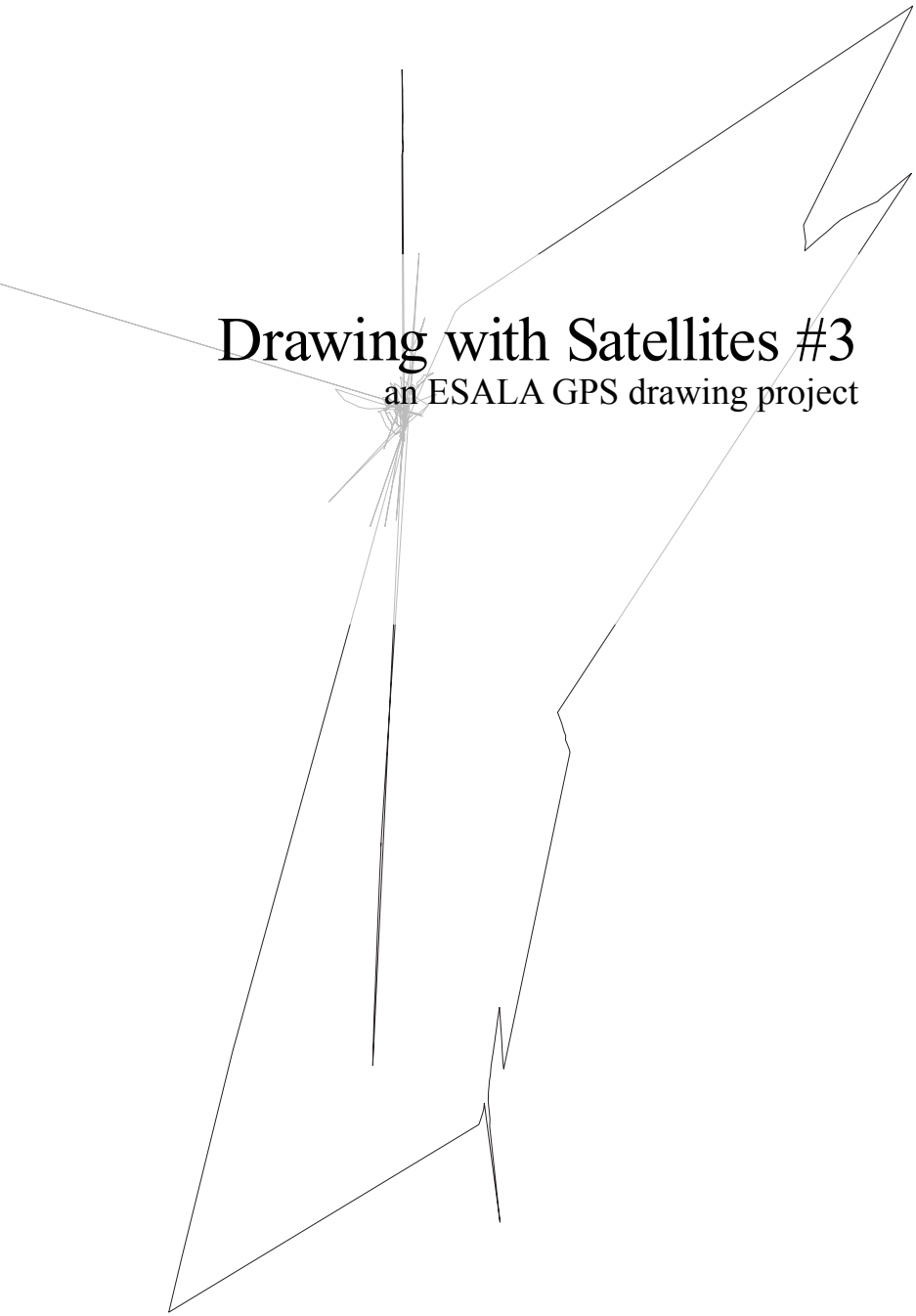
Drawing with Satellites #3

an ESALA GPS drawing project



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Drawing with Satellites is a GPS project for Second year Architecture students at the Edinburgh School of Architecture and Landscape Architecture. The project was delivered by Chris Speed.

For more information visit:
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Based on projects developed in conjunction with Jeremy Wood and Esther Polak.

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Introduction

During a very cold and grey winter, 104 second year architecture students worked in teams to draw the city with a GPS device. No longer do I have to hand them a borrowed instrument from the School of Geosciences that struggles to connect over USB. This years generation of student carries a GPS enabled iPhone or Android device that is able to store tracks and email them to me for cleaning up.

Just as last year, and the year before, the students were briefed during an introductory lecture before getting themselves into groups to develop a conceptual starting point for a drawing. Once they had found a method that would articulate this concept they moved into the street to carry out the drawing.

This years range of drawings sustain the enquiry into representing the city through gaming, geometric forms and code. As ever there are some nice surprises as the students explore the problems of being inside with a GPS instrument and what it means to use the same device to talk to connect to friends in far away places as well as recording walking trails.

Chris Speed, ESALA, May 2013.

Drawing with Satellites, 30th January to 8th February, 2013.

Battleships

3 Puppet Masters
3 Puppets
1 Aim.....To Make them meet.
Three people are placed in three randomly chosen locations around Edinburgh City Centre. Other than what they observe, they are unaware of their position in relation to each other. The remaining three people (masters) are each assigned one puppet. Aided with a digital map of the city, the masters play a game. By phone, each master speaks only to their puppet navigating them with simple instructions (first left, third right, street names etc.) The masters draw the paths of their pupperts onto the digital map as they move around the city. The aim of the game is to make all three puppets meet at a location unknown to both puppets and masters. GPS Navigation is flawed by it's glitches and imperfections but so is the human condition. This game highlights the limitations of both satellite and human navigation and communication.

Jennifer Love
Claire Longridge
Petra Sandberg
Juliet Bastidas
Nawi Bin Pg Metusin
Lauren Wretham

Cops and Robbers: Time and Place

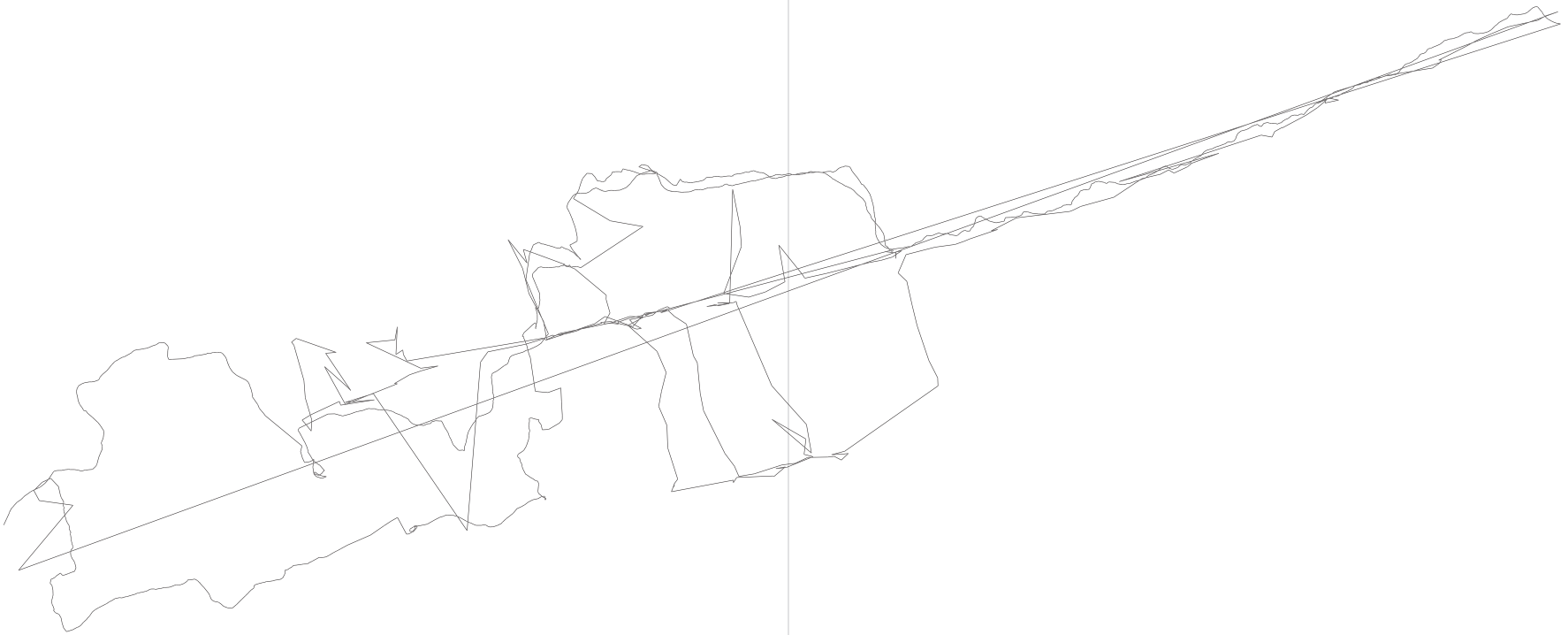
Task: One pair (robbers) starts at the castle at the top of the royal mile, their goal to make it parliament at the bottom of the royal mile without being caught by the second pair (cops) in a twenty minute walk duration.

