

URBAN ROUTE MAPPING

THE JOURNEY DEBRIEF



CONTENTS

EXPEDITION SUMMARY

01 SCOUTING AHEAD

EXISTING PRODUCTS

MAPPING STYLES

MAPPING ARCHITECTURE

EXPLORING THE FORM

DATA GATHERING

02 THE APPROACH

THE ITINERARY
OPTIONAL EXCURSIONS
USER MAPPING
CONCEPT CREATION
TESTING PHASE

03 THE BUILD

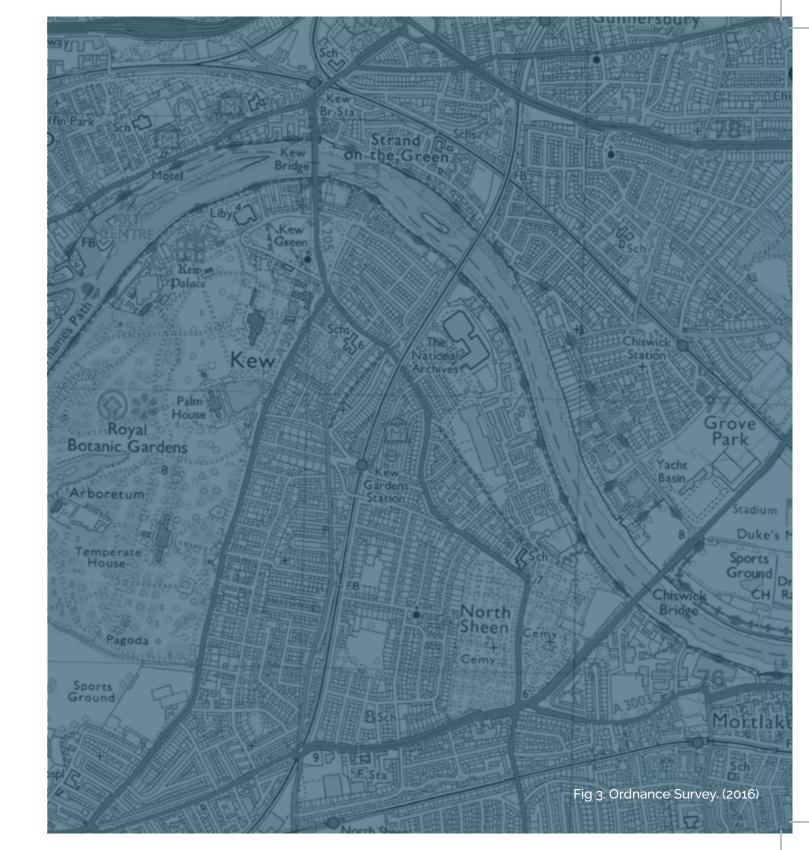
MATERIAL RESEARCH THE TECHNOLOGY THE FINAL APPROACH

04 LOOKING BACK

HOME IS BEHIND THE WORLD IS AHEAD EXPENDITURE

05 REFERENCE

BIBLIOGRAPHY REFERENCES



EXPEDITION SUMMARY

The purpose of this project was to produce a system of route cards for an urban environment with the overall goal of helping to reduce stress and provide an escape for a wide range of users.

The idea was narrowed down to a series of physical cards encapsulated within a protective casing. These packs would consist of the main map with various transport and jumping off points labelled on it. Each route would be split into stages and there would be thoroughly written directions on the reverse of each stage card.

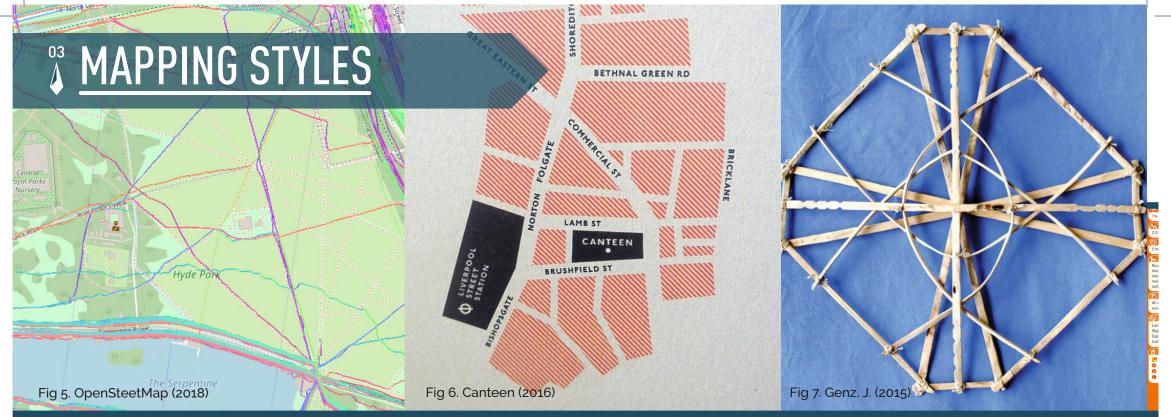
Then the user was given more options, a chance to edit and customise the product. The main route would be coupled with a series of overlays and excursion cards with things like local pubs, parks and points of interest labelled on each layer separately. This allowed the user to edit their route to best suit their current journey.

