Cambridge Climate & Sustainability Forum 2021:

GREEN FAIR

What?

The Green Fair is a fair that showcases initiatives in Cambridge that has sustainability related targets from diet to circular economy, from biodiversity to sustainable policy.

Aim?

This event aims to introduce these initiatives to Cambridge students and citizens so that they could eventually volunteer or be member of these initiatives. It is also a platform for the initiatives to meet, network and collaborate with each other. People outside of Cambridge can also learn from these initiatives and possibly make something similar in their place.

Where?

This event will be held online via Zoom. The representatives of each initiative will be on separate breakout rooms; participants can freely jump from one breakout room to the other.

When?

This event will be held on June 5th at 11.30 after the panel discussions of the CCSF are done and it will be held for 1 hour, before having the closing speech of the CCSF.

CCSF. cambridge hub THE CAMBRIDGE *green* CHALLENGE CAM ZERO$_2$

Cambridge Climate & Sustainability Forum 2021:

GREEN FAIR

Come along to learn more about some of the following amazing initiatives that will be in attendance on June 5th at 11.30!

CAMBRIDGE food hub

Cambridge Edible Garden

UNIVERSITY OF CAMBRIDGE
Equipment Sharing Database

RE.USE
THE GREEN WAY FOR TAKEWAY

CAMBRIDGE DOUGHNUT

Wolfson College Sustainability & Conservation Research Hub

neutreeno

open-seneca
air quality sensing powered by citizen science

Cambridge Climate Society

Cambridge Carbon Literacy
hub CAMBRIDGE ZERO

CAMBRIDGE organic

CUEN
CAMBRIDGE UNIVERSITY ENERGY NETWORK

The Urth Student

CCSF

For more information, please visit
http://www.cambridgeclimateforum.org

CAMBRIDGE food hub

Fair | Progressive | Sustainable

We believe our food system should benefit all people and the planet, and we think acting locally helps to do this.

At the Cambridge Food Hub, we:

- Support small local producers, independent retailers, and caterers by facilitating direct trade between producers and buyers
- Work with organisations such as Cambridge Sustainable Food to help promote equitable access to good quality food
- Promote circular supply chains through schemes such as our Green Coffee Shop Scheme

GREEN COFFEE SHOP SCHEME

By creating a vibrant local food system we aim to: ensure local people are healthy and happy; support small businesses; reduce food waste; and lower the environmental impact that comes with transporting food long distances.

Check out our website and let us know your thoughts on how we can create a better food system by emailing us at info@cambridgefoodhub.org or messaging us on social media.

Follow us

w: cambridgefoodhub.org

@camfoodhub

/cambridgefoodhub

@cambridgefoodhub

Cambridge Carbon Literacy Training

What?

A free-to-all educational programme at the university

Aims to educate and **empower** participants to take what they have learnt and **take positive climate action**

How?

5 self-study modules

2 Zoom webinars

Group discussions

Pledges to take individual and group action

The Science of Climate Change

Carbon Footprints

Sustainability in Cambridge

Communicating the Climate Crisis

Taking Action

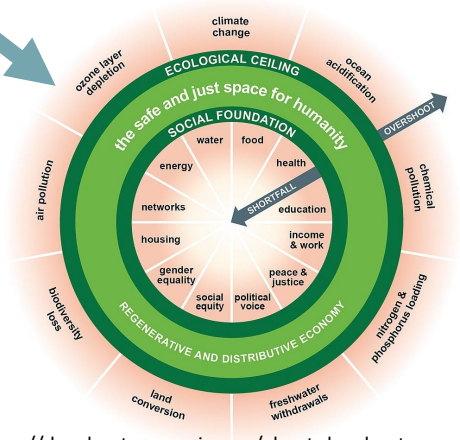
f: https://www.facebook.com/cambridgeenvironmentaleducation

w: https://www.cambridgehub.org/activities/carbon-literacy

What is Doughnut Economics?

Doughnut Economics explores the mindset, and ways of thinking, that allows humanity to thrive in the 21st Century.

The doughnut represents a space that is both ecologically and socially just. This space lies between two boundaries: a social foundation, to ensure that no one is left falling short on life's essentials, and an ecological ceiling, to ensure that humanity does not collectively overshoot the planetary boundaries that protect Earth's life-supporting systems.



https://doughnuteconomics.org/about-doughnut-economics

We want to create a series of tools that will allow different users to measure the progress of Cambridge, and projects in the city, towards the ecologically and socially just space inside the doughnut.

