

See Figure 1.

David Hunter¹ (contactdavidhunter@gmail.com)

¹ Ravensbourne University London

DATA WALKING

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1. RESEARCH PURPOSE

Data Walking is an ongoing research project exploring the potential of walking to gather environmental data and then through multiple walks and visualisations build a rich picture of that area. The project examines technology and tools for creative data gathering and experimenting with data visualisation, gain insight, and share knowledge. Working with participants on walks and through creating visualisations, the project aims to engage participants on issues relevant to our communities, and empower those communities with new skills and tools to create new knowledge and new tools.

2. BACKGROUND

Data Walking[1] began in London, 2015, exploring the potential of low cost technology to build a picture of urban spaces. An online repository[2] was created to store a year

of walk data and the tools devised to gather it, so anyone could go on their own Data Walks.

Impromptu walks in cities I visited were followed by workshops in multiple cities. Each workshop has been a unique take on Data Walking due to the participants involved, the area explored, as well as constraints like available time and resources.

In 2018 a report (see figure 1) was printed detailing the aims of the project, practical advice on tools and methods to start Data Walks or workshops, and featuring the visualisations of designers, educators and students who took part in the project. The repository was expanded to support the book.

3. DESIGN/METHODOLOGY/APPROACH

GPS enabled microcontrollers and smartphones allow the accurate gathering of data by latitude, longitude and time are the crux of the method/platform. With this platform, a variety of sensors can be plugged in, or enable GPS data recording with another tool that normally has no facility



to do so. Processing and other free software have been utilised in both data gathering and data visualisation, encouraging participants to engage with coding. However, knowing the exact location and time of a datapoint are not essential to conduct a Data Walk, and successful workshops have not used this technology. Equally, many processes have not been code-driven. The project approach has evolved from looking at quantities to investigating qualities.

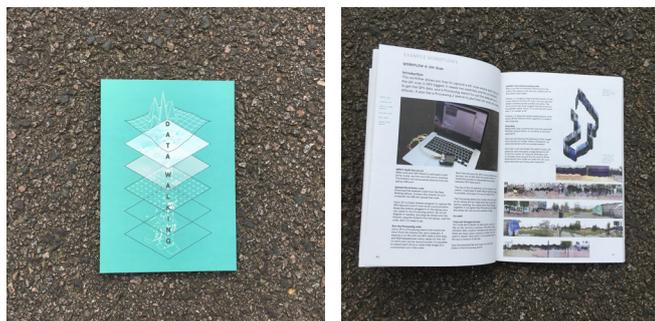


Figure 1: the Data Walking Report cover, and spread



Figure 2: Arduino with sensors held while walking in North Greenwich

Typical Data Gathering Methods

- Arduino + sensors such as light, temperature, sound, air quality (see figure 2)
- Smartphone photography
- Note taking
- Audio recording

Other Methods Explored

- Object collection
- Floor rubbings
- Geiger counter radiation sensors
- GPS enabled slitscans
- 3D capture with depth camera

Typical Data Visualisation Methods

- Hand-sketched charts
- 3D printed charts and maps (see figure 3)
- 2D Charts and maps made with Processing (see figure 4)
- Data-driven maps with Mapbox

Other Data Visualisation Methods Explored

- Interactive 3D with Unity
- Textile-based
- Real-time light-based with Arduino + LEDs + sensors



Figure 3: 3D printed data cylinders

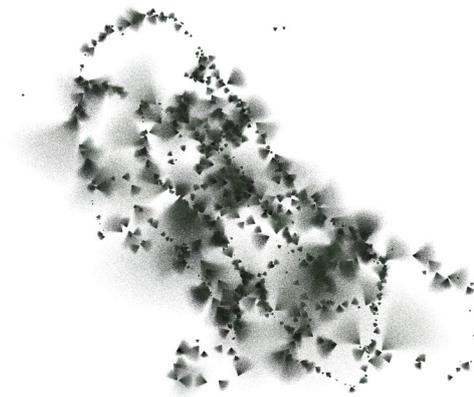


Figure 4: Map of green matter extracted from photos taken across the North Greenwich peninsula.

4. ORIGINALITY/VALUE

Data Walking contributes to existing and ongoing work by many other practitioners and organisations[3] using walking combined with citizen science and environment sensors[4], quantified self[5], urban exploration[6], big data[7], flaneurism, co-creation and participation[8,9], community initiatives[10], data-driven design[11], design research and data ethics[12].

Data Walking fuses some of these aspects together to cre-

ate a flexible and coherent workflow from data gathering, processing, and visualising for anyone with an interest in exploring urban areas through direct experience and expressing that with data visualisation.

Through overlapping skillsets, agile collaboration, Data Walking hopes to bring different disciplines closer together with creative data gathering methods and ambitious visualisations.

5. PRACTICAL IMPLICATIONS

By using Open Source technology and in turn sharing all the data, code-created tools, schematics for electronics, and workflows, this project and its transparent approach is about empowering those who want to explore urban environments through data gathering and visualisation regardless of expertise.

Data Walking makes use of a variety of tools and mediums and encourages practitioners to bring their own unique skillset and toolkit to the project. In this way a wide range of people from different backgrounds can participate with the project and potentially collaborate with one another, bound through a common interest/theme, common skillset, or a desire to learn new skills.

While different technologies have been proven (or disproven) to be suitable for data gathering while walking, and workshops have raised some interesting discussion points and perspectives on urban spaces, a future phase of the project would benefit from focusing on a specific issue and digging deeper into it.



Figure 5: Participants in a workshop at Tatung University, Taiwan, showing a map created in Processing using Unfolding Maps Library

6. IMPACT

The project has had impact in different ways at different levels. The book has been distributed to designers, educators, journalists, and scientists in over 100 cities in 24 countries, and the GitHub repository of data and code is available to anyone. Feedback from those who have received the book has been positive, many stating it has inspired them to start their own walks or try new methods and workflows.

There have been conference and industry presentations, as well as workshops. Workshop participants range from students to professionals (see figure 5). Methods and lines of inquiry into urban spaces have also been utilised in academic teaching on information design projects.

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