Perimeters: Royal mile high street it's connecting closes and the two parallel streets that run either side of the royal mile, cowgate and market street.

Concept: Comparative study between cops trying to catch the robbers with and without outside knowledge via phone calls at 5 minute intervals during the walk.

Conclusions: Conceptually thinking about the paths and routes the pairs take to get from point A to B whilst under indirect surveillance compared to a direct pin pointing of location via a live phone update every 5 minutes. Mapping the possible intersections on the line assuming the correct timing, as well as comparing the physical changes in the paths taken under different circumstances such as during and after a phone call revealing their current location. We also gained an insight into the flaws of the gps system through its 2d representation of data in an otherwise 3d context of reality

James Harris
Martin Skarback
Lovisa Lidstrom
Arthur Kirkwood



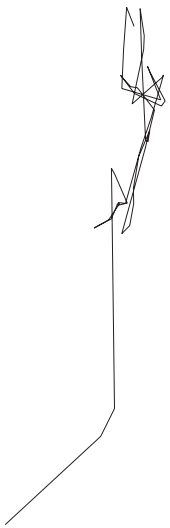
Satellite Hide and Sneak – Getting off the grid

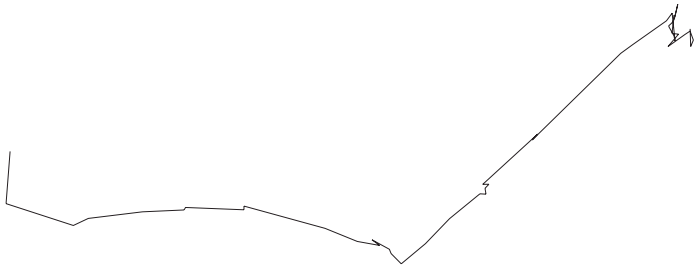
Satellites can be used to locate an individual anywhere in the world at any time. The ability to oversee the entire world from a computer is both impressive and intimidating.

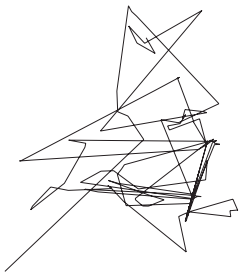
Dzhokhar Dudayev ex Chechen republic president was killed on 21 April 1996, by two laser-guided missiles when he was using a satellite phone, after his location was detected by a Russian reconnaissance aircraft, which intercepted his phone call signal. Additional aircraft were dispatched (a Su-24MR and a Su-25) to locate Dudaev and fire a guided missile. Exact details of this operation were never released by the Russian government. Russian reconnaissance planes in the area had been monitoring satellite communications for quite some time trying to match Dudaev's voice signature to an existing sample of his speech.

Everything is monitored.
Indiscriminate reconnaissance.
The digital world.

Matt Pepper
Nick Botterill
Maryam Hussein
Amy Griffiths
Edward Ponti



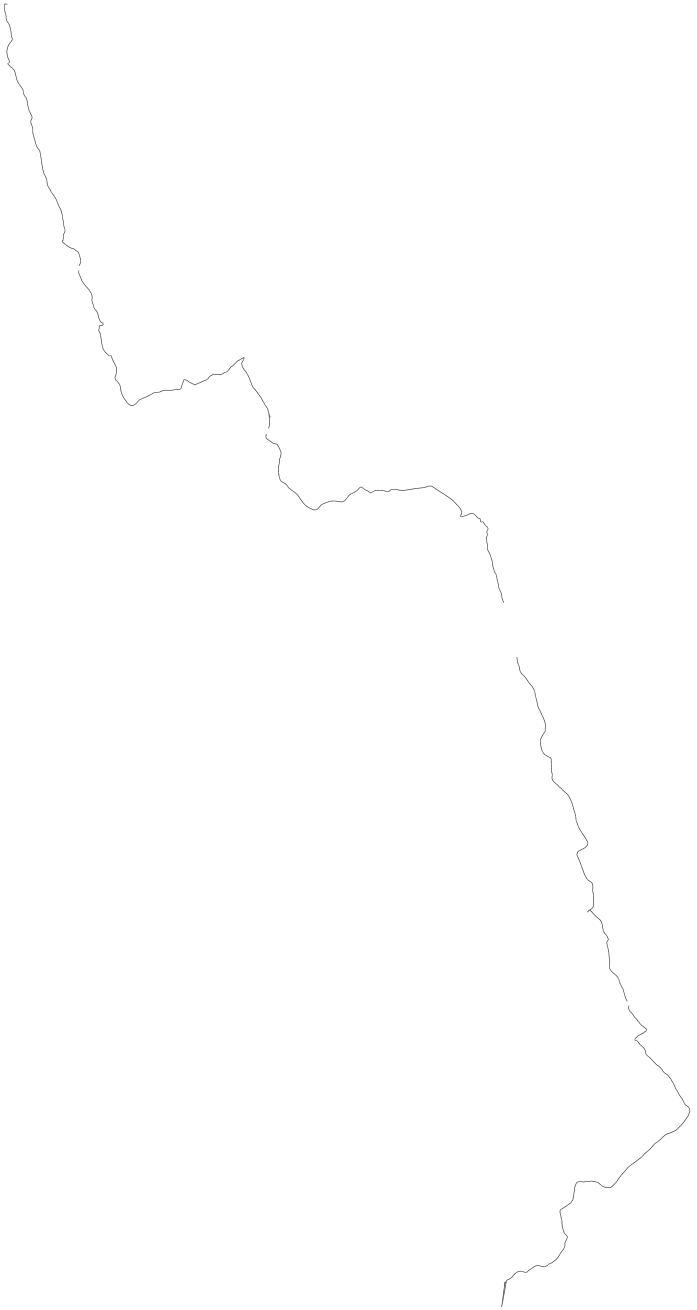


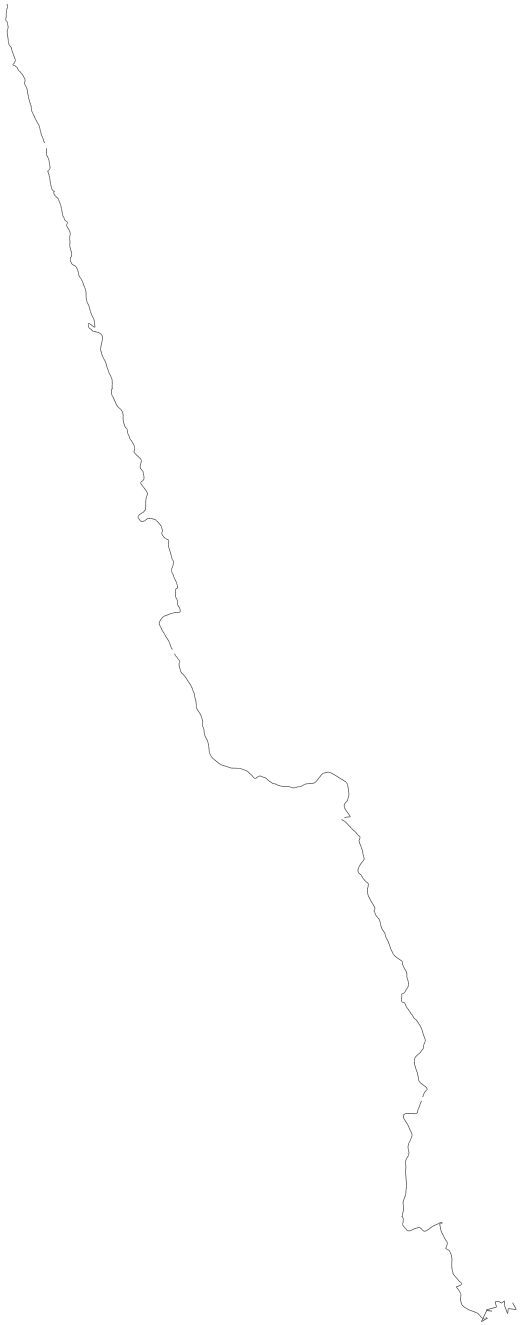


Velocity

We decided to investigate the hidden aspect of time in the city and the way in which taking different paths can influence journey time. We made two groups walk from the Main Library, Old Town to Dundas Street, New Town via Northbridge and The Mound respectively. Our recordings allowed us to explore how quickly one can move around the city on foot depending on the route taken at a fixed time. A timestamp was taken every 5 minutes during the journey in order to illustrate the distance achieved within the amount of time taken to reach our final destination, allowing us to examine the speed in which we were able to travel to our destination. Therefore, a shorter distance covered over a 5-minute interval would suggest heavy congestion and vice versa.