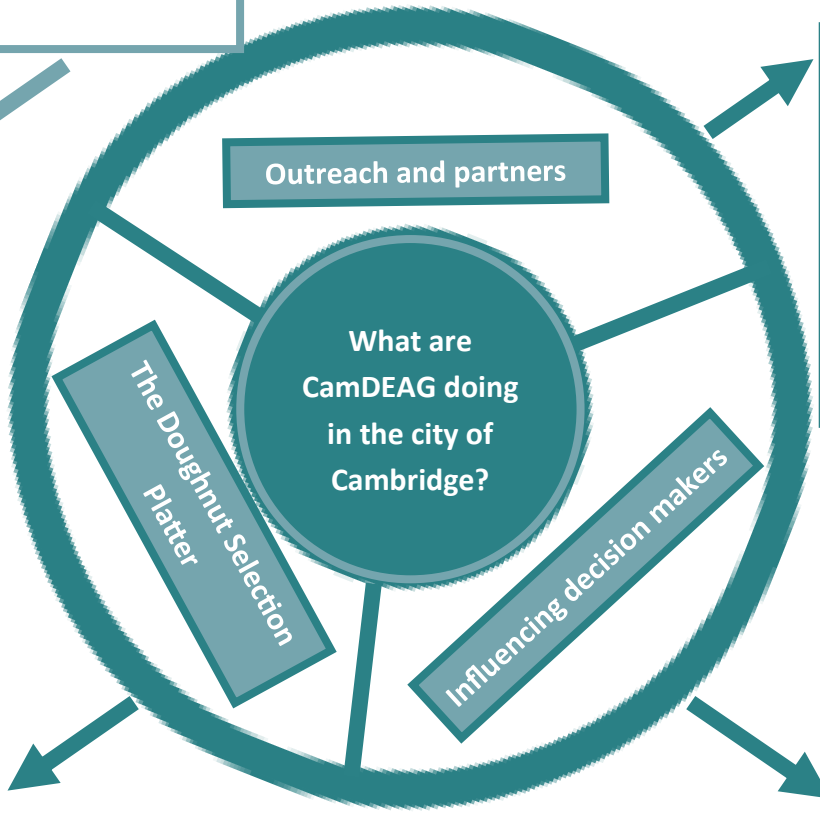
The data for these tools is being collected from interviews, workshops, and data provided by the council.

CAMBRIDGE DOUGHNUT

@CamDoughnut

CambridgeDoughnut.org.uk

- Cambridge Doughnut Economics Action Group (CamDEAG) are a community group in Cambridge who are planning the Cambridge Doughnut Project.
- We seek to promote an economy based on doughnut principles in Cambridge.
- We are building relationships with local government and other key organisations to help deliver this vision for Cambridge as a more just and environmentally sustainable city.



We are reaching out to other local organisations and initiatives, to see how they map onto the doughnut.
We are also reaching out to local communities to find out the issues that are important to local residents.
Do you think your organisation or project works towards the space inside the doughnut? Get in touch!

We are working with Cambridge City Council to create the tools for the Doughnut Selection Platter.

We also reached out to local candidates ahead of the local elections to gauge their commitment to a green recovery and to hold them to account. Find their responses on our website.

RE.USE
THE GREEN WAY FOR TAKEWAY

THERE IS NO FUTURE IN SINGLE-USE

We are the UK's first environmental Start-up to implement a digital returnable packaging system for food containers used in takeaway. RE.USE represents an environmentally friendly, cost-efficient, safe alternative to using single-use containers for takeaway meals.

Our system aims to:

- Eliminate the use of disposable containers in the takeaway & food delivery market
- Save in waste stream hauling fees, frequent purchasing, and transportation of disposable containers
- Prevent millions of single-use containers from ending up in the natural environment and the need for virgin materials
- Reduce environmental impacts in the sector

Join the RE.USE Movement!

iRE.USE, do you?

Now trialing in Darwin and Girton Colleges

www.reuse2go.co.uk

@ reuse2go

hello@reuse2go.co.uk

Reduce. Reuse. Recycle.

Easy. Practical. Green.

The Equipment Sharing Database

Over 16,000 people have accessed the Cambridge Equipment Database

Have you?

Are you a student or member of staff with a project proposal?
Are you seeking funding, further expertise, or training on equipment?
Where do you go if you require replacement equipment at short notice?

