

Space Mapper

A Privacy-Focused Mobile Phone Application for Active Positioning Research

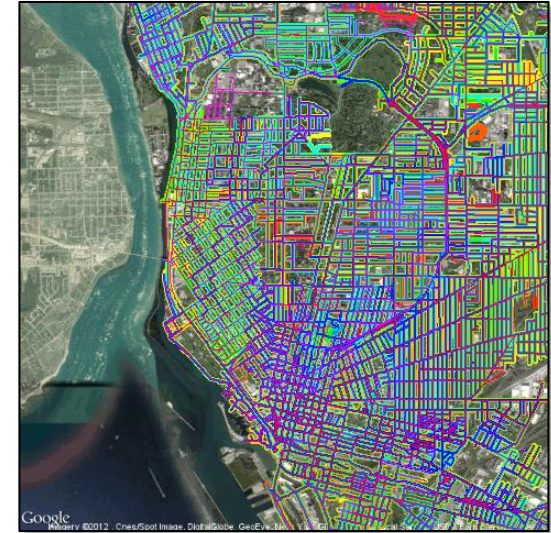
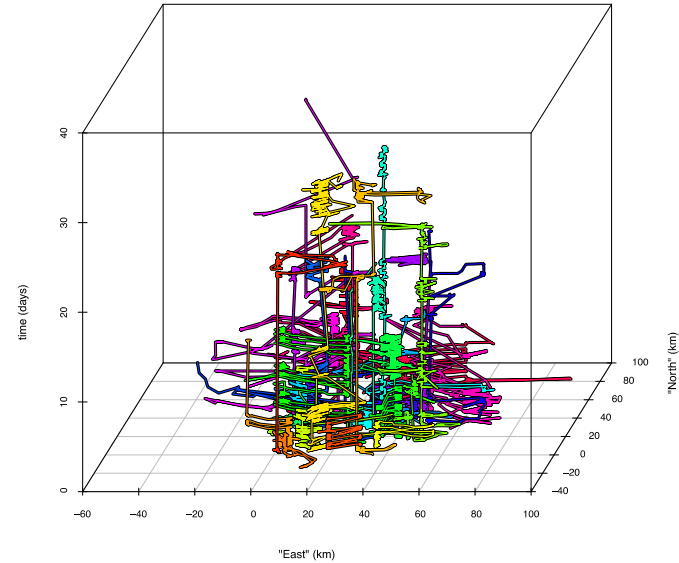
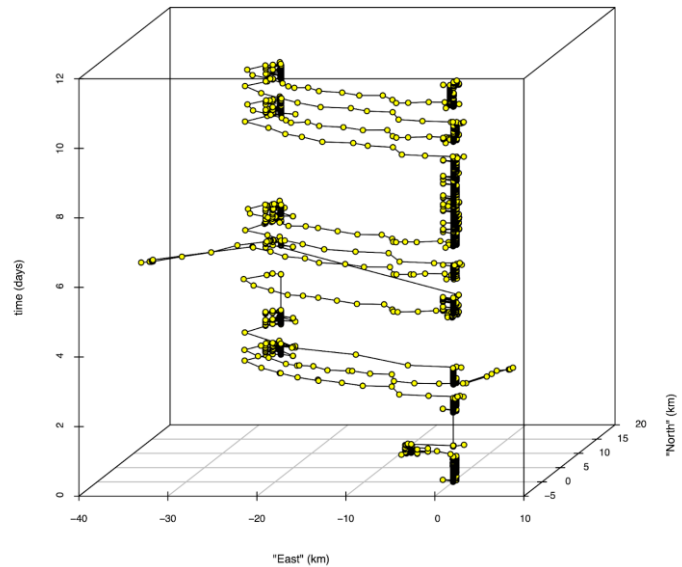
5th Mobile Apps and Sensors in Surveys (MASS) Workshop