This was then linked to further options allowing interaction into the digital world and google maps integration through the use of QR codes and NFC tags.





SCOUTING THE ROUTE AHEAD



This map I'd class under a data map, where the purpose of the map is to link some form of scientific data to a geographical setting. Other data maps can be used to help visualise raw information but for the purposes of route mapping, It felt more appropriate to keep all the core elements geographically based. This map shows GPS traces of user's smartphones onto Hyde Park. It can show you where paths are being cut to find a shortcut. And could even be used to influence how people walk through your park. Taking data from areas where people rigidly stick to a path and applying whatever factors force this to happen to other areas in the park. In the case of most of these paths them being lined with trees or not passing close to other paths would be a key factor.

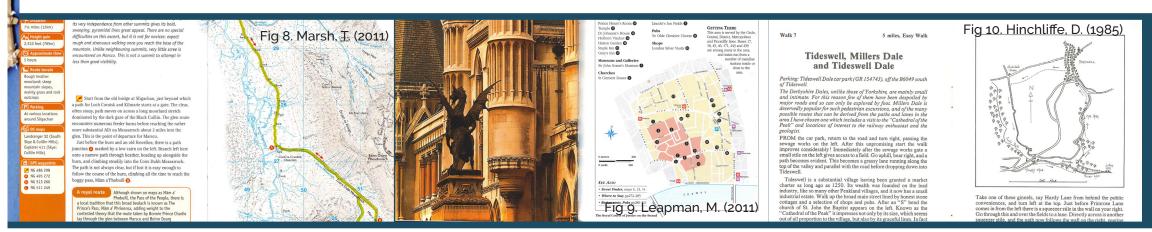
This example is a minimalist map. Where all the unnecessary information is stripped away to help declutter the page and show simply how to get from point A to point B. It only really works when you only have one thing to say. However, as shown by the image from a restaurants map (Canteen) it can be a very effective way to show all the user needs to know in a clean and flat format. Predominantly used as a method of street or route navigation where the importance is only the designated stops or places. Deviation from the route isn't accounted for in most cases but it is an incredibly easy map to follow. The standard tube map is another example of minimalist mapping although in that case with less regard for a geographical relationship and more emphasis on the connections.

This style of map I would class as the abstract map. Where it links a geographical area with another feature not as traditional as raw data. In this case the rope and stick maps of the south sea islanders. They link the island chains with the ocean currents. fishing patches, sandbanks and the islands. They manage to convey a lot of very complex information into a style of map that could be quickly read whilst still being tactile and easy alter and expand later. They would be carried on boats by fisherman and commonly altered when currents changed or fished moved to a different patch. They were constructed through the use of existing materials such as sticks, rope and shells. Each material marking a different thing. The aim of the project is to combine the best aspects these three.

EXISTING PRODUCTS 1/4



Mapping is a constant part of our everyday lives, when done properly it's intuitive and unquestionable. When done improperly it can cause undue confusion and stress. To make sure my project fitted within the former category it was vital to study existing products and build a connected list of criteria linking the features an existing route map has and the way in which people interact with it. As we examined a few different styles of map we've got to understand why each map is used. This will help provide a list of features and points to avoid that could be appropriate for our project.



PROS

Well written detailing, as well as the highlighted route map, is a good feature. Another is including the GPS waypoint coordinates to provide an option for the tech-oriented walker.

CONS

Very few with this product, only that it doesn't have much room for upgrading or customising as the paper it is printed on is water resistant and therefore ink proof

USER

Hikers with orienteering experience

PROS

Designed for pulling your attention to as many points of interest as possible. Condenses a lot of information into small "easy to walk around with" pages.

CONS

Not really suitable for navigation as the pages are way too cluttered. Too much going on and the maps whilst stylised don't show anything useful past admittedly practical street layouts.

USER

Tourists visiting London

PROS

descriptive written Detailed and directions. Compact book size as a result of omitting full maps. Listing only relevant points on the map such as parking recommendations.

CONS

Already assumes the user has a full map to help make up for the lack of detail in the maps. The layout and graphics for such a text-heavy document need some consideration.

