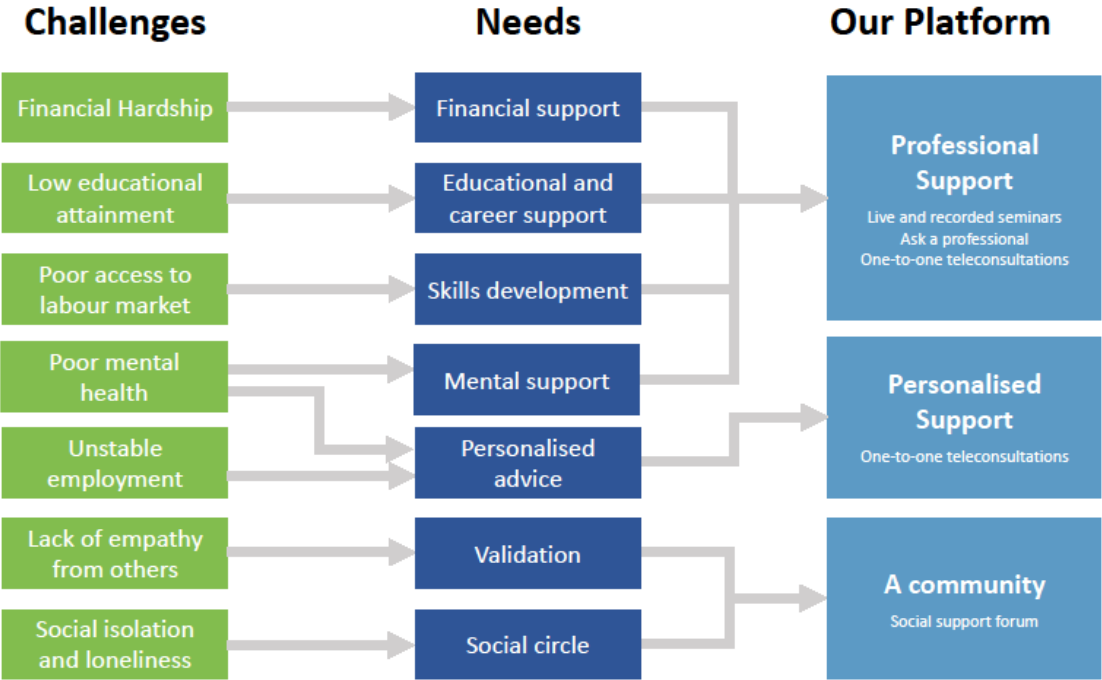


Figure 2: Mapping problems faced by young carers to solutions

Prototype and Product

The prototype is a homepage with links to a collection of widgets that demonstrates the function of each feature. The final product is a website with three main features - a community forum, a network of professional volunteers who are willing to provide guidance, and self-help resources. This platform hence centralizes a community for young carers, easy access to mentorship for professional and personal development via moderated local chat rooms, and self-help resources including webinars, written and animated guides and affiliated e-learning courses. Both user and advertising content will be moderated to address safeguarding concerns.

Two real lead user testimonials from testing the prototype are as below.

“Really a good idea, I don’t have any communication with other young carers. It was hard to find other people’s perspectives on this front, to see how other carers dealt with it, in terms of finding new technology or help online.”

“Apart from seeing some other carers, I don’t have any clue about other carers and what they can use. Facebook and LinkedIn don’t really do it.”

Business Model

CarerConnect is a social enterprise, with 4 sources of funding: government funding, private donations, affiliate marketing, and advertisement-based income. We have further classified it into two subgroups. The first subgroup is a combination of government based grants [7] and private donations, such as crowdfunding activities and social enterprise investment funds from large organisations e.g. Lloyds bank [8]. These will cover initial startup costs including website set-up, marketing and permanent material creation. Once the platform is established, affiliate marketing for premium content and advertising-based income would enable CarerConnect to be self-sustaining.

There are 800,000 carers aged 12-24², and an estimated 58% of all young adults access online learning materials [10], giving a potential market of 464,000 users. A certification course related to care is around £40 [13]. Assuming 5% of the users register for one affiliate certification course offering premium content per year, with a 10% referral commission (£4), this would yield around £92,800/year. Furthermore, online advertisement can generate an estimated £600/month [11]. Initial users will be recruited through charity partnerships, referrals from healthcare and social services, and social media marketing.