John Palmer

Socio-Demography Research Group, Universitat Pompeu Fabra, Barcelona

Data: Type, Spatio-Temporal Resolution, Quantity

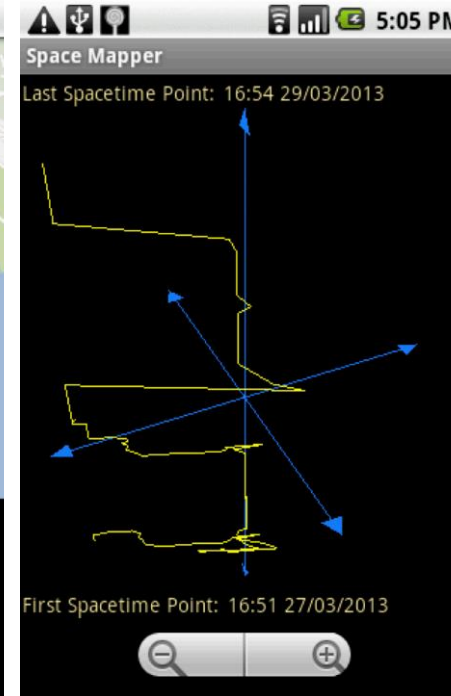
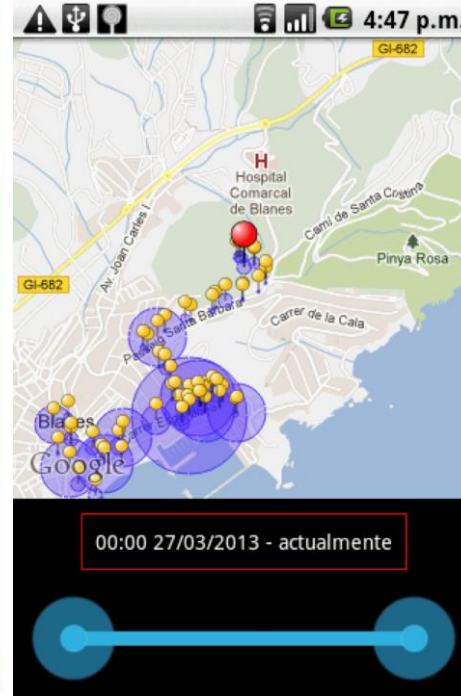
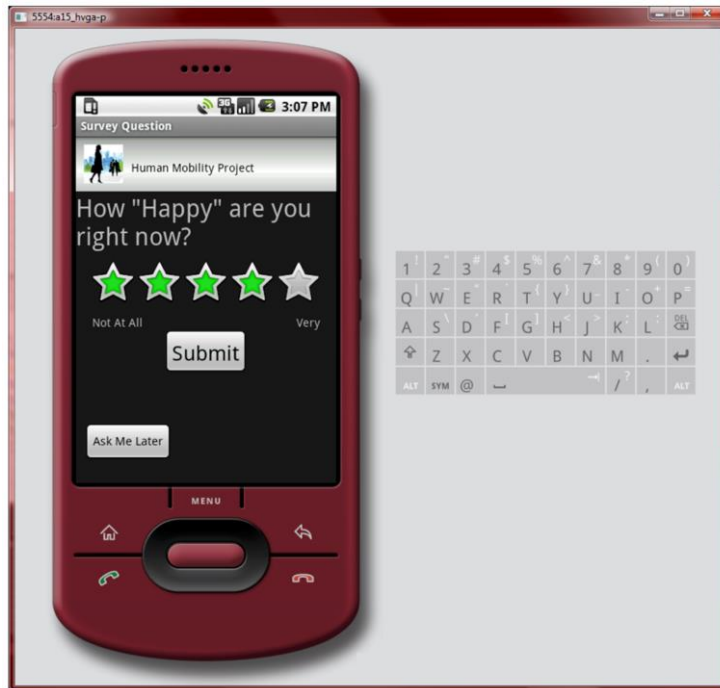
What data are we trying to collect?



From: Palmer, J. R. (2013). Activity-space segregation: Understanding social divisions in space and time (Doctoral dissertation, Princeton University).

Design: UX, PX, HSX

Are we designing for users, participants, or human subjects?

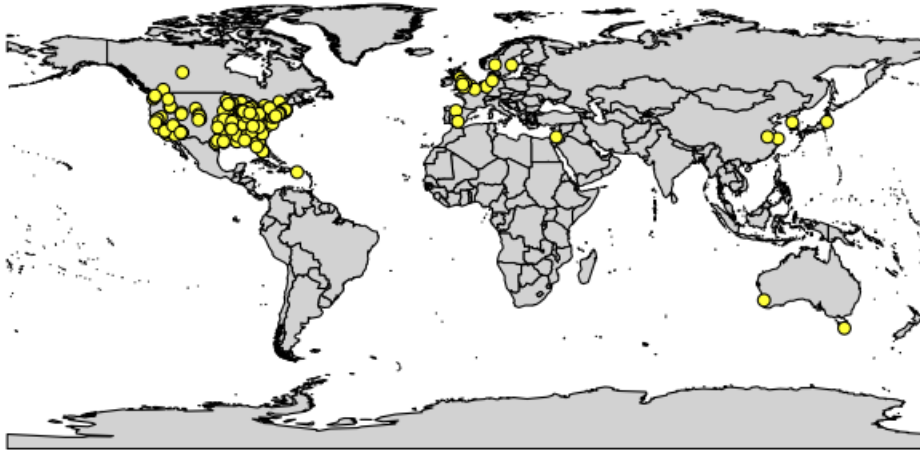


Sampling People: Size, Criteria, Recruitment

Who do we want and how will we motivate them to use the app?