USER

Hikers with a car and a map

MAPPING ARCITECTURE

Every map is someone's way of getting you to look at the world in his or her way. - Lucy Fellowes, Smithsonian curator, quoted 1994

Mapping design is something way beyond the scope of this project. To assume it could be done justice would be naive however it was key that throughout my research I could pull any design considerations to ensure the maps I modified or designed were both fit for purpose and fit for the wide user base I needed them to be designed for.

After reading several books on cartography and the theory of mapping, Seemann, J. (2009), they covered roughly the same topics.

There seems to be a common discussion of a distrust towards data-driven mapping. Whilst the data still remains untampered with. The use of maps to represent it has been hijacked to fit with the biases and beliefs of the cartographer or more importantly the organisation that funds the cartographer. Whether the user's access to further information and instantaneous factchecking has led to this as or something that has always been there only recently being circulated around the mainstream seems to be open for debate.

Mapping as a scientific endeavour with the sole purpose of representing data still aims to capture all the data as accurately as possible. The data is never changed or reconstructed to fit the cartographer's aesthetic whims or biases. With the technological shift towards smartphones and small viewing windows, the cartographical style has shifted towards a more deconstructed minimalist approach to mapping. A way of helping deal with information overload that can plague more "feature packed" maps.

Although it is worth stating information overload isn't a new phenomenon, one has to simply look at nature in any detail to find an overwhelming amount of data thrown in their general direction, But like how the south sea islanders deconstructed their natural world down into the core relevant data sets, we do this with our phones. For example, web pages are massively decluttered and reorganised for the mobile versions.

Our technology is custom built to help deal with excessive information. Take digital cameras for example. They incorporate a Bayer filter to which has double the number of green detectors as blue or red. This is because human eyes also have a similar sensitivity to the luminosity of green light. Theorised to be as a result of the abundance of green plant life being able to differentiate between different shades better helped us avoid poisonous plants.

Fig 11. Treurniet, F. (2017)

He had bought a large map representing the sea, Without the least vestige of land:

And the crew were much pleased when they found it to be A map they could all understand.

"What's the good of Mercator's North Poles and Equators, **Tropics, Zones, and Meridian** Lines?"

So the Bellman would cry: and the crew would reply "They are merely conventional signs!

"Other maps are such shapes, with their islands and capes! But we've got our brave Bellman to thank"

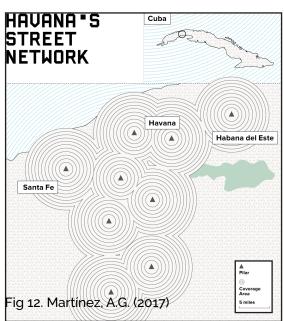
(So the crew would protest) "that he's bought us the best-A perfect and absolute blank!"

-Lewis Carroll. The Hunting of the snark

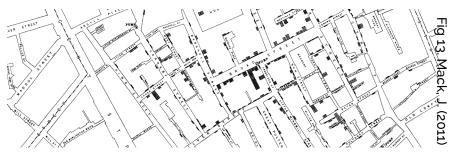


MORE MAPPING ARCHITECTURE 1/4

A less cynical view of cartographers is the idea of mapping as a tool for social integration and dispersion of knowledge in an easy to read and understand form. For that's all a map is, data given context. Building relationships and connections between different areas. For example, maps have been used to chart areas in Cuba where the people can access the street net. A series of interconnected WIFI routers, repeaters and hotspots to generate a nationwide intranet to distribute articles, information, entertainment and access to the wider world without going through government censored designated internet points.



Other maps that have been used to convey powerful information to people without the need for a complex understanding of the subject is the cholera maps of Dr John Snow. These overlay cholera deaths by location. They were used as a way to illustrate Snow's theory that the spatial clustering of cholera deaths near water pumps was indicative of were linked to contaminated water.



This style of delivering a select piece of information through a map is one I focussed on. And more specifically the link towards geography. Whilst in my initial research for the product proposal I looked at more abstract data maps this time I tied the focus to specifically linking other variables to physical locations and looking at how other people have attempted to do this.

From this research, I was able to investigate areas for my map style to pull aspects from. I deconstructed the information that the users would require. In it's simplest form they need four things.

1) The street/road layouts 2) footpath layouts 3) A route to follow 4) Pinpoints for extra points of interest 5) Natural environment e.g. parks and rivers.

This simplified list lets me build my colour scheme and only highlight selected geometry. More detail will be as to the map building process in the following pages.

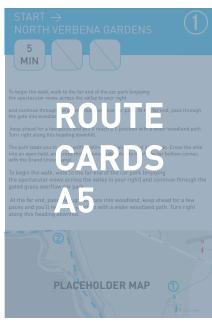
EXPLORING THE FORM

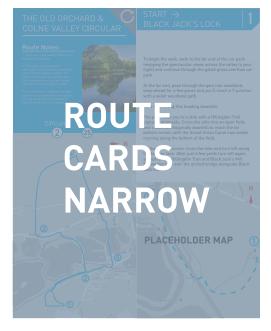
The original plan for the route cards involved a mixed media approach encompassing the use of an app in conjunction with physical route cards however this was deemed to be beyond the scope of the project. I did, however, feel the need to tie the digital world into this project.