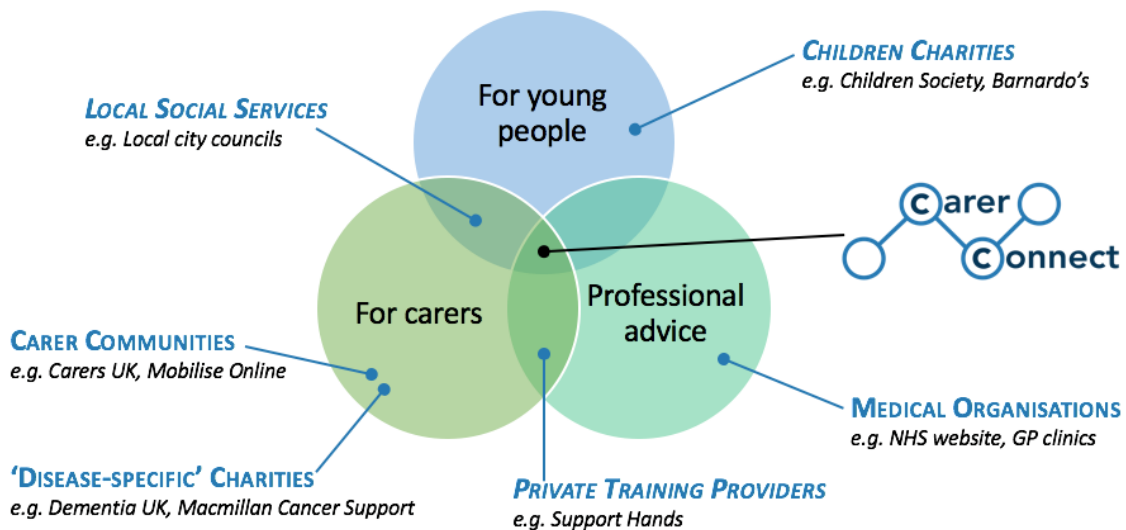


Figure 3: Anticipated competition for CarerConnect

²According to the 2011 Census, there are 254,332 young adult carers aged 18-24, and 155,785 young carers aged 10-18 [14]. However, academics and other experts acknowledge that this is likely to be an underestimate of the number of young carers given the reliance on parental and self-reporting for data collection [15, 16, 17]. Organisations working with carers give a higher estimate of 800,000 secondary school-aged carers [9]. The CarerConnect team has agreed on a conservative estimate of 800,000 carers aged 12-24 for the purpose of estimating market size.

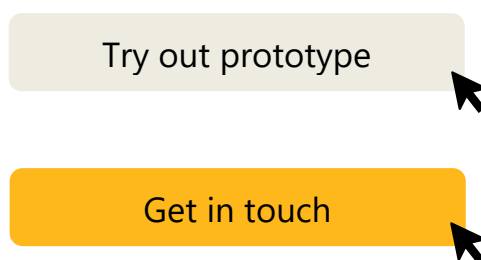
Impact Analysis

Young carers' projects such as this are cost-effective. It is estimated that every pound invested in a young carers' project saves the wider society £6.72 [12]. With the cost of intervention being £2500/person/year [12], by reaching just 200 young carers, the society would have saved over £2.8 million/year. The widespread use of this platform will further increase the impact of this intervention on the lives of young carers.

We would also assess impact on individual users by measuring user traffic and interactions with the platform. For instance, platform growth and forum activity are indicators of the size and strength of the community. Qualitative feedback can be collected actively through surveys and feedback, and user stories can be collected through social media engagement with users, external organizations, local communities and the public.

Scaling Strategy

The support system created for young carers in the UK can be extended to international young carer groups as the issues faced by young carers, such as time and emotional burdens, are universal regardless of country boundary. Beyond the young carers community, the same peer-to-peer forum can be expanded for sharing of other experiences such as bereavement and emotional trauma.



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PerfeXia: EpiData

Pratyay Poddar^{a,b}, David Singleton^a, Manuela Zimmermann^b, Veronika Koshkina^c, Fayez Moidu^d, Nadia Gracias^a

^aperfeXia Health Technologies Ltd

^bUniversity of Cambridge

^cAccenture

^dJudge Business School, University of Cambridge

Problem category	Time to implementation	Time to impact
Socialising and mental health	Short-term (<2 months)	Short-term

How to support the well-being needs of people in a shared crisis?

Mental health affects everyone, on a personal, social and economic level. Currently, our mental well-being is additionally challenged through the exceptional circumstances related to the COVID-19 pandemic. Therefore, suicide rates and suicide attempts are increasing, as are cases of domestic violence, alcohol abuse, stress and loneliness.

