

LOCUSTS

Project proposal

CART 451, Fall 2022

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Locusts are grasshoppers in their swarming phase. While there are more than 12,000 species of grasshoppers in the world, only 20 of them can become locusts through phenotypic plasticity (Uyeno 2020). This phenomenon describes a change in gene expression in an organism when exposed to different environmental conditions (West-Eberhard 1989, 250). When grasshoppers are too crowded, they can come in physical contact with each other which transforms them into locusts and changes their behavior and form. They become more gregarious and become one of the world's most devastating pests for crops: "In this phase, the insects are able to multiply 20-fold in three months and reach densities of 80 million per square kilometre. Each can consume 2g of vegetation every day – combined, a swarm of 80 million can consume food equivalent to that eaten by 35,000 people a day." (Njagi 2020) These plagues could become increasingly devastating with global warming, especially small scale farmers who bear little responsibility for the climate change (Uyeno 2020).

ISSUE(s)

Since the sixties, concerns about pollution arose with the environmental activism of the time. In 1971, an ad promoting the catchline "People Start Pollution. People can stop it" won awards for excellent advertising. People Start Pollution (PSA) was created by Keep America Beautiful (KAB), a non-profit group entirely funded by the main actors in beverage and packaging (The Coca-Cola Company, GLAD Wrap and Bags, PepsiCo, etc.). Decades later, big food companies are the world's worst plastic polluters (Kaufman).

For decades, Coca-Cola and other consumer goods companies have relied on the myth of recycling to avoid responsibility for this pollution. They have played up recycled content as a way to continue using harmful single-use plastics, and put the onus on all of us to clean up their trash, while refusing to recognize that their

plastic problem is beyond being solved by recycling or clean up initiatives (Flaharty).

Today, big corporations are still cleverly denying accountability by pointing the fingers to individuals; making it seem that the faith of the anthropocene is solely dependent on the individuals' daily-life actions. While companies like Coca-Cola have a higher annual income than two thirds of the world's countries, they continue to have ethical issues in climate change, habitat and resources, animal rights, anti-social finance and political activities and human rights. However, these same companies spend their massive revenues in lawsuit coverups and irresponsible marketing (Ethical Consumer, n.d.b). As an average consumer, I find it extremely difficult to make informed choices when buying food, since corporations often utilize opacity and mischievous branding strategies as their marketing plans.

While research shows that power impairs neural processes responsible for empathy (Useem 2017, 24), the shareholders and executives of big private corporations are more powerful than democratically elected presidents and prime ministers. They become the new kings of globalisation, and they hoard resources. Thus, these big corporations are the grasshoppers that became locusts, an insect used historically to symbolize greed. They are the plagues that are destroying our crops.

FORM

I would like to make a tool that picks into and relates different databases so as to paint a picture of the history of a product from a specific brand as one shop. Ultimately, I imagined a phone application that would be able to scan UPC codes from products directly from the grocery store and would be also linked to different existing ranking systems and databases, such as the Ethical Consumer's Ethiscore and OXFAM's Behind the Brands project. With this project, I want to approach ethical consumption in a way that is not copying the corporation's strategy of

confusing and guilt-tripping people. In fact, I want to do the opposite; I want to empower consumers by democratising and assembling information in real-time.

This project was already imagined in a previous class of interaction design, where the idea was explored through user research and interpretation. My process included a mix of observations, interviews and think-alouds on five people. My sample included different user types of average food buyers. So, this project's target audience is any Canadian responsible for the purchase of food items for their household. Evidently, the application could seek interest in consumers with an incline towards transparency, knowledge and ethical sourcing. Also, I hope it could also build curiosity and understanding towards demographics that are simply questioning and comparing food prices between different brands.

Food is indispensable for human life, but is not free. Therefore, we are all forced to make consumer decisions, but do we have enough information to make them?