So much of our interaction with the outside world happens through our devices. In the same way, previous generations would have found this information from trail magazines or route books people now have the ability to quickly and easily accessible as many user-submitted routes as they want. With the ability to customise, alter and select whichever routes suites them best.

It was felt that the physical route cards lent themselves more towards the ability to edit and alter routes and through the use of QR codes and NFC tags I was able to link in the digital aspects of present-day route mapping. This will be explained in more detail in the later sections of this report. After mocking up a couple of test sheets and







printing them on the desired 300gsm card stock we tried a few different methods for determining the best shape.

Primarily it came down to feel in the hand and ease of use. The information in the Narrow variants felt too constricted. The maps often cut off too much to display enough of a route make a stage a decent length and when being held your hand covered a large portion of the viewing area.

The booklet form whilst much better for information storage didn't lend itself to a natural feel when in use. It felt unnecessary flicking backwards and forwards between pages and information on the front and back pages felt like they should be closer together.

The A5 route card proved to be the best dimensions for overall feel and ease of packing. It fitted the maps well and had enough room on the reverse for the fulltext description of each route. This sizing was later reduced slightly for printing purposes.

DATA GATHERING A



Once the route was decided as a circular route around the Kew area and Thames footpath I needed to gather as much data as possible. In order to grab as much as possible. I used a regular smartphone and turned every bit of location and usage tracking that it offered. From this, I was able to map exactly where I walked. The time I took, where I stopped, the spacing between each stopping point, the rate of pace and elevation at each measured point. This was all compiled into an excel document to analyse it properly.

From this. I was able to decide on splitting the route up into 3 main stages with optional extensions down to Dukes Meadows and other points of interest listed on the overlays. I made sure to take extensive photos of all right of way signs so when it came to mapping all the paths none of them were labelled up the wrong way. I also made sure to visit as many options for route shortcuts and excursions that were within sight of the main path.

Overall the elevation didn't deviate much as you'd expect with a max altitude of 55m and a min of 38m above sea level. For the elevation chart designed for the map, the scaling was altered to best reflect the relatively minimal changes in altitude and the overall lack of climbing and descending the user would have to do. It was also then given the classification of

"mostly harmless" to give some real-world context to the difficulty of the walk.

Another bit of data gathered along the walk was the number of benches along the route and their average distance between them given on the route cards in terms of time spent walking. The aim behind this was to make the cards more inclusive and once again give a more real-world context for the difficulty than would otherwise be denoted by the simple 1-5 scale.



Next any points of interest photographed or noted on the scouting walk were researched further to give a feel of local knowledge when it came to writing up the descriptions and route cards.

The main mapping software used was the MapMyWalk app by Underarmour for android. As well as lifelog by Sony. These in conjunction tracked everything they could about the phone.



Fig 15. Under Armour (2019)







Key Criteria:

- · Easy to hold in one hand
- · Simple navigation between stages
- · Easily to edit or customise
- · Water Resistant Case/Cards
- Simple expandable Template for expansion later on.
- · Local Knowledge sections
- Highlighted sections for alternate routes or places to return to start/transport.

- Minimalist design of the map
- · Simple Iconography
- Links in some respect to the digital world. (Preferable google maps due to its ubiquity)
- Simple Packing Design for robustness and expansion later
- Less formal language style to match the local knowledge feel

OPTIONAL EXCURSIONS

Over the course of planning these route cards and mapping the intended route out it became clear that listing all the interesting points on the one main map would directly conflict with the criteria set out earlier. The minimal map layout required only the essential information to be given to the user and in doing this make the map less cluttered and complicated for all possible users.

However, it wouldn't be a very good local knowledge map without pointing out the local points of interest, so it was decided to split the routes up into four main categories. You'd have your main route, the pub route, the park route and the heritage route. The additional 3 routes aren't so much completely different routes in themselves but instead act as optional hopping off points.

Say the user was on their way back home and fancied popping into the pub. They could just grab the main route card and then add the pub overlay. Pick whichever one is most suited to them by the "the local" knowledge pub info card.