Aaron Lye Ling San
Jamie Reid
Hui Ying Yan
Ng Haidee
Zhang Qian Qian
Naqiyyah Salleh
Connel Binnie
Sami Murchie
Bethany Houlihan
Zoe Thomson



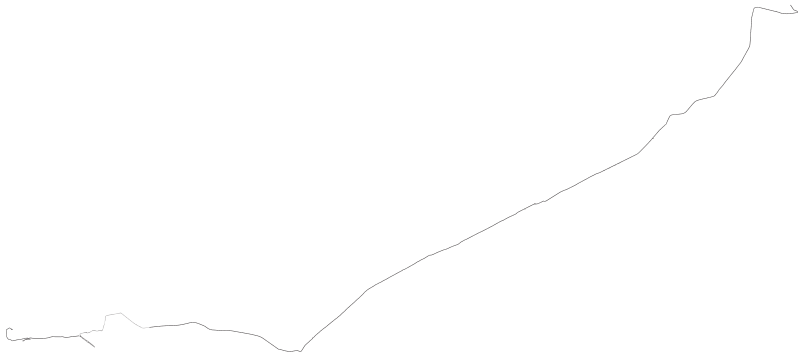


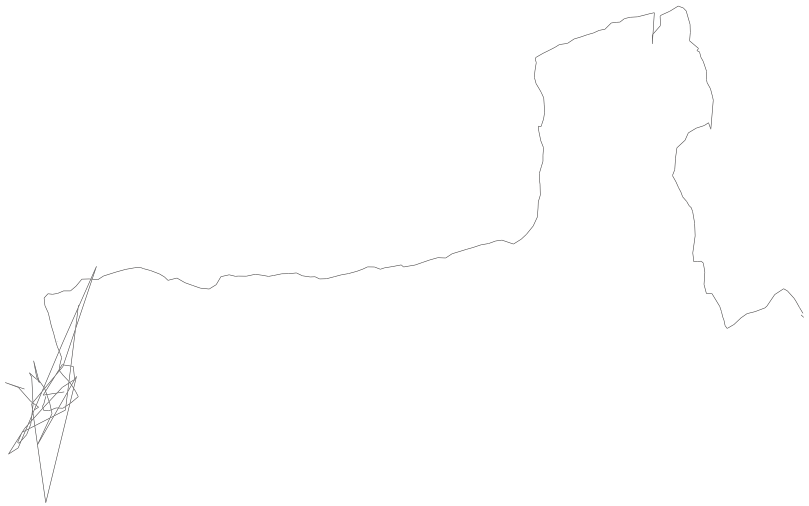
Sister City

The Blackberry comes with a potential 90,000+ apps. Our idea was to use as many as possible to try and place ourselves 'virtually' into another city. The Blackberry Messenger network, for example, which links an approximate total of fifty five million users across the planet, provided us with a platform for sharing our project proposal with family and friends across the globe. We could instantly connect with Delhi, India whilst exchanging our GPS routes at a distance of 4245 miles: essentially taking a half-an-hour walk in one another's cities. Using just our Smartphones, it was possible to keep tabs on the twists and turns taken by our partner (and vice versa) and dictate one another's paths home, suggesting shortcuts, uncongested routes and points of interest that we could research using Maps, Browser, News etc.

Despite this allusion to a globalised world, where we can better suggest routes for one another from a virtual database, do we have a superior comprehension of our partner's surroundings? Whilst we can check traffic reports, bring up road maps, even look up images of the route being taken; we lack an understanding of the momentary nature of the walker's surroundings. We proposed that by studying the generated GPS line, we could glean qualities based on the statistical data of the environment: the speed suggesting congestion, the accuracy of the signal suggesting the closeness of buildings, the shape of the line mapping the directions and shapes of the streets etc. However it was impossible to recreate the reactions to situation one has physically being there and the routes failed to be efficient. At this stage in humanity's technological development, we have found that the digital is not a substitute for human experience.