What does the database do?

Helps researchers find equipment and facilities available for sharing
Encourages internal, national, and international collaboration
Increases the exposure of facilities that can be used to recover equipment costs
Highlights a commitment to share equipment - beneficial when writing grant applications
Helps toward waste reduction, reduced consumption, recycling, and carbon profiling

How can I learn more?

Log on **http://www.equipment.admin.cam.ac.uk**

Contact **equipmentsharing@admin.cam.ac.uk**

Follow **@cam_equip** for news and funding opportunities

Visit the public sharing platform **https://www.equipment-sharing.cam.ac.uk/home**

UNIVERSITY OF CAMBRIDGE

Cambridge Climate Society

Launching Michaelmas 2021 - now recruiting first committee

cambridgeclimatesociety.com

Dedicated to everything climate, CCS will host talks, workshops, events and socials – from big name external speakers and niche new research, to fostering new collaborations and helping people find climate careers across all industries.

Mission

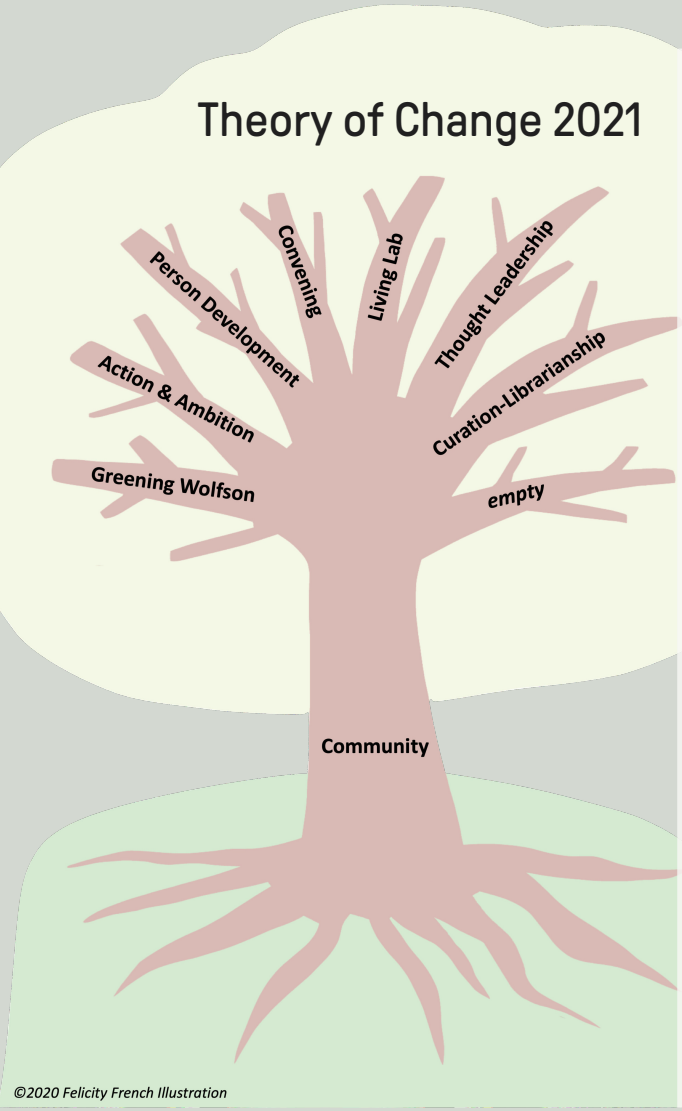
- To **connect** students, as well as researchers and academics from the entire University
- To inspire and **excite** people, with talks and events that promote and catalyse new ideas
- To provide **resource**s, people, and a platform for any initiative related to climate

Committee

CCS has just opened applications for its first committee! If you would like to be involved with the creation of something VERY EXCITING, check out the committee application info here.

Destruction of the natural world is the international problem of our times; a truly interdisciplinary challenge.
We seek to nurture a community of ambition, leadership and action.