Dave the Younger

In regards to the pain and pleasure points originally identified for Dave the younger, there has had to be some compromise. All the initial points have been met in some respect but some have been altered to best fit the medium. To refresh Dave was a 25-year-old outdoorsman with very little time on his way home from work. He has little money and only has 30 minutes free to walk. He doesn't want to have to carry much extra whilst he's walking and wanted the options for personalisation. In response to this, the route cards have pages for notes and editing, They include NFC tags and QR codes to let him use his phone to follow the route as well listening to the written instructions through googles navigational instructions. The route was chosen for it's proximity to an underground station and in his case would allow him to take a slight variation on his normal route to get home via the scenic route and one of the marked jump-off points. The pub routes would be of special interest as a pit stop on the way home or a scenic shortcut when going out to meet friends no the weekend.

Clive the Elder

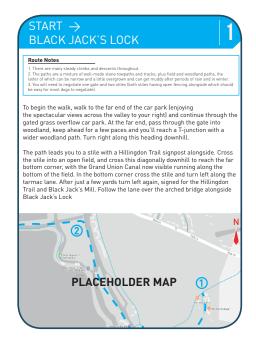
For Clive, the elder his routes were less about squeezing in a guick walk on the way home and more about relaxing whilst out walking with the dog. He wanted to take his time to unwind and spent more of his time with his head up looking around than to the ground getting from A to B. Clive will be more interested in the Heritage and Green Park cards as enjoyable diversions from his regular walk. He also likes the idea of customising his routes for the purpose of trying different variations each time. He's more likely to keep a list on the notes pages as to which of the routes he's done yet and which are still to come. Editing old ones and taking longer and longer diversions each time to avoid having to go home and do that pile of marking he was sure wasn't that tall the last time he looked at it. He would predominantly do his walking in the evening so prefers the ability to change his routes depending on if he comes to an area he doesn't fully trust walking through or one that takes him too far out of his way. Through the use of the spare overlays proposed for the base map, he can draw in his own routes.



Fig 19, Freepik (2018)

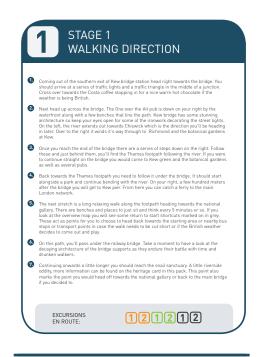


CONCEPT CREATION









of route cards I started layout and as simple and relatable as rough templates based on existing possible rather than trying to build route maps to get an idea of how a whole new design language in everything should fit together, opposition to the one that map As you can see from the above users are already used to. The precedence on the page.

to fit too much information onto bulky so the idea was rebuilt as one card. It was instead decided separate info cards. each stage should have a full page facing page.

Once it was decided to be a pack I decided to keep the iconography pubs or points of interest without relatively simple. The route would one the maps don't take enough initial idea of having fully separate route packs for each excursion pack made the supposedly light There was also the issue of trying and easy to carry pack for too

which shows the extra locations of The rear of the card was kept

cluttering up the main map.

The full page spread of the map on the back. means more detail can be shown that on the previous iterations. This This allowed more in-depth text allowed the base map to show descriptions to give more of an the entire route and include jump informal feel to the documents. At off points and transport locations, the base, the points of interest for The Icons were also established to this stage were noted so you could be similar and scalable in design, quickly check the info cards. The Simple rounded square with lengths of each stage should be contents in the middle, the title kept to about 1-1.5 km to make sure map and text description on the The pub route card is coupled area was big enough for lengthier the text fits on the page neatly. with the acetate route overlays titles by adjusting the arrow length.

be split into the map image on the front and the written description



TESTING PHASE 14



For the testing, I took a series of route card mock-ups on the data gathering to walk around Kew which ultimately was used to decide which card designs would be nice to hold or interact with.

This was also carried out to a lesser extent with the final prototype by passing it around getting to figure out how they think it should be used without giving them any instructions.

Most of the testing research is anecdotal and based on tutors and my own personal feelings of the product. Given that the product is designed for everyone to be able to use it this was deemed as appropriate.

As for material and prototyping the casing forms I made a mock-up of the outer and inner shell out of polypropylene and 300gsm card stock as shown by figure 20.

Here I found that bending the polypropylene left white marks if not properly heated first, the same splintering happened on the thicker card so the weight was reduced for the final product.

The exact dimension where mocked up in card first to make sure the fit was snug enough to give a quality feel but not too difficult to remove.

The state of the s



MATERIAL RESEARCH





Polypropylene Outer Casing Sample

Acetate Map Overlay Inkjet Printing test

Tyvek

So, during the building stages, I looked into different possible materials to build the final cards on. Tyvek obviously popped up as a waterproof, rip-proof plastic paper sheeting. As you can see by the sheeting above it looks exactly like paper. The reason why it wasn't chosen for the final object t was simply the gsm of the paper stock available to print. If these cards were being produced in a larger scale it would make sense to move over to it from the current semi-waterproof laminate the cards are printed on now.