Michael Cradock
Utsav Jain



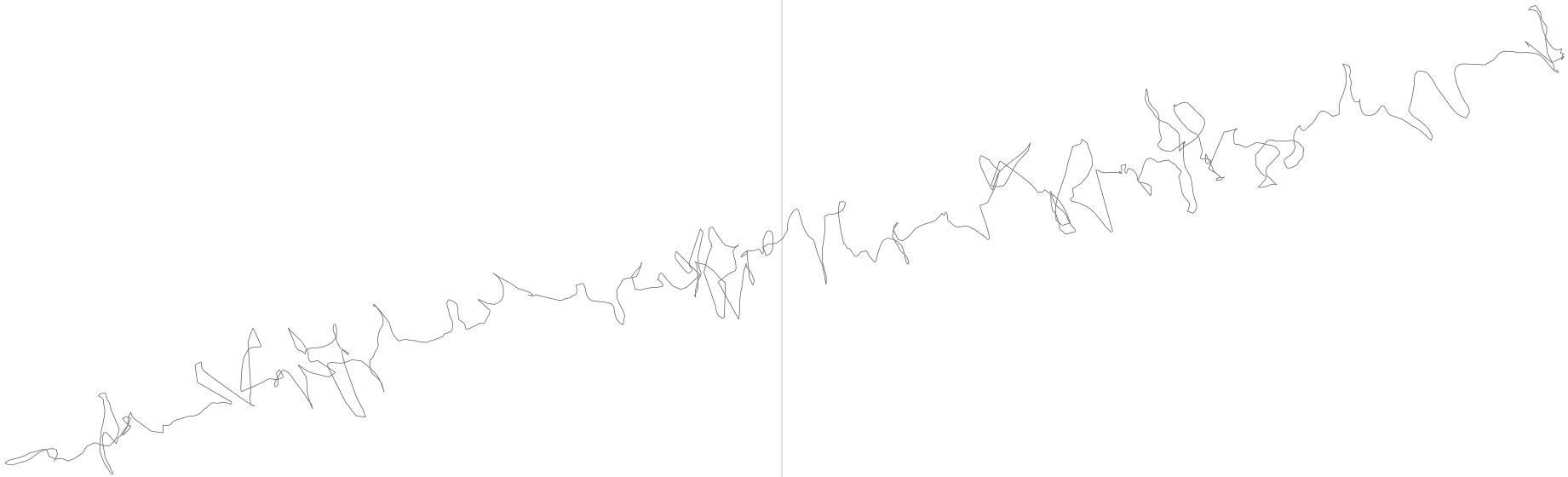


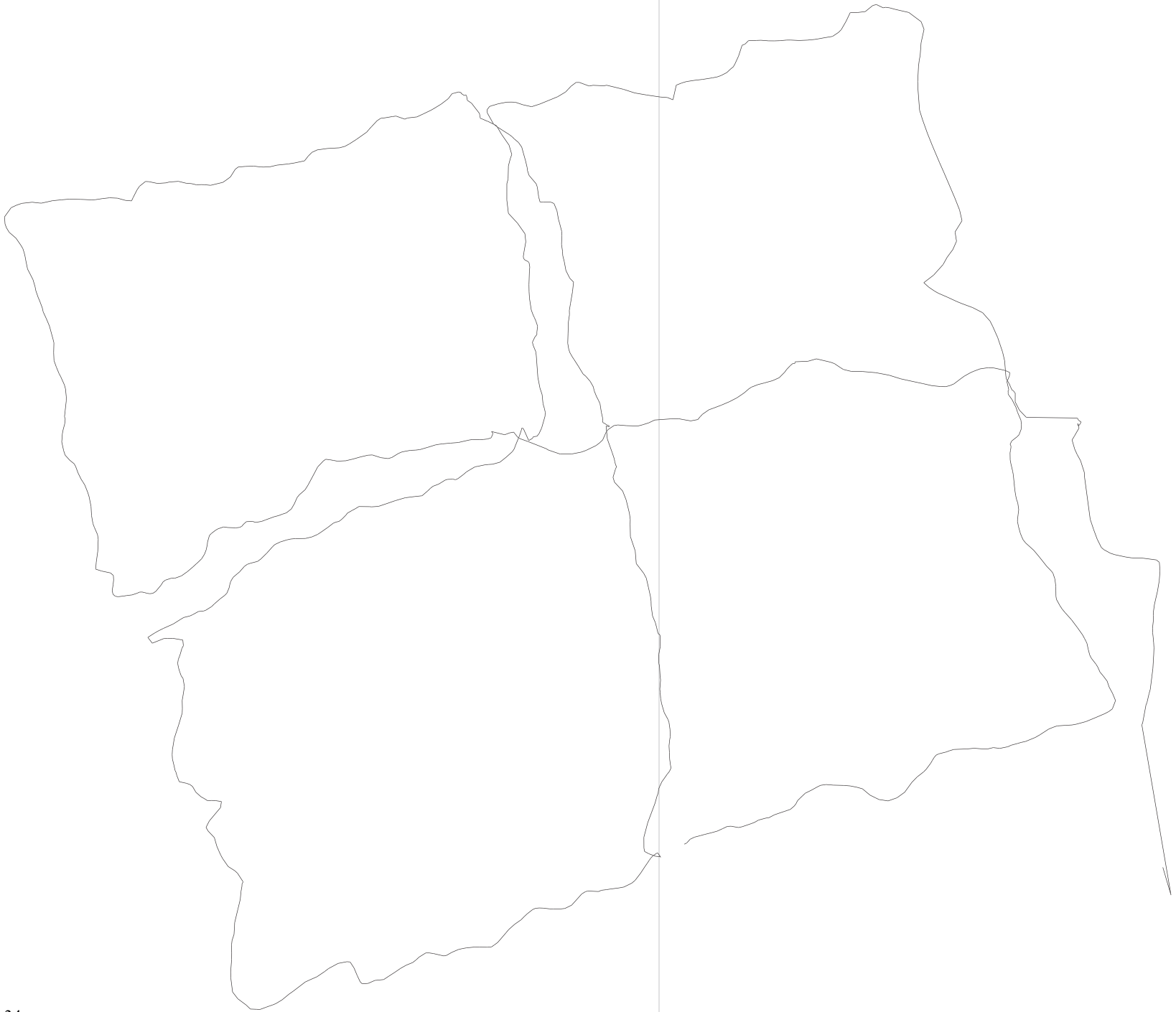
Glitching the 4th wall

Traditionally we consider the city as a series of streets and buildings; a specific combination of public and private spaces which can be easily navigated and defined. However, by exploring the city we have discovered that the street is not as defined as we think, it is porous and hence the assumed limits and thresholds are in constant flux. Through GPS tracking and glitching we have tried to break down these traditional boundaries.

Walking close to buildings causes the GPS tracker to glitch. The glitching makes it look as though we have walked through thresholds, in effect we have broken the 4th wall. The glitching tells the true story of the city; that our senses can transcend physical boundaries. Our drawing conveys the royal mile of the Old Town, showing the organic city with its myriad of limits.

Adam Kelly
Jordan McCrae
Céline Mugica
Peter Wright
Anthony To





Police

Our GPS project focuses on the connection between neighbourhoods and the law enforcement.

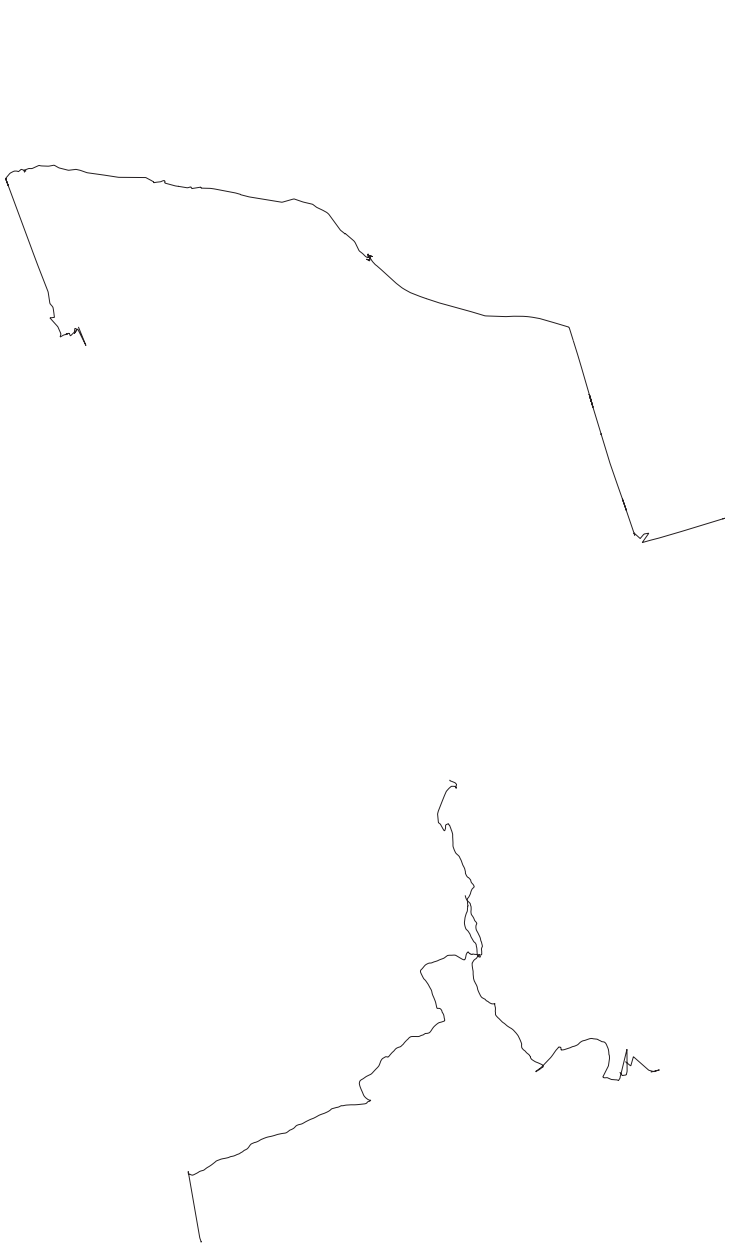
From each of our homes, all in various points of Edinburgh (Tollcross, Fountain Bridge, Beaverbank, and Stockbridge), each person in the group attempted to reach the Scott Monument on Princes Street as this was considered a central location.

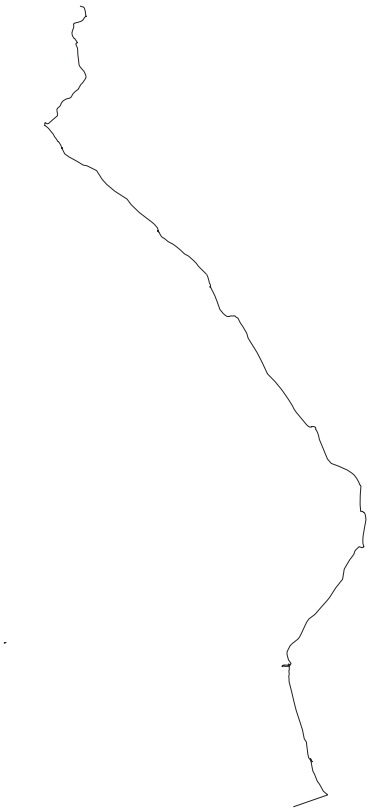
The challenge was that if police were spotted on our walk, we would immediately stop and turn off our GPS system. If the line did not reach the Monument then law enforcement was present in the neighbourhood.

Through our project we found that the police were primarily present in central locations as my line from Tollcross finished at Lothian road, Omar's from Fountain Bridge also finished at Lothian road and Martina's finished on George Street.

This project is as much about the central space as it is about the lines.

Martina Contento
Linda koltsin
Omar Shukri
Ayla Riome
Mazvydas Samoulis
Malin Berg





Follow the Leader

1. to Public Library
2. to Evolution House
3. to Pleasance
4. to Meadows

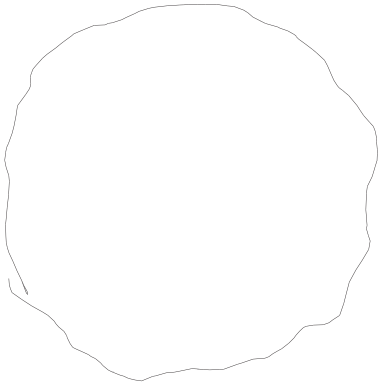
Exploring the notion of the GPS line as a map, we each designed a route from Bristo Square to a destination of our choice. These ‘maps’ created for a certain destination is then redistributed among the group for navigation around the city. Attempts were made to walk the same route and to reach the same destination as the ‘creator’ without the help of traditional maps – testing our sense of scale, distances and orientation in relation to the real world as well the accuracy of the GPS.