Theory of Change 2021



Wolfson College Sustainability & Conservation Research Hub

Major projects underway:
- Wolfson S&C Stories
- Wolfson as a Living Lab
- Earthshot submission
- Admin Development
- ASEAN-Hub collaboration
- Award, Prizes, Bursaries

Wolfson Research Event 28 - 30 April

S&C Hub Anniversary Week 5 - 11 July

COP26 Summit 1 - 12 Nov

Impact
Outcomes
Outputs
Activities
Inputs

Curation-Librarianship (E)
- Wolfson S&C Stories (posters) — E
- Wolfson S&C Stories (webpages) — E
- Wants/Offer list — E
- Wolfson S&C Stories (booklet) — E

Person Development (C)
- Collab: How to be more interdisciplinary confident & friendly — C
- S&C-related modules available — C

Action & Ambition (D)
- Discussion: Kickstarting a Green 2021 @ Wolfson — D
- workshop: Beyond Net-Zero: what does a restorative College look like? — D
- S&C Academic Project Support (Living Lab) — D
- S&C Hub 10 year timeplan — D

Thought Leadership (B)
- Fellows symposium: Pathway to a sustainable future: Wolfson Who's who — B
- S&C Hub COP-26 delegation — B

Community (A)
- *Hub meet* — Last Friday each month: 26 Feb, 26 March, 30 April, 28 May, 25 June, 30 July, 27 August, 24 Sept, 29 Oct, 26 Nov — A
- S&C Hub End-of-Year social — A
- symposium: Structuring the Cambridge S&C platform — A
- event: Climate Anxiety — A

Living Lab (G)
- Living Lab Green Impact submission — G
- Living Lab Green Impact submission — G

Convening (F)
- Proactive Members to propose a governance system — F
- 18 - 31 Oct: COP26 at Wolfson, 18-24 Events Week, 25-31 Model COP26 — F

external impacts

Dec 2020 | Jan 2021 | February | March | April | May | June | July | August | September | October | November | Dec 2021

Milestone (April) · Academic year concludes (June) · Milestone (July) · Academic year begins (October) · Milestone (November)

We hope to appropriately equip the future 'green' decision makers and thought leaders across disciplines and industries for the betterment of the natural world and global society.

http://www.wolfson.cam.ac.uk/sc-hub

Wolfson College Sustainability & Conservation Research Hub

Cambridge University Energy Network presents:

Pathway towards a Net-zero Economy: Challenges and Opportunities

Join us on
June 8-10, 2021

Navigating decarbonization pathways – Jun 8, 2021
- *18:00 – 19:30 – Look ahead: Pathways for 'hard to abate' sectors*
- *19:45 - 21:00 – The wind energy revolution*

Financing a green economy - Jun 9, 2021
- *18:00 – 19:30 – Leveraging project finance to decarbonize the energy sector*
- *19:45 - 21:00 – Energy entrepreneurship: attracting venture funding*

Exploring technological advancements – Jun 10, 2021
- *18:00 – 19:30 – Smart & Distributed: The electricity grid of tomorrow*
- *19:45 - 21:00 – Unpacking energy storage options*

For more information visit www.cuen.org.uk

CUEN
Cambridge University Energy Network

Energy & Environment
Special Interest Group

UNIVERSITY OF CAMBRIDGE
Judge Business School

open-seneca: development of a low cost air quality sensor network and its implementation to measure PM2.5 powered by citizen science

Peter Pihlmann Pedersen[1,2], Lorena Gordillo Dagallier[1,2], Sebastian Horstmann[1,2], Charles Christensen[1,2], Christoph Franck[1,2], Raphaël Jacquat[1,2], Norberto Pablo Vidal[3], Saif Syed Ahmad[4], Nicole E. Weckman[5], Matias Acosta[6]

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Introduction

The world's urban population has grown rapidly, with urban pollutants from motor vehicles, construction, and industrial facilities being the sole cause of many health problems we experience today. Most of these pollutants are not visible, so monitoring is essential. 7 million deaths have been attributed to air pollution, 80% of which have been connected to PM2.5.

The combination of open-source, low-cost, air quality sensors, together with a citizen science approach for data collection, has shown the potential to obtain air pollution data with a spatial and temporal resolution un-achievable by reference stations. The data from such approaches provide a rich depth of information, which could be used to drive urban planning and policy towards creating a healthier environment.

Reference station	Citizen science
+ Accurate	+ Low cost
– Expensive	+ High spatial/temporal resolution
– Stationary	+ Engaging and educational
	+ Enables identification of pollution hotspots
	– Individual sensors lack accuracy

The design of a mobile PM2.5 air quality sensor with a total cost below £100 per unit is presented here, together with the implementation and results of a citizen science sensor network of 20 sensors monitoring PM2.5 in Buenos Aires, Argentina. Insights on the added value of citizen engagement are also outlined.