Polypropylene

The outside casing of the build needed to be mildly water resistant and protect the inner card box from the elements. So in order to still maintain a nice physical feel and meet the above criteria, I settled on an outer sleeve design made from polypropylene. Using varying colours and translucencies during testing to see which effect looked the best.

The outside of the casing also acts as a point to clip the route card and overlay to when in use.

Acetate

For the physical overlays, there was only one obvious material that would be waterproof, see-through and readily available for printing on to. The well-used nature of acetate also means that users can print their own route overlays off at home on any standard inkjet printer.

The overlays allowed me to de-clutter the maps and move any supplementary route information onto the new layer.



THE TECHNOLOGY

As described in my user research stages throughout this project I've been trying to find a way of incorperating new and old methods of route navigation. Walking is such a multiuser activity that no one type of person would use this product. Instead it needs to be easily comfotable for both a tech savvy person and a more traditional walker to use. Older and younger generations, people rushing and people enjoying the scenery, people who only want to find a nice scenic cut through and people who want to follow the netire route. The way I have attempted to do this is to provide the user with as much choice and opportunity for personalisation as possible. Do do this I incoperated two commonly available technologies for interacting a device with real world objects.

NFC TAGS

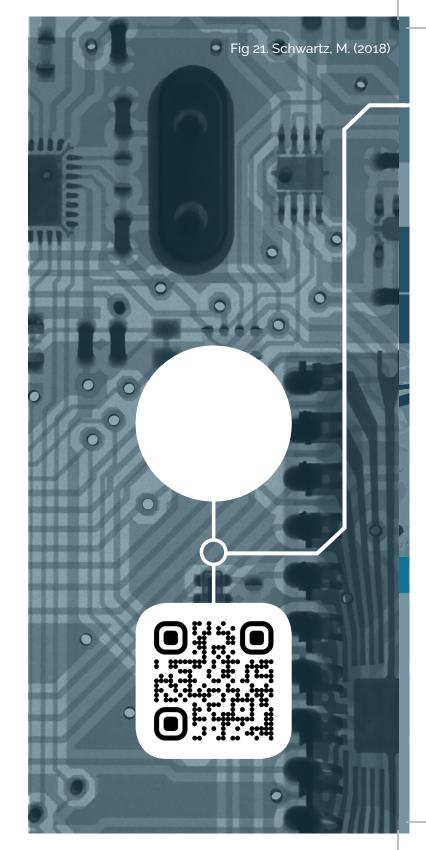
The lesser known of the two is NFC, or Near Field Communication. Whilst the name and logo isn't that familiar to most it is used by almost everyone everyday. It's the same technology in contactless cards and RFID entry keys to offices and hotels. Your phone most likely has it built in if it was made within the last 5 years or so. It's supported natively on almost all android phones without the need for 3rd party apps and It's supported on Iphone 7 and onwards through the use of an app to utilise it.

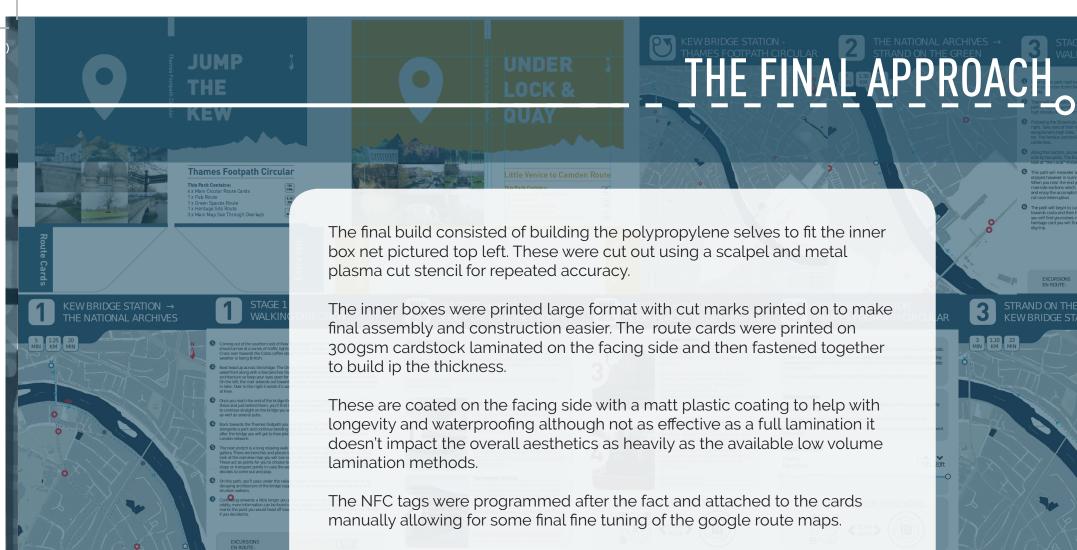
The tag is as thin as the sticker it's mounted to and can be embedded in paper. it's flexible waterproof and reuquire no pwer source. The tag and QR code on the right should take you through to my website as a way of demonstrating the ease at which these perform. For the artefact the NFC tags will take you to that cards specific route.