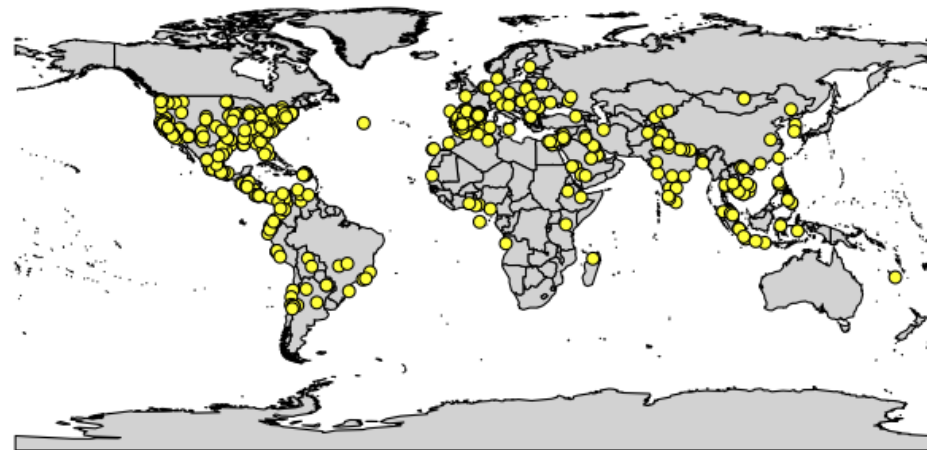
Human Mobility Project

270 participants; 68,198 location estimates