Methodology

Figure 1 Stages of a citizen science project.

Workshops at 2 local universities to 80+ students:
- 1 hour lecture on air pollution and health
- Introduction to sensing method and sensor
- Building sensors in groups of 4-5

Data collection over 7 weeks:
- Sensors placed on bikes, measuring every 5 s
- 20 chosen citizen scientists out of 70 applicants
- Citizen scientists chosen based on the amount and where they cycled in Buenos Aires
- Data uploaded by citizen scientists onto an online, interactive platform

Evidence based policy:
- Aggregated data processed
- Results passed onto local policy makers

Acknowledgements

All our citizen scientists

UNSAM Universidad Nacional de San Martín · Embajada Británica Buenos Aires · SENSIRION The Sensor Company · INMIBO CONICET FCEN-UBA · Embajada de EE.UU. Buenos Aires · GCRF Global Challenges Research Fund · ublox

Mobile air quality sensors

- Off-the-shelf components interfaced with a 'plug & play' style PCB.
- Low cost PM2.5 sensor based on laser light scattering principle.

Figure 2 open-seneca mobile air quality sensor.

Pollution maps

20 · 3,500 km · 15,000 mins · 440,000 pts

Method of identifying hotspots:
- Aggregation of collected data
- Removing time varying baseline over fixed time period (15 minutes chosen), using different measures of centre
- Build map of baseline removed dataset, taking the average PM2.5 value within fixed quadrant sizes (200 m × 200 m chosen)

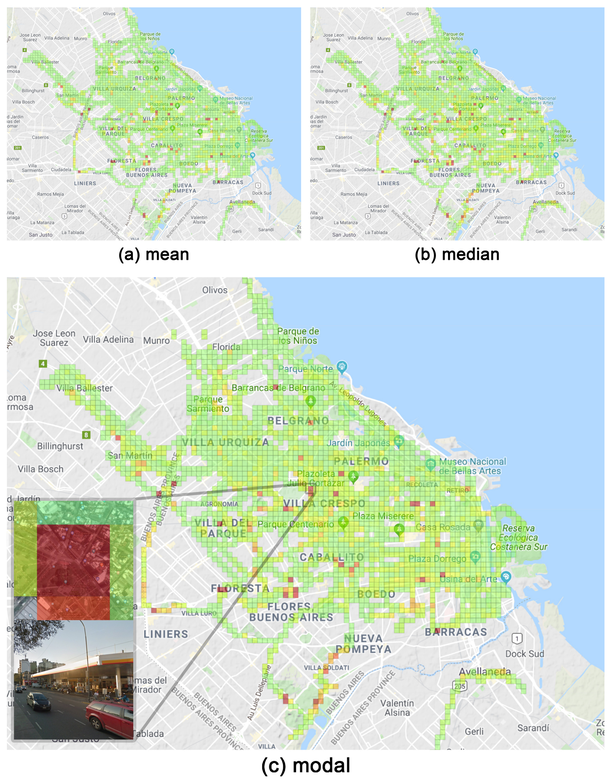


Figure 3 Identification of pollution hotspots using different measures of centre. Red indicates 30 µg/m^3 or above the baseline. Green indicates at or below baseline.

- PM2.5 distributions over 15 minute periods were approximately log-normal. Either modal or median as a measure of centre were found suitable for the identification of pollution hotspots.

Calibration

- 6 mobile sensors placed by reference station over 15 hour period.
- All mobile sensors were consistent within ± 2 µg/m^3.

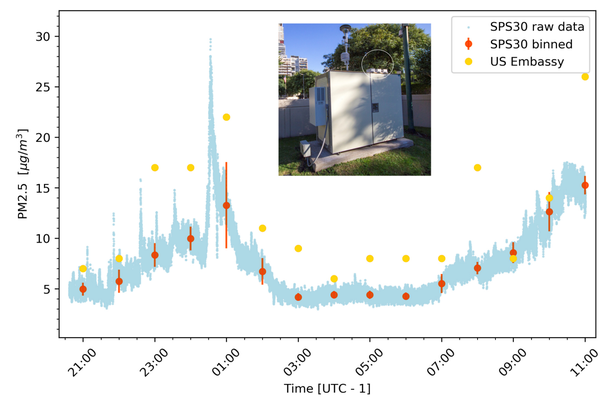


Figure 4 Comparison of all 6 sensor readings and reference station hourly readings.