QR CODES

The QR code is included next to each NFC tag and has the same link embedded in it. This is to alllow for mor users and options for people. Whilst the tags are unlocked and can be rewritten at the users whim the QR codes are static an can't be altered.

They are however much more widely known about and any phone with a camera and access to an app store can download the appropriate scanning app. It works in the same respect a bar code does by embedded data in the location of the black dots. This relates to standard series of bits/data sets. The large squares on the edge are for stabilisation and providing a reference point for the camera so it knows which wav up is.





The stand was constructed from a laser engraved copy of the route map area attached to an MDF stand sprayed white, the wiring for the lighting was then added and wired up to the motion sensor modules.

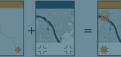
For the creation of the map I used googles map style wizzard which is an open editor based on the google maps API allowing you to edit overlays, which features appear and their intensity, fill colour and stroke colour/ weight. It allowed me to create the stripped back map with customised colour schemes.



















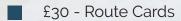


THE LOOK BACK

Fig 4. Spratt, A.(2019)

EXPENDITURE 20





- £25 Final Journey Debrief
- £10 Materials & tooling
- £12 Casing & Inner Box
- £00 Stand
- Unused from Max budget of £80





In conclusion, there are aspects of this project I would greatly like to improve on. To be completely critical the depth into which I looked at map creation and cartography wasn't enough. I would have liked to fully design my own map base to then build up and customise fully but as discussed this was definitely beyond the scope of the project.

Another area that would be the material usage, whilst the laminated card is semi-waterproof it wouldn't stand up to the test of time and a thicker Tyvek card would be more appropriate.

The depth of the local knowledge, on the whole, I was quite pleased with, but I always felt it could have gone further into specifics of the area over a larger time span. Such as which areas were best to visit at these times and which get exceptionally busy around this time.

As for the final build, the lighting system for the artefact stand proved more temperamental than initially anticipated, and the polypropylene boxes would benefit from a tighter radius on the bending jig.

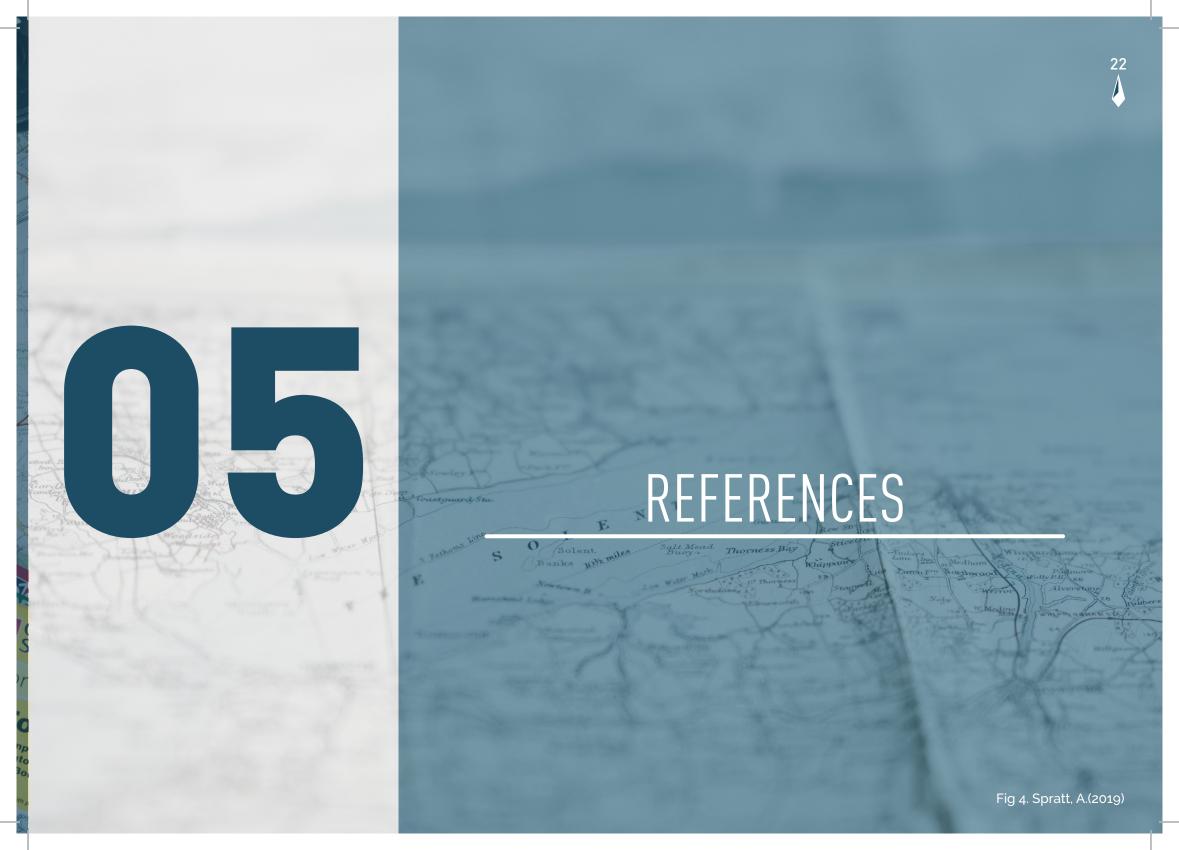
The next stages, if this project were to be carried forwards, would be to develop a larger repository of routes. Building an online platform for users to enter their own routes and comment on the routes already available, offering suggestions and warnings to others. Building a community of trapped urban walkers helping to reduce stress levels of each other. Any user could then design their route cards around their local area.