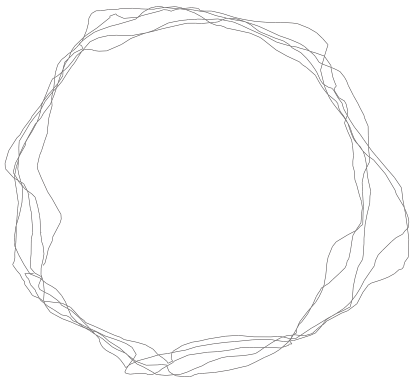
Carol Ch
Steven Hamilton
Stuart Knowles
Jack Moulson

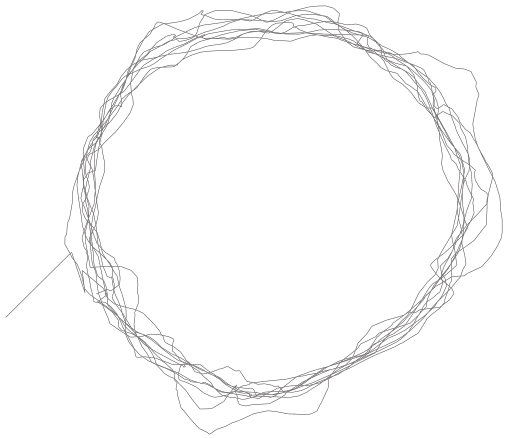
Perfect Geometry, Imperfect City

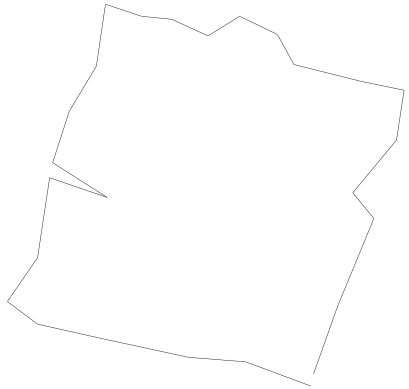
To the designers of Edinburgh's new town, the square and the circle were the purest of forms, however the way the inhabitant experiences and traverses these circuses and squares is less than perfect. In this exercise we took a circle and a square and walked them repeatedly to create a layered drawing: one made up of minor variations, but inevitability defining the geometry of the space.

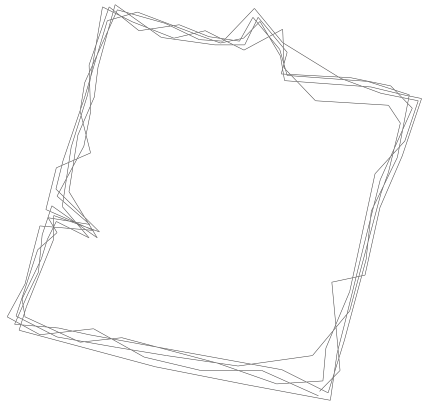
Adam McFall
Adam Ramsay
Bojana Papic
Leigh Clark

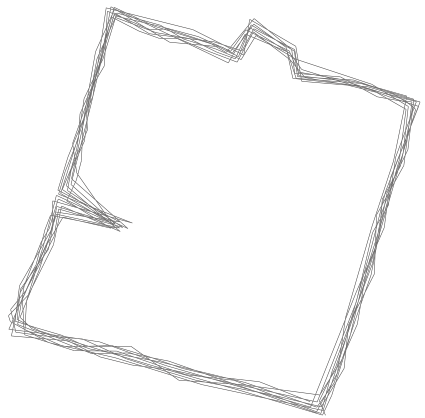








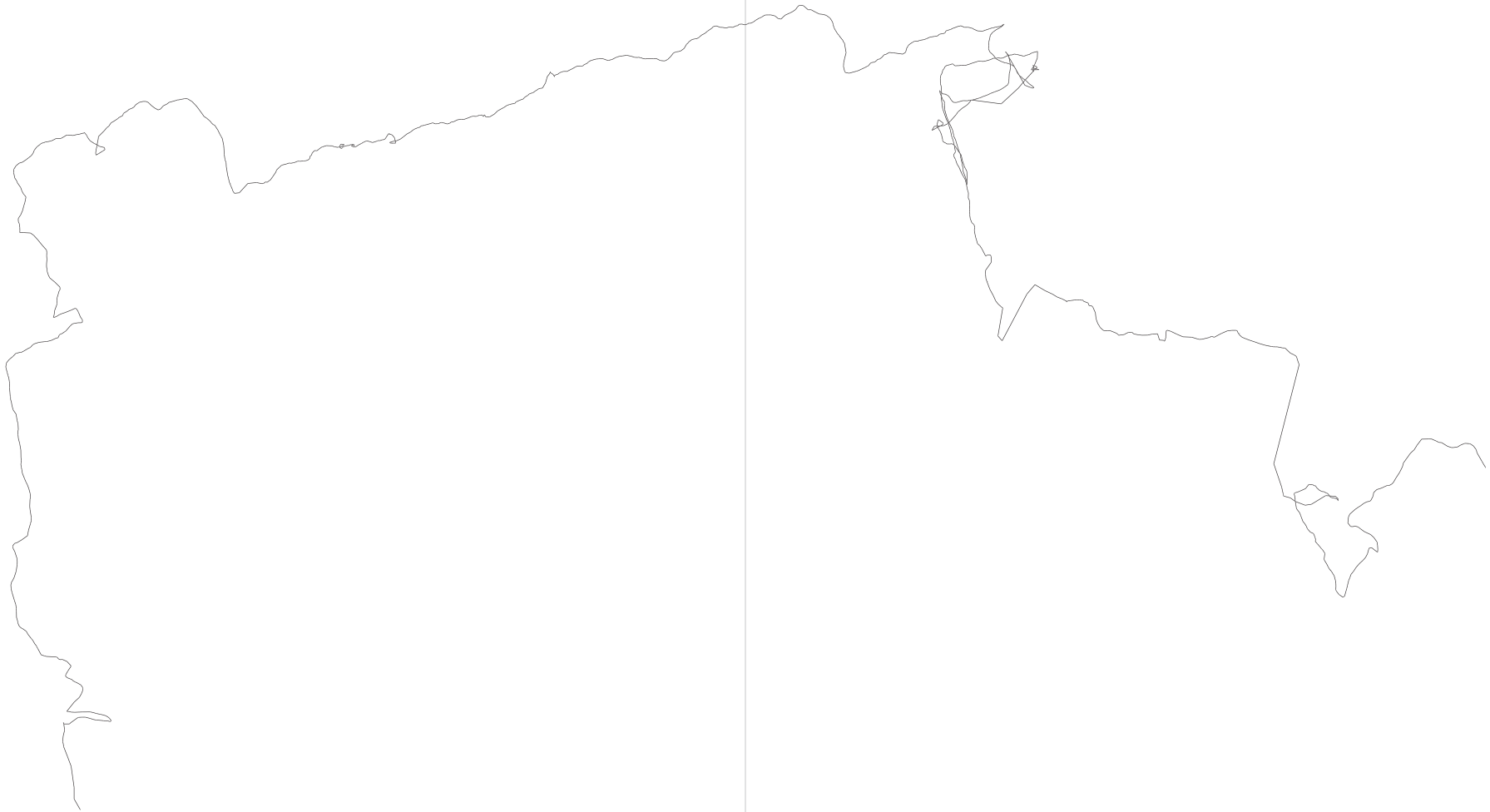




Fags and the city

Edinburgh is a city with heavy historical value; however, not many people have yet paid attention to the relation between human's habitat and the functionality of surrounding buildings. The objective of our route is 'to follow the "fags"(cigarettes)', we set Lothian road as our starting point, which allowed us to walk pass many Concert halls and all major night clubs at Edinburgh, and the route ended at Cowgate (near Waverley Station). Throughout the journey, we identified places with the greatest/least number of cigarettes and the reasons behind. This directly links to the living standard, satisfaction and appreciation of people in the Edinburgh. We discovered the reasons why people are smoking are actually related to the function of the buildings/facilities.