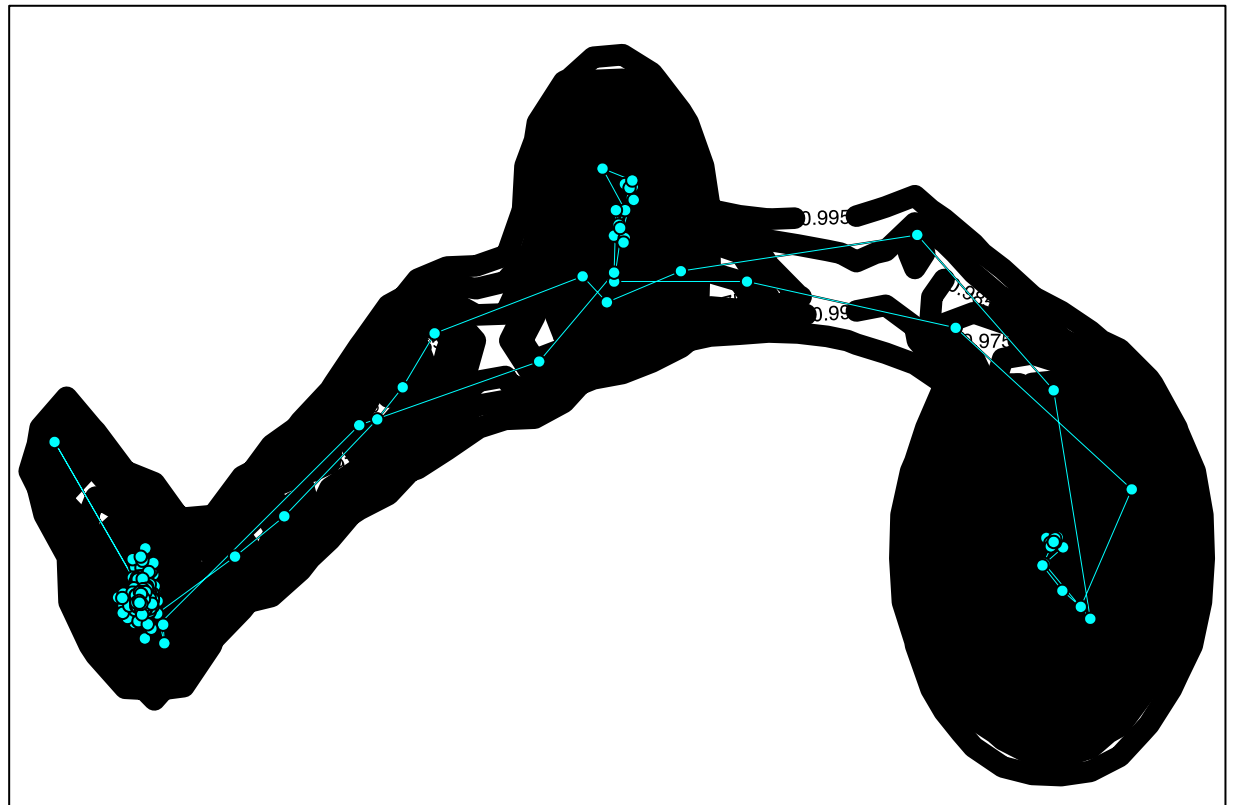
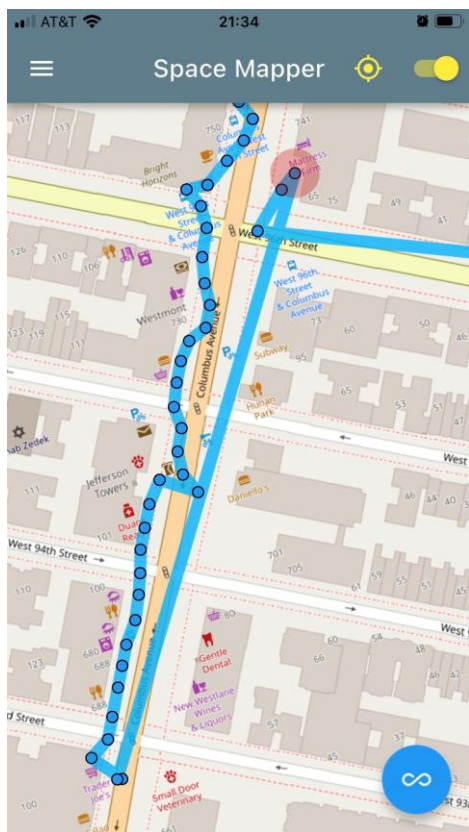
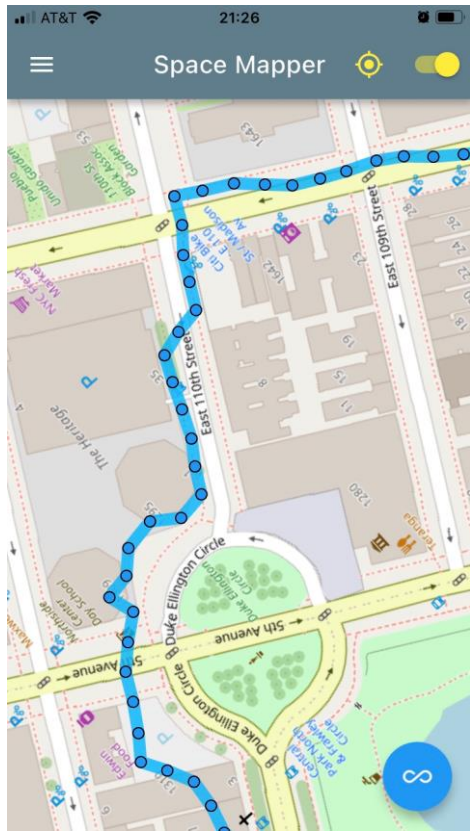
Space Mapper v1