A route card printing service could be offered where the user selects the 5 Routes they want in their pack and they then get a customised collection of trails and routes. They can either edit them online or use the supplied editing layers in each pack to customise and update their routes even further.

The future development of this project would be providing the end user with as many options and different ways to interact with this project as possible. Customising it further and further and expanding on the existing framework.

THE WORLD AHEAD

Fig 23. Spratt, A. (2017)





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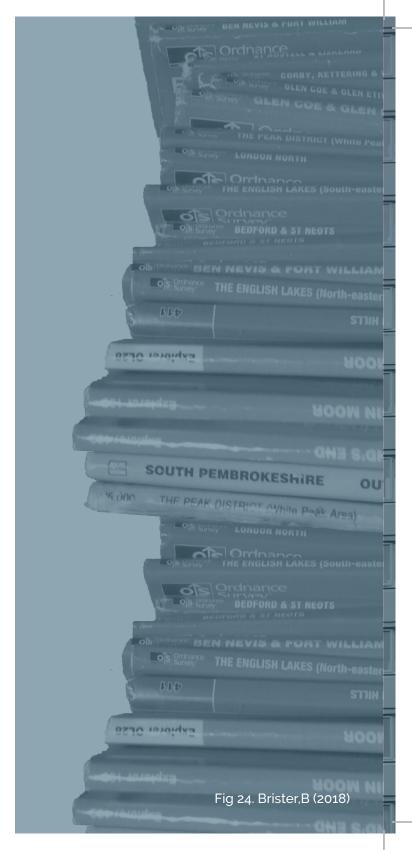
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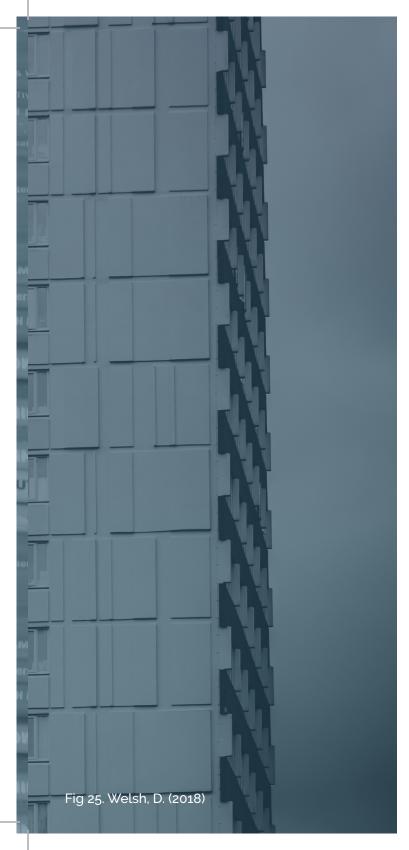
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Fig 21. Schwartz, M. (2018) Circuit Xray. Available at: https://unsplash.com/photos/iGheu30xAi8/info (Accessed: Mar 20, 2019).*Pg* 17

Fig 22. Fortier, J. (2015) Map, point, hike and navigate
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Fig 23. Spratt, A. (2017) Planning for the Weekend. Available at: https://unsplash.com/photos/qyAka7W5uMY (Accessed: 17 November 2018).Pg 21

Fig 24. Brister,B (2018) OS Map Stacked. From the personal library of the author. Pg 23

Fig 25. Welsh, D. (2018) Tower Block Newcastle. Available at: https://unsplash.com/photos/Na3tQKq1tRk/ (Accessed: 19 November 2018).pg 24