Rodney L Y Li
John C H Lam



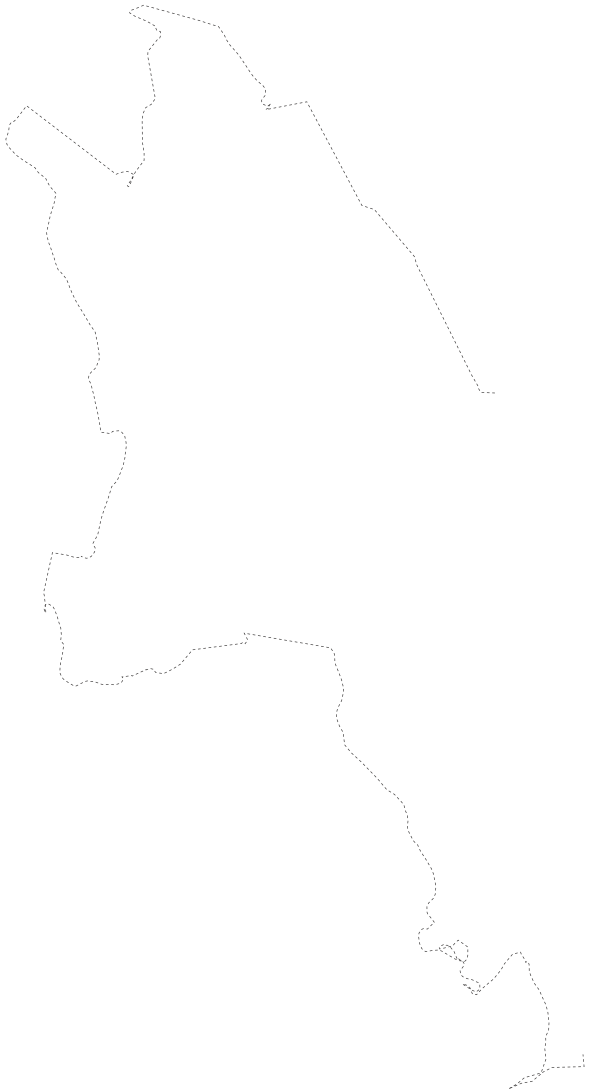
Undercover shopping

Testing the strength of GPS signals, we wanted to try an escape from the satellites around the city by taking shelter as much as we could.

We started in an indoor market then we went down the Scotsman stairwell, though the train station, into the connecting shopping centre, then onto princes street attempting to shade in some shops. We then went through the bus station and finally through the neighbouring shopping centre.

Using three devices we found that some were picked up by more satellite signals than others despite being on the same route at the same time. The resulting images have the same overall form but on closer inspection individual routes are distorted. The project showed that individual devices vary and despite attempting to hide, a satellites signal can penetrate through many layers and structures.

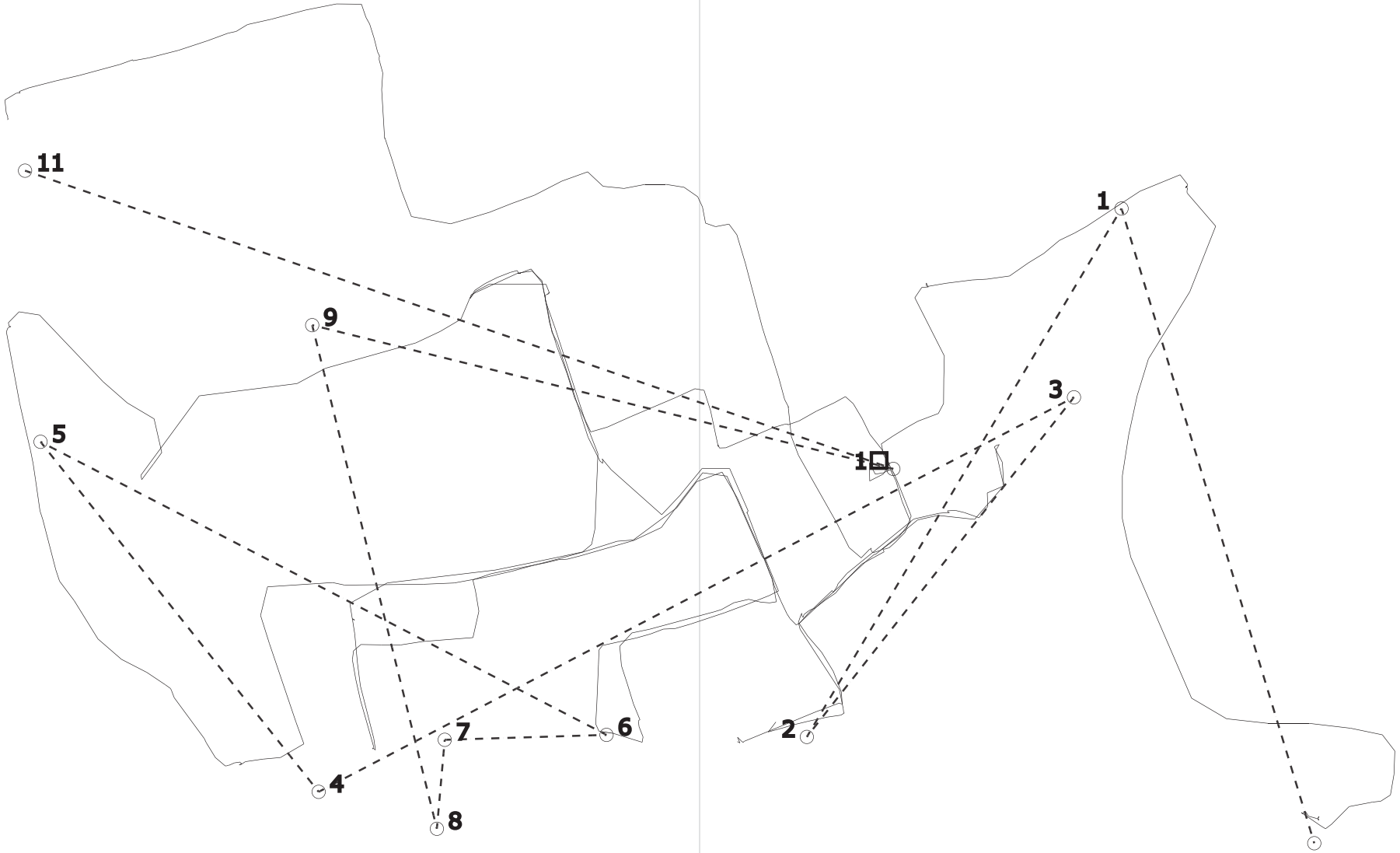
Sarah Kemp
Catherine Boag
Yifan Xu



Random

We wrote a program that generates N random coordinates within an assigned range and inserted the result into a .gpx file. We then let ourselves be guided by the code and drove through Edinburgh, following closely the generated lines. This is to demonstrate how digital manipulation could easily offer an alternative way of thinking about space by triggering new types of behaviour that operate beyond human capabilities.

Maxi Hamilton
Gergana Staneva


11
9
5
10
1
3
2
6
7
4
8

Circulation

Our aim was to explore the circulation of roads by car within the centre of Edinburgh through the means of a game of ‘cat and mouse’. The game forces us to consider the hierarchy of streets in different areas of the city whilst being aware of one way restrictions and traffic lights. Moving away from the main roads at times in order to avoid dense traffic enables us to explore quieter routes available through the urban environment.

Because of the lack of destination the streets didn’t become a means of connection between points but instead the streets and turnings became automatic decisions in the context of the game.

Jack Cripps
Jo Wilson
Callum Aitken
Sam Pardo-Preston
Timi Fagbemi
Imogen Strezelecki

Connection

We wanted to get all the members of the group involved in the drawing process. This decision played an important role in the formation of our concept. We kept a list of the names of the members in alphabetical order which was our only control variable. An object was to be chosen by the last person on the list to be given to the first person. The connection that the member establishes between the object and the city would determine our next destination. The path and the final destination were influenced by the choices made by each individual and dependent decisions made instantaneously.

Kay Razak
Kevin Kuriakose
Guiseppe Ferrigno
Thanpisit Tangwongsiri
Simay Yildiz
Rahul Cheekhooree
Henry Ma
Joe Scotchman
Ruth Mitchell

Two wrongs don't make a right, but three rights make a left

We were interested in the idea that our ramblings through Edinburgh with a GPS device would return a series of codes, a .gpx file, and so we decided to give ourselves a cipher to follow. We split into two groups and started from Minto House on Chambers street. One group followed the code "left, right, left, right..." whilst the other group followed the code "right, left, right, left..."no matter how small the path was they would continue to follow the code and not stop. Each group walked for 30 minutes passing though alleyways, vennels, roads and crossings.