- Over 7 week pilot period, hour medians of sensor data were compared to same reference station.

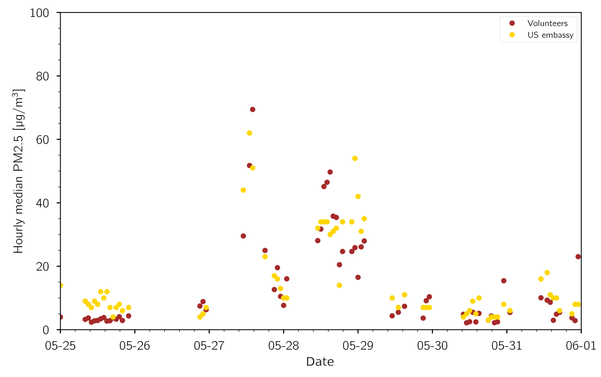


Figure 5 Comparison of hourly medians from all active sensors during 1 week period.

Citizen Engagement

- Each ride was viewable in the form of a time-series plot or via an interactive map.

Figure 6 Online interface for citizen scientists.

- Engaged citizens are involved as active stakeholders and local champions.

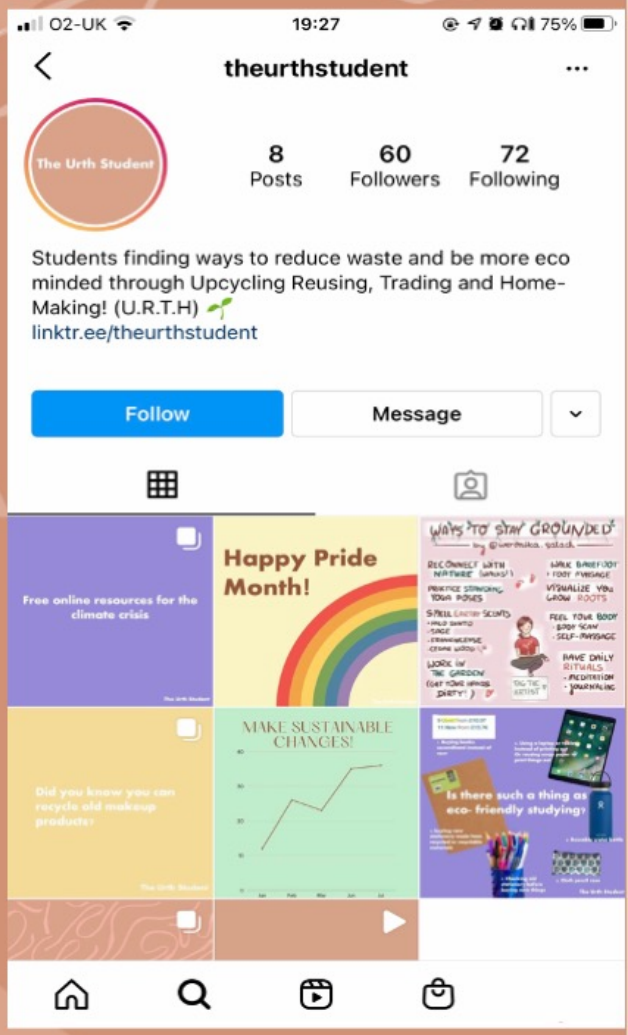
Figure 7 Collaborators in Nairobi.

Secretaría de Ambiente y Desarrollo Sustentable Presidencia de la Nación · CANADA-UK FOUNDATION · open-seneca · SENSOR CDT · UNIVERSITY OF CAMBRIDGE

The Urth Student

ABOUT

- A social media campaign dedicated to finding ways to get students engaged in **zero waste** and all things environment!
- Viewing the climate crisis **intersectionally** and spreading information/ awareness about the marginalised and disproportionately affected groups



Upcycle

Reuse

Trade

Homemake

@theurthstudent

neutreeno

Mission.

To build the technical and educational tools driving the transition to net zero.

Holistic Calculator.

Developing the world's most comprehensive & inclusive greenhouse gas emissions calculator at scale.

Removing Emission.

85% of offset projects are not effective. Our scientists develop methodologies to do it better.

Our First Platform.

Easily integrating into online shops, empowering consumers to remove all of their purchase emission and then some.

Team.

A group of scientists and engineers from University of Cambridge, in consultation with the world's top carbon market experts.