We understand that mental wellbeing can be influenced by many factors, including understanding of the COVID-19 crisis, physical wellbeing and general well-being. As such, here we provide an interactive digital platform that helps individuals understand their mental wellbeing within a global wellbeing context, its progression and how it compares to a relevant cohort. The application will function as a digital diary to monitor a set of key indicators for well-being, through a combination of evidence-based questionnaires, vital signs measured via a smartphone's various sensors (in collaboration with our in-house partner TeleHealthMonitor), and serious games. By partnering with (experimental) psychologists, our interface will be playful ensuring sustained interaction and resulting data quality. To comply with the highest data security standards, the data will be processed locally and converted into health indicator scores, which are the only parameters that will be shared with the platform and other users in an anonymised manner.

Market Analysis

Market Potential: Mental ill health is responsible for 72 million working days lost and costs £34.9 billion each year. Every year it costs business £1,300 per employee whose mental health needs are unsupported. 1 in 6 workers will experience depression, anxiety or problems relating to stress at any one time.

The OECD report shows the whole of Europe is struggling with the burden of mental ill-health, which affects an estimated 84 million people - one in six. The cost to the UK economy is in line with the average for Europe at 4% of GDP.

Market Need: 69% of UK line managers say that supporting employee wellbeing is a core skill. Only 13% have received mental health training. 35% of line managers reported a wish for basic training in common mental health conditions. There were 602,000 cases of work-related stress, depression or anxiety in 2018/19 in Great Britain and stress, depression or anxiety were responsible for 44% of all cases of work-related ill health and 54% of all working days lost due to health issues in GB.

Our USP

Comparative Analysis: To comply with the highest data security standards, the data will be processed locally and converted into anonymised health indicator scores, which are the only parameters that will be shared with the platform and fellow user-base. This will enable anonymised benchmarking, enhancing understanding of one's own mental health and empowering the individual to make positive change within the new COVID-19 landscape we found ourselves within.

Early Intervention: Benefits to the user are the possibility to monitor the progression of one's own mental wellbeing, measured in terms of scientifically motivated scores. This will raise awareness for one's own mental health. Furthermore, we will offer anonymised comparative statistics which will help an individual to deduce how he or she compares to others of the same cohort, to help building trust in one-self in these difficult times.

Plan 2020

We aim to initially collaborate with charities such as GoodSAM, whose volunteers are especially challenged by the pandemic. While the current global health crisis makes empowering and supporting individuals to take care of their mental well-being particularly important, mental health will also remain an important social and economic aspect post-COV- ID. We will use the crisis to develop and further enhance our platform's ability to function as an early indicator and intervention system to pre- vent undesired changes in an individual's mental well-being. Because mental health costs are enormous [£1,600/employee/year], it is in an employer's and (health) insurance companies' best interest to interfere at an early stage. This is a currently unpopulated market for which we will provide a product, demonstrated, tested and improved through our use case, the COVID-19 pandemic.

Other opportunities: This works seamlessly with perfeXia's other product: TeleHealthMonitor, which will widen access to health services, by integrating key vital signs (heart rate, respiration rate and oxygen saturations) to present a holistic image of user's health. Our GDPR compliant app will utilise Edge AI and ML (i.e. all user data will be processed locally on users' devices) to extract health markers from users' video.

Get in touch 

Impact, growth and scalability

Annual food waste from households in the UK amounts to £13.8bn in value [5]. We estimate implementing this system nationally in the UK could result in £3m savings annually.

Our revenue sources include advertisements, pay-what-you-can model, freemium plans for businesses and donations. Early costs include application development and growing the user base. Capital assets are not required, reducing initial cost. Advertising revenue will primarily be used to cover subsequent running costs.

Globally, \$1.3 billion tons of food goes to waste annually [6]. Introducing our application beyond the UK will help alleviate global food shortage even after the pandemic.

Unique proposition

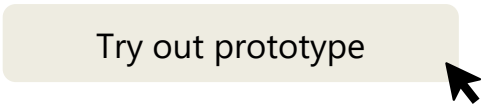
Our solution allows:

- Beneficiaries to select food based on their needs/preferences
- Ease of access for both donors and beneficiaries
- Dignified access to donated food [7]
- Focusing solely on people in need
- Targeting deprived regions by machine learning algorithms

Key strategies

- Storage/collecting points - collaborate with food banks and local public organisations to secure physical space.
- Minimising exploitation - set up terms and conditions and authentication for people in need and limiting purchase amounts.
- Demand disparities - design A.I. to predict regional disparities to adjust delivery specifications
- Public trust - partner with credible organisations including local governments.
- Delivery volunteers - Beneficiaries can double as a delivery person and receive food vouchers as an incentive.