Sarah Carruthers
Amy Sanderson
Ian Cunningham
Charlotte Finden
Damilola Soji-Oyawoye
Manting Li
Henri Lacoste

01000101 01100100 01101001 01101110 01100010 01110101 01110010 01100111 01101000

It is believed that certain factors, like choice, create the distinction between humans and animals. So, in this exercise, we experimented with eliminating the element of choice, and seeing if we could continuing to communicate and succeed in reaching goals without it. Using binary code to convey a specific idea, we assigned the 0's to left and 1's to right and set out to see where these directions would lead us.

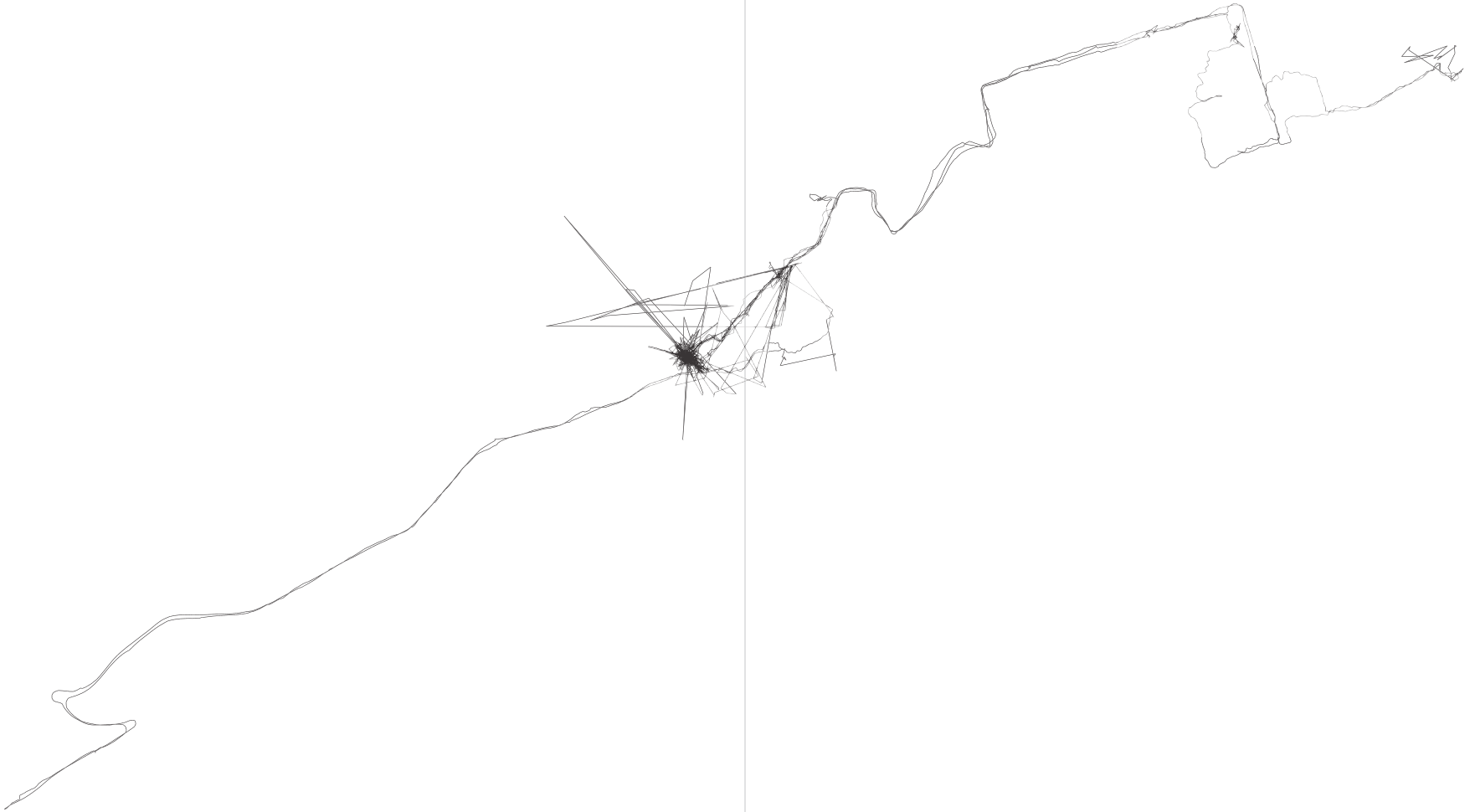
Calin Barbu
Rachel Milne
Robert Rattray
Maria Ardemasove
Alvita Delia
Daria Vidisheva