INSPIRATION FROM READINGS

In her article "A Sea of Data: Apophenia and Pattern (Mis-)Recognition", Dr. Hito Steyerl discusses a root subject in her investigative practice in the large-scale implications of proliferation of big data and digital images. As WikiLeaks' Julian Assange states that "we are drowning in material", Steyerl sets forth the way analysts are choking on "truckloads of data" that are not (or not properly) decrypted, refined and processed (Steyerl 2016). The big organisations having the resources to data-mine and process the information are often the most wealthy and powerful, which lead to their own interpretation of data, or abstraction of humans through data, to be the main narrative. This power dynamics relates to Michel Foucault's Panopticism, where the prisoner is the one asymmetrically surveilled, while the institution has the power of the gaze: "[He] is seen, but he does not see; he is the object of information, never a subject in communication." (Foucault 1979)

This concept is directly related to my project; While the institutions constantly gather data on our consumer habits and hold the narrative, do we actually see the products we are purchasing, or only what corporations want us to see?

“You may own us, they seem to say, but we are going to inform on you. And guess what kind of creature we are going to recognize in you!” (Steyerl 2016)

Steyerl explores the way pattern recognition through data is similar to agricultural and mining technologies that were developed during the neolithic era that started around 10,000 years B.C. The neolithic revolution essentially marks the shift of hunting and gathering to settling and farming (History.com 2016). Even the vocabulary deployed for separating signal and noise are pastoral, such as data “farming”, “harvesting”, “mining” and “extraction”. While the neolithic revolution replaced “hunter and gatherer bands” by “farmer kings and slaveholders”, the data neolithic revolution of today abstracted expressions of life in data trails to “become a farmable, harvestable, minable resource managed by informational biopolitics.” (Steyerl 2016) Evidently, both sides of this comparison relate to the topic of my project. Both instances of neolithic shifts instituted social consequences raising their own ethical crisis in the food industry and consumerism. Humans are now monitored, abstracted, quantified and ranked like the food products they purchase.

In her article “The Point of Collection”, Mimi Onuoha, a visual artist and researcher specialized in code dissects the ways big data is processed, particularly if it concerns humans: “As we abstract the world, we prioritize abstractions of the world.” The more data is looked into to answer big questions in areas like policing, safety and security, the more incentives we have to shape the data so it fits into our algorithms, which are more often than not simplifications of the world. So, one of her propositions is to combine existing datasets. The whole idea is to also use datasets that were not originally intended for our specific purpose. In that way, she supposes that there will be less bias present in the data sets since the intention was not present during the mining, so the conclusions can be more accurate. She also quotes Bruce Shneider, a public interest technologist: “data we’re willing to share can imply conclusions that we don’t want to

share.” (Onuoha 2016) For my project, this proposition became a real and important inspiration to implicate diverse databases and keep in mind the potential biases. However, this time, the data work will not target the users, it will target the big corporations which are already entities built and maintained by numbers, for profit.

MEDIUM(s)

For this mobile application, a few components are to consider, such as the basic interface, the database, the scanning tool, and the compatibility with different devices. For the basic architecture of the project, I plan on using [HTML5](#), CSS and JavaScript as languages with the [Node.js library](#). The design will be responsive and written with the Microsoft Visual Studio Code IDE. The databases will be managed with the [MongoDB](#) Atlas database service, along with the [Mongoose ODB library](#) compatible with Node.js. Ultimately, these tools and languages will be used to make the basis of my project.

Depending on time and resources, I would like to implement a real-time barcode-reading for EAN and UPC codes with the [QuaggaJS library](#). This library only uses HTML5 and JavaScript and can identify both codes. However, it does not seem to be compatible with iOS devices at the moment.

The objective is for the project to be deployed as a mobile application, perhaps using the [Azure App Service](#). However, this step may realistically be done in the future, since I have financial and timely constraints.