Try out prototype



Get in touch



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Gaius

Prof. Lakshminarayanan Subramanian^a, Dr. Arjuna Sathiaseelan^a, Arko Chatterjee^a,
Mukund Lal^a, Gopan Govindan^a, Shubayan Saha^a

^aGAIUS Networks INC

Problem category	Time to implementation	Time to impact
Information dissemination	Short-term	Long-term

COVID-19 is having an unprecedented impact on healthcare services and the overall global economy. During such a crisis, the Internet plays a vital role becoming an essential utility. Access to potentially life-saving information has the potential to positively impact millions of users. The Web unfortunately is littered with unverified information-such information having the potential to cause loss of lives, content being not relevant to the digitally distant, and the challenge to access essential services as well as meaningful interactions within the community without third party manipulation.

The need for content that is relevant for local communities is becoming increasingly clear in the UK context. Unfortunately, local groups on conventional platforms have proved to be breeding grounds for fake news. While platforms like WhatsApp can play an important role in enabling communities to help themselves, in contexts such as health-related information, verifiability of content is essential, and has safety implications.

Through the CamvsCovid hackathon, we intend to solve the above-mentioned challenges. We will demonstrate using a pilot demonstration, the notion of decentralised hyperlocal community Webs each focussed on a specific interest group (e.g. COVID-19 information) fully owned and managed by the community. The pilot will utilise the GAIUS mobile platform (<https://play.google.com/store/apps/details?id=com.gaius.gaiusapp>) that encompasses several innovative technologies (e.g. decentralised content ad exchange engine, content curation bots etc) to power a highly localised Web ecosystem for the Cambridgeshire community. The platform can be further used to create more such community Web sub-ecosystems. These decentralised hyperlocal community Webs ensure that (i) only verified vital information is published and disseminated within the community (ii) only related content and ads are published (iii) all data is fully owned and governed by the community and not a third party. Communities/organisations license the platform from GAIUS and have full ownership of the data and the ecosystem.

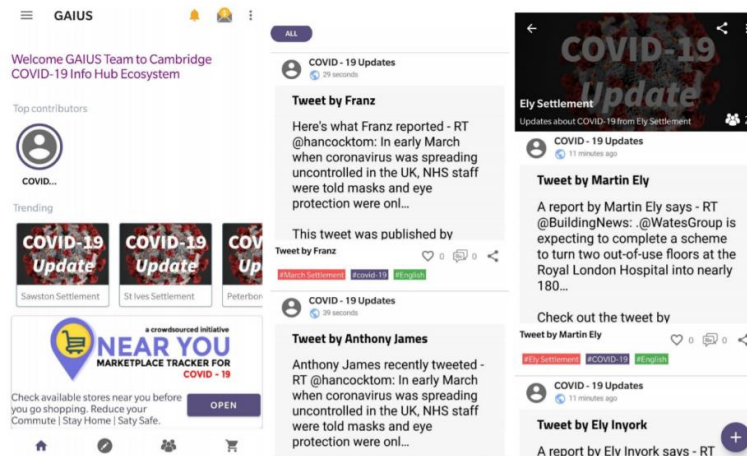
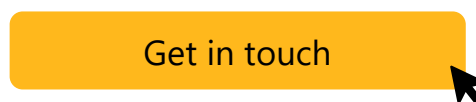


Figure 5: Cambridge COVID-19 Info Hub Ecosystem Screenshots

The platform also has the ability to empower communities to create, access and govern locally relevant content, have meaningful online community interactions and support local business promotions. Through these ecosystems, users in a community can create, interact with relevant content that has been curated and verified. Businesses in a community can promote their product offerings and services specific to the particular web ecosystem (e.g. health care related) within their own community. Organisations working with these communities can also disseminate critical and potentially life-saving verified healthcare information to these communities.

Such community Web ecosystems can bring the community closer together through enabling meaningful interactions and mutual support as well as enable hyperlocal economic regeneration by enabling community users (consumers) to support local businesses in their communities. Every ecosystem is fully administered by administrators from the community. As part of the ecosystem administration and governing process, there is a zero-trolling policy. Each ecosystem administrator set their own rules.

Decentralised community centric hyperlocal Webs powered by GAIUS has the capability to demonstrate impact to the wider digital economy enabling much wider, inclusive and meaningful participation, more community driven use cases and hyperlocal business models (TAM of ~\$7Trillion).



Cambridge Judge Business School
University of Cambridge
Trumpington Street
Cambridge
CB2 1AG
United Kingdom

T +44(0)1223 339700

enquiries@jbs.cam.ac.uk

www.jbs.cam.ac.uk