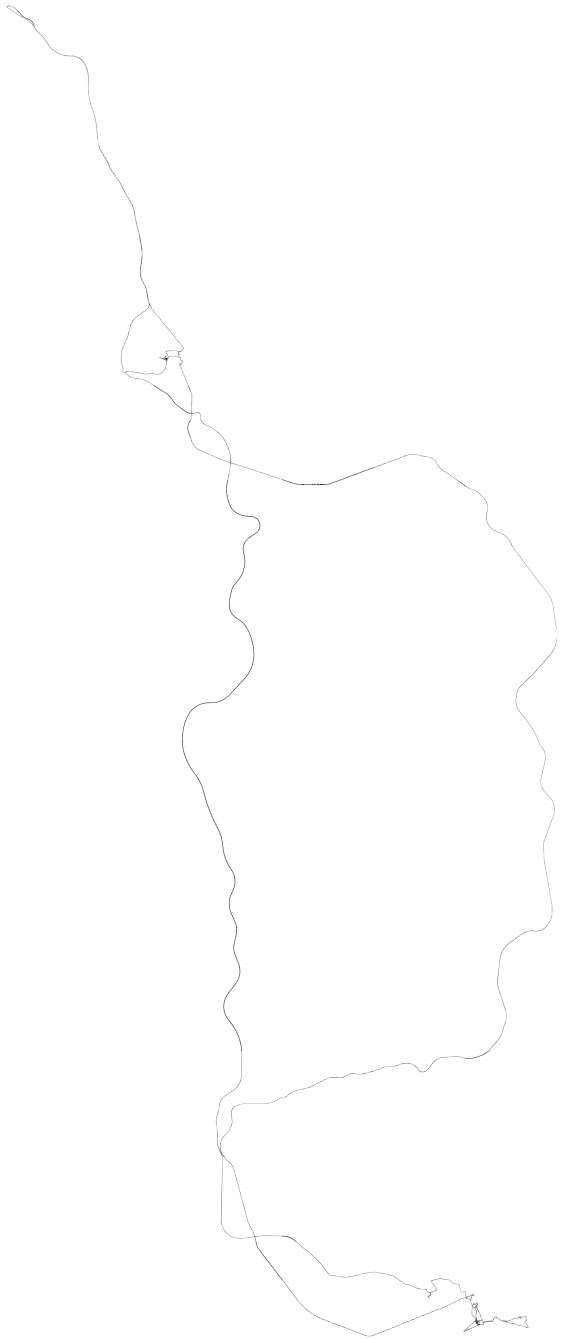
Unexpected Journeys

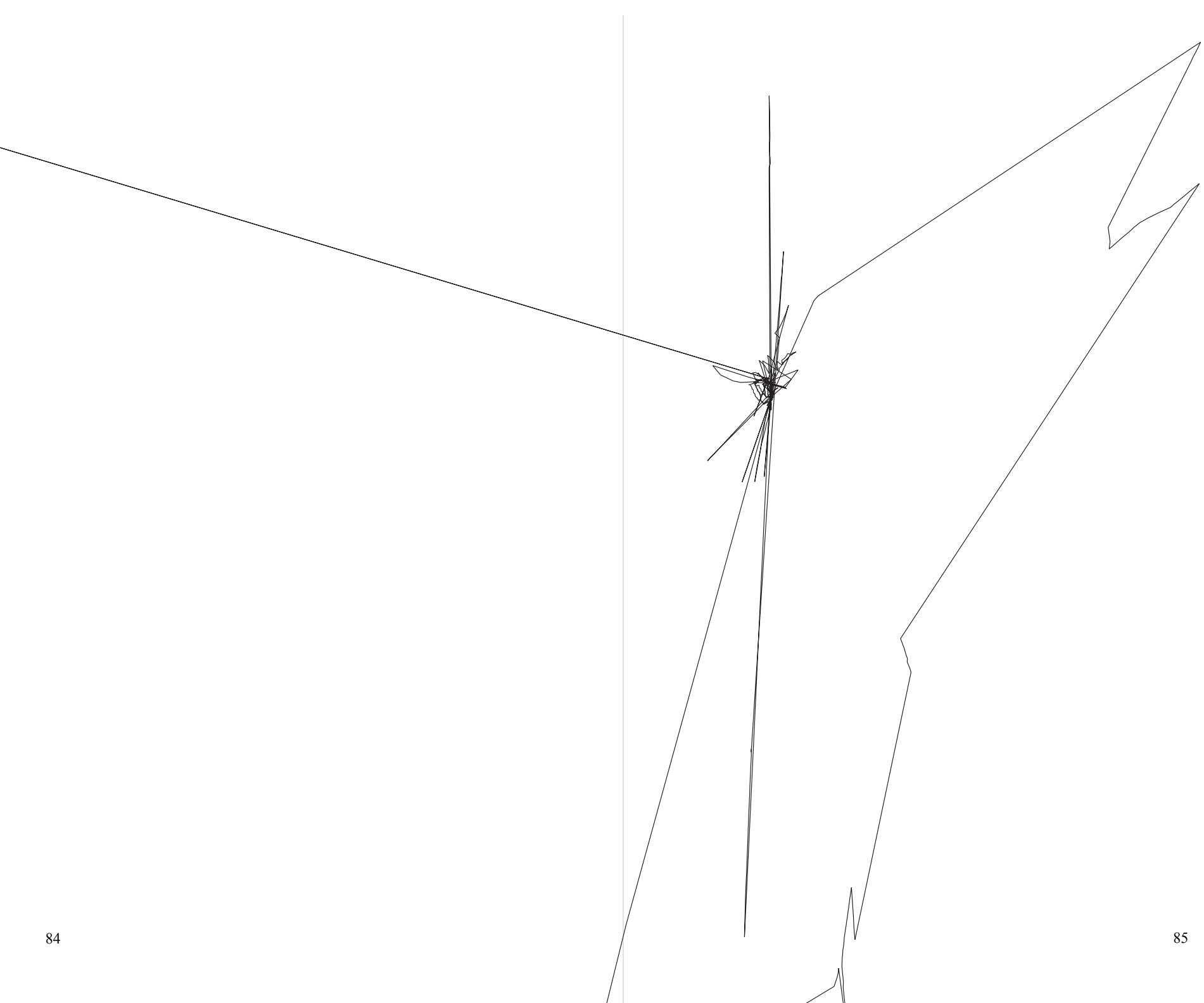
A journeys destination is definitive , however there are infinite variations on the route taken.

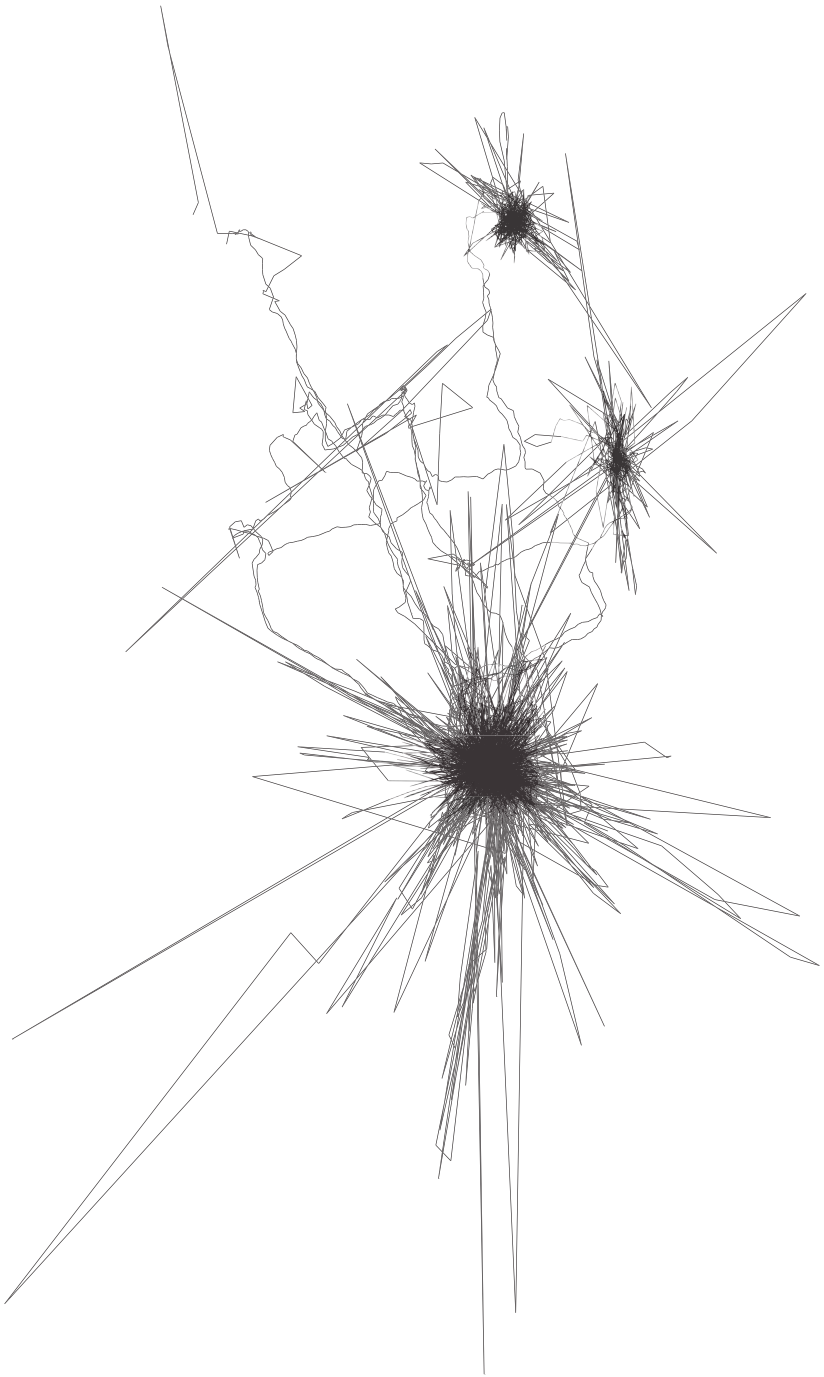
Beginning at the studio we each mapped our journey until our inevitable return back to the studio. Our lines were independent of time as our time of return was unknown. Prolonged use of the gps tracking program led to unexpected fluctuations in our lines. Our differing ‘apparent’ social networks have resulted in contrasting paths.

Angus Bolland
George Baxter
Soichi Honda
Siddhartha Thomas









Data in spirals

Form: 1.70km, 0:22 h

“If space is not matter, is it merely the sum of all spatial relations between things?” (Bernard Tshumi, Questions of space)

Our line attempts to represent the “space” present on Bristol Square in a moment frozen in time. The relation of space is expressed by gradually expanding a spiral path from the center while allowing the radial pattern of the stone tiles on the ground to help us. We used the idea of a spiral, as its continuous radial design allowed us to identify things in the form of ‘pulses’ or ‘disturbances’ in its circular form. In this drawing, as well as identifying the square, we also tracked the path of a person walking from one end to the other. Every time our spiral tracker encountered this person’s path or a freestanding body within that path, three circles were made around that point of intersection. As a result the start and end point can be seen as tiny ‘scribbles’ outside of the drawing, with the others in between within the spiral, showing the trajectory of that person’s path across the square.

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Koh Kang Li
Petronele Petrauskaite
Cheri Gu
Emel Fakir
Kirsty Strang
Carole Shek

Subjective Landscapes

Unpredictable phenomena occurs when trying to objectify purposefully subjective information. By translating a codified language into identifiable instruction, the subject seemingly navigates literature as opposed to topography.

Your mission if you choose to accept it:

Fill your stomach,
Take a sensational turn,
Follow the first smell you encounter,
Vision is important - read between the red lines,
Head for beauty behind the squalor (we are not fans of the repercussions of modernism,)
Let the light pull you into the old,
Continue on a downward spiral (spiritual or physical,)
Move to a position of elevation (spiritual or physical,)
Retreat from noise,
Find sanctuary in the familiar,
Lose it in the peculiar,
Go back on yourself but this time take road less travelled,
The wind blows through a space
shadow its direction,
Until you find shadows that fall long,
Tentatively proceed to a softer contrast,
Aim for enlightenment,
Take refuge.

Archie Cantwell
Alice Moxley
Rachel Braude

Thanks to Douglas for making the time between projects.

ESALA

Edinburgh School of Architecture & Landscape Architecture