DATA COLLECTION, ACCESS AND HIGH LEVEL ALGORITHMS

As mentioned above, my choices concerning the data to include in my project will keep in mind Mimi Onuoha’s proposition towards less biased data manipulation and representation. So, I would like to include different existing and open-source databases to represent each of the corporation links to each product searched by the user.

STEP 1: GET COMPANY NAME FROM A PRODUCT'S UPC

First, I need to find the information linked to each code. Universal Product Codes (UPCs) are used across many countries, including Canada and the United States to track trade items in stores. These are the EAN barcodes displayed on different products that are scanned at a store counter to identify the product and the price (Shopify, n.d.). While there are a few available databases accessible online, I selected the [UPCitemdb API](#) to research UPC codes since they have a free subscription (limited). With the API, you can GET from and POST to the database different UPC codes. For this project, I will only be using the GET request to access information attached to an UPC code. While there is a lot of information that is returned, the most important values needed are the product's name, the brand and the country of registration. I might need to also get the "category" so to restrict the products searchable within the app.

Certain fresh products are sold out of their original bulk box or container on which their UPC code is present. So, these products are usually individually marked by a sticker with a Price-Look Up (PLU) code for checkout. These codes are attributed by the International Fluid Power Society (IFPS) which allow the exportation of their PLU codes list in .csv format on their [website](#). However, these codes only contain the type of product, the variety and sometimes the country of origin (IFPS, n.d.). So, it would be better to simply handle the UPC codes. The user would then have to scan/enter the UPC code often present at the price tag area of these fresh products.

STEP 2: GET COMPANY DATA FROM THE COMPANY NAME

With the brand name/manufacturer name pulled from the UPC database, we can then research information about the manufacturing company/corporation. It is important to note here that Canada has limited data on their enterprise registry - Most provinces ask for a subscription fee to see the entire registry. However, Statistics Canada releases an Inter-Corporate Ownership (ICO) publication yearly with a [free downloadable .csv version](#). From that publication, it is then

possible to see the ownership structure of the enterprise (associated companies), so as to find the parent company. This would be our database to look into the company name since the project is curated for Canadians for now. However, a second database could be also added in the future for American enterprises not registered in the ICO publication. In terms of a free and still maintained database, a possibility could be to request an API key to the non-profit [CorpWatch API project](#). CorpWatch is a foundation with the mission to hold corporations accountable through transparency. Their API uses automated parsers to extract information from the corporation's 10-K filings with the U.S. Securities and Exchange commissions. However, the information on those filings are something not the most accurate since a few loopholes can be done during the filing (CorpWatch, n.d.). For now, the ICO yearly publication can satisfy the purpose of the project to create a picture of the ownership structure of the corporation attached to a Canadian product.

Once we have identified the parent company, we can search its headquarter, products, brands and basic description. This could be done with the [Wikipedia API](#) with a little bit of string manipulation. Then, we can get financial status and predictions, shareholders information and key executives names with the [Yahoo Finance API](#). Again, these resources are free and a lot more information can be extracted from them.

STEP 3: GET RECENT PUBLICATIONS ABOUT THE COMPANY

Now that we have a more transparent picture of the structure of the corporation, it would be pertinent to attach the ways in which the company is praised or criticised around the world for its practices. There are a few resources and initiative reports that can be sourced to paint a better and bigger picture of the corporation.

1. The *Food and Agriculture Benchmark* from the World Benchmarking Alliance (2021): Measures and ranks of the world's most influential food and agriculture companies on their contributions to transforming the food industry globally.

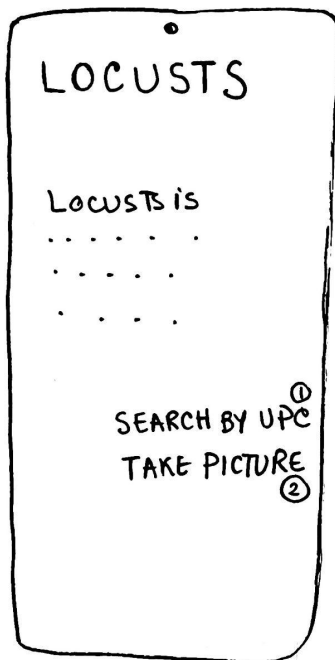
2. The *2021 Pesticides in the Pantry: Transparency and Risk in the Supply Chains* (2021): Ranked 17 big food companies on their use of pesticides (note on 27).
3. The *Newsweek Green Ranking 2017* (2017): Scores and ranking of the 500 largest US companies on different ecological aspects.
4. The *Ethical Consumer Brands and Companies that use Palm Oil* article (2022): List of companies with the worst Ethiscore for their use of palm oil.
5. The *JUST Report* from Just Capital (2022): This yearly report is a result from surveying Americans to rank companies on their business behaviors.
6. The *Corporate Equality Index* report from the Human Rights Campaign Foundation (2022): This report rates workplaces on LGBTQS+ equality by their benchmarking tool on corporate policies, practices and benefits.
7. The *Executive Paywatch* from the AFL-CIO (2021): This yearly assessment calculates the amount of the CEO yearly payroll versus the median employee pay so to find the ratio for the last fiscal year.
8. The Ethical Consumer Ethiscore
9. OXFAM's Behind the Brands website

Some smaller reports may be made manually into their own database to facilitate the access to the data in my code. Other ones will either be extracted in .csv when possible, or pulled from the html code. If it was financially possible, I would like to have direct access to the Ethical Consumer corporate database, but this type of subscription is more expensive and monthly.

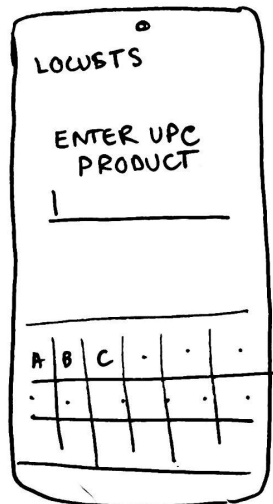
STEP 4: GET REGISTERED VIOLATION(S) FOR CORPORATE MISCONDUCT

Violation Tracker is a wide-ranging database on corporate misconduct including more than 500,000 civil and criminal cases from more than 400 agencies. The service is free unless you want to download or save your search. In my case, I would like to import the html data directly.

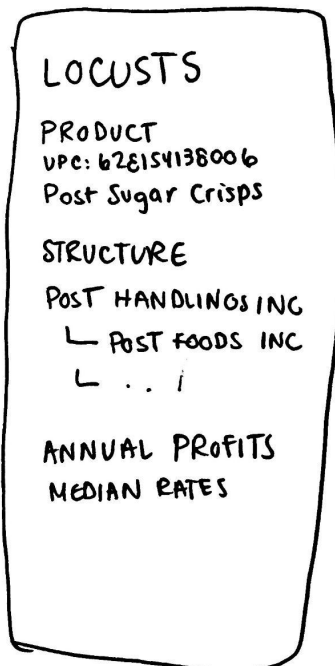
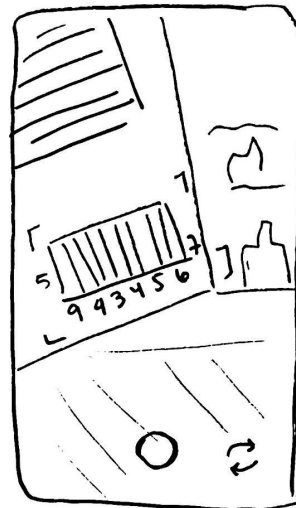
VISUAL STORYBOARD



① ENTER UPC
NUMBER
MANUALLY



② TAKE PICTURE
OF UPC/EAN



↓
SCROLL
FOR
INFORMATIONS
VIOLATIONS
ETC...



SUPPOSED
TO BE
A LOCUSTS

INSPIRING PROJECTS

ETHICAL CONSUMER CORPORATE RESEARCH DATABASE

Since 1989, Ethical Consumer Research Association (ECRA) has been a not-for-profit, multi stakeholder cooperative based in Manchester, United Kingdom. They act as a political and campaign organisation publishing information on company behaviors and issues around trade justice and ethical consumption. On top of their bi-monthly *Ethical Consumer Magazine*, the association also developed their own ethical rating system based on research of over 40,000 companies, brands and products. Their ratings cover around 300 topics in different areas (Ethical Consumer, n.d.a).

While it is possible to view this information with a yearly subscription on their website, their corporate database allows easier research into the ethical and environmental records of suppliers, sponsors, contractors and competitors with independent analysis of corporate ethical policies. Their database is partly built through monitoring news and business media and campaign group sources globally. This database was previously launched in 1993. Their database gives details for a specific company, organisation or brand. On top of giving the enterprise structure and profits, it also can filter companies by specific topic or issue.

This database inspired the basis of my project, since it precisely regroups most of the information I would like to include per company search in my own application. However, the fees start at 400\$ canadian per month, which is out of my budget. The simple website access and digital magazine, however, is around \$50 canadian per year. So, the database has more direct access to information about the companies than their original website, but it is destined to other organizations for market research, not for particulars (Ethical Consumer Research and Consultancy, n.d.).

GOOD ON YOU (APP)

The Good on You mobile app and website offers thousands of brand ratings and articles on ethical and sustainable fashion. While the app is oriented towards the fashion industry, it carries similar intentions and delivery than my project. Rankings are sometimes not the best representations of a brand's overall effort to become better, but still can give the user a general idea. Their rating comes from sustainability data across all the supply chain (Good on You, n.d.b). With criterias tackling pollution, waste and human right abuses, their objective is to drive a change in our consumption habits: "Together we can have real impact with the one powerful weapon we all have in common... the ability to choose. Choosing and rewarding responsible fashion brands that do good, over the ones that don't, can drive the whole industry to become more sustainable and fair." (Good on You, n.d.a)

This project inspired me for its format and its mission. I do (maybe naively) believe that knowledge is power for better consumption. However, I personally find the app loaded with too much articles and information. Because my objective is to make users comfortable using the app while shopping, I want to make a simpler version of this; a registry more than a lifestyle product.

PRIVATE TRACKING SYSTEMS

Some notable findings during my first research were some brands' methodologies about transparency of the provenance of their products. Just BARE Poultry, YottaMark, Republica del Cacao, Harvest Mark and Perutnina Ptuj are all brands that offer their own private tracking systems on their products. These private tracking systems are all part of a marketing strategy to distinguish certain products by allowing consumers to know more where the product comes from. These all rely on the addition of a single product code that consumers can enter on the brand's website. In reality, the information provided is heavily curated and quite difficult to obtain; Some tracking codes are located inside the packaging so the consumers need to buy the product to track it.

However, the “code tracking” concept underlies the first step into data access in my project. Because each product sold in grocery shops has to be identified with an UPC, it gives us a universal way to identify any product while shopping. However, instead of the companies curating the narrative, my application will return open data from different sources to give an uncurated picture of the corporation.

LINKS TO RESOURCES MENTIONED

Azure: Create a Node.js web app in Azure.

<https://learn.microsoft.com/en-us/azure/app-service/quickstart-nodejs?tabs=linux&pivots=development-environment-vscode>

CorpWatch Database: API. <http://api.corpwatch.org/>

HTML DOM API: API by Mozilla Developer Web APIs.

https://developer.mozilla.org/en-US/docs/Web/API/HTML_DOM_API

IFPS: Bilingual PLU Lists. <https://www.ifpsglobal.com/PLU-Codes>

Inter-corporate Ownership: Statistics Canada registry link.

<https://www150.statcan.gc.ca/h1/pub/61-517-x/61-517-x2021001-eng.htm>

Mongodb by Atlas: Documentation. <https://www.mongodb.com/docs/atlas/>

Mongoose.js: Documentation. <https://mongoosejs.com/docs/index.html>

Node.js: API. <https://nodejs.org/api/>

QuaggaJS: API. <https://serratus.github.io/quaggaJS/>

UPCitemdb: UPC Lookup database API. <https://devs.upcitemdb.com/>

Wikipedia Database: API. https://en.wikipedia.org/api/rest_v1/#/

Yahoo Finance Database: API. <https://syncwith.com/yahoo-finance/yahoo-finance-api>

BIBLIOGRAPHY

CorpWatch. n.d. "About CorpWatch". Accessed October 6, 2022.

<http://www.corpwatch.org/about-corpwatch>

Ethical Consumer. n.d a. "About Ethical Consumer" Accessed October 6, 2022.

<https://www.ethicalconsumer.org/about-us>

Idem. n.d b. "Coca-Cola Company, The" Accessed October 6, 2022.

<https://www.ethicalconsumer.org/company-profile/coca-cola-company>

Ethical Consumer Research and Consultancy. n.d. "Corporate Research Database" Accessed October 6, 2022. <https://research.ethicalconsumer.org/corporate-research-database>

Flaharty, Robin. 2021. "Coca-Cola, it's time to stop your pollution at source." Greenpeace, April 20, 2021.

<https://www.greenpeace.org/international/story/47293/coca-cola-its-time-to-stop-your-pollution-at-source/>

Foucault, Michel. 1979. *Discipline & Punish: The birth of the prison*. New York: Vintage Books.

Good on You. n.d.a "About" Accessed October 6, 2022. <https://goodonyou.eco/about/>

Good on You. n.d.b "How We Rate Fashion Brands" Accessed October 6, 2022.

<https://goodonyou.eco/how-we-rate/>

History.com. 2016. "Neolithic Revolution." History, January 18, 2016. Updated on August 23, 2019.

<https://www.history.com/topics/pre-history/neolithic-revolution#:~:text=The%20Neolithic%20Era%20began%20when,later%20tending%20large%20crop%20fields.>

IFPS. n.d. "Bilingual PLU Lists." International Federation for Produce Standards.

<https://www.ifpsglobal.com/PLU-Codes>

Kaufman, Mark. "The carbon footprint sham." Mashable.

<https://mashable.com/feature/carbon-footprint-pr-campaign-sham>

Njagi, David. 2020. "The Biblical locust plagues of 2020." BBC, August 6, 2020.

<https://www.bbc.com/future/article/20200806-the-biblical-east-african-locust-plagues-of-2020>

Onuoha, Mimi. 2016. "The Point of Collection." Medium. Data & Society:Points, February 10, 2016.

<https://points.datasociety.net/the-point-of-collection-8ee44ad7c2fa#.y0xtfxi2p>

Shopify. n.d. "Universal Product Code (UPC)" Accessed October 6, 2022.

<https://www.shopify.com/ca/encyclopedia/universal-product-code-upc>

Steyerl, Hito. "A Sea of Data: Apophenia and Pattern (Mis-)Recognition." *E-Flux Journal*, no. 72 (April 2016): n.d.

<https://www.e-flux.com/journal/72/60480/a-sea-of-data-apophenia-and-pattern-mis-recognition/>

Useem, Jerry. 2017. "Power Causes Brain Damage Over Time, Leaders Lose Mental Capacities That Were Essential to Their Rise." *Atlantic Monthly* 320 (1): 24–24.

Uyeno, Greg. 2020. "What are locusts and why do they swarm?" *Live Science*, August 25, 2020.

<https://www.bbc.com/future/article/20200806-the-biblical-east-african-locust-plagues-of-2020>

West-Eberhard, M J. 1989. "Phenotypic Plasticity and the Origins of Diversity." *Annual Review of Ecology and Systematics* 20 (1): 249–78. <https://doi.org/10.1146/annurev.es.20.110189.001341>.