900 participants; 739,224 location estimates



Sampling Presence, Movement Activities

Inference, Uncertainty, Bias



Adding Surveys

Triggers, Notifications, Data

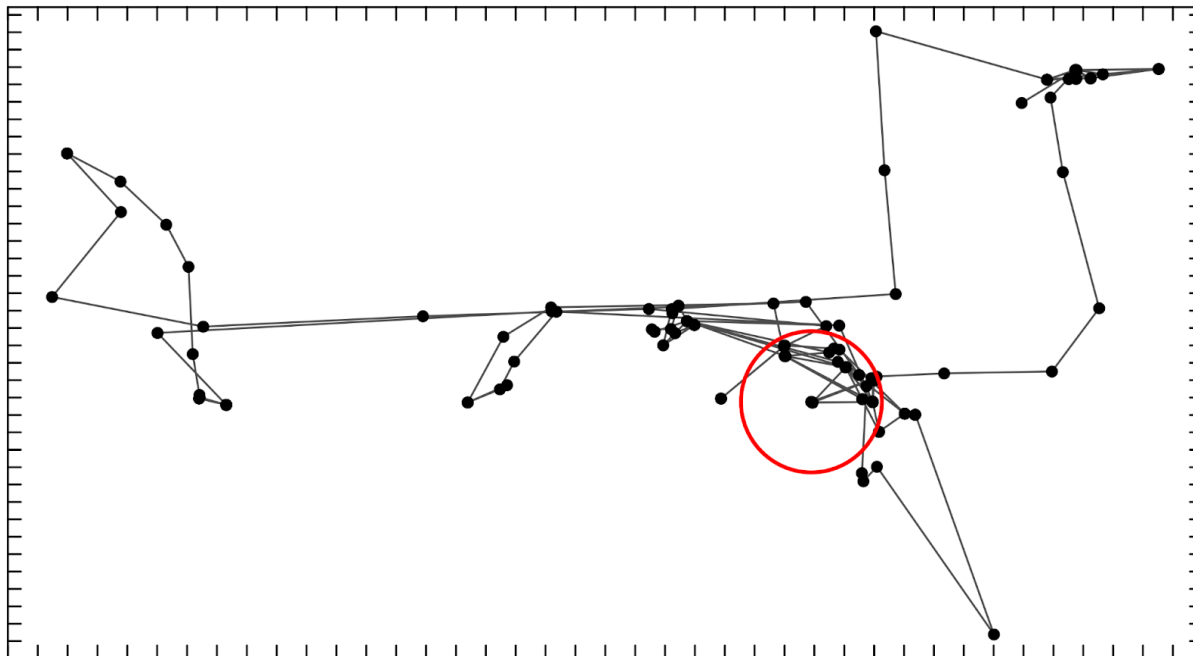
The screenshot shows a mobile app interface with a blue header bar containing a back arrow and the word "Project". The main content area is titled "Human Mobility Survey" in bold blue text. Below the title is a question: "Do any of the following statements apply to you right now?". There are three sections of radio button options:

- I am too hot**: "Yes" (unselected) and "No" (selected).
- I am moving less because of the heat**: "Yes" (unselected) and "No" (unselected).
- I am in an air-conditioned space**: "Yes" (unselected).

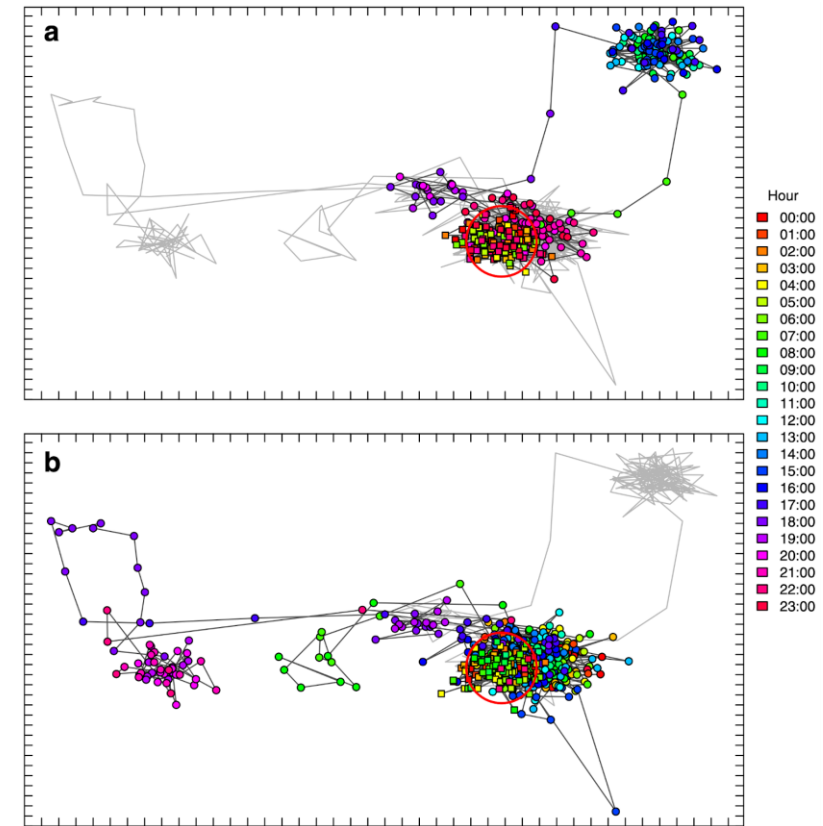
The screenshot shows a mobile app interface with a blue header bar containing a back arrow and the word "Project". The main content area is titled "Is your tiger alive or dead?" in bold black text. Below the title are three radio button options: "Alive" (unselected), "Dead" (unselected), and "Not sure" (unselected). There is another section titled "What are you doing?" with three radio button options: "Continuing to travel in vehicle with my tiger" (selected), "About to exit the vehicle and leave tiger inside it" (unselected), and "Returning to the vehicle where I left my tiger" (unselected). Below these options are two text input fields: "Unix Time" with the value "1709620343013" and "User ID" which is currently empty.

Ethics

Autonomy, Privacy, Data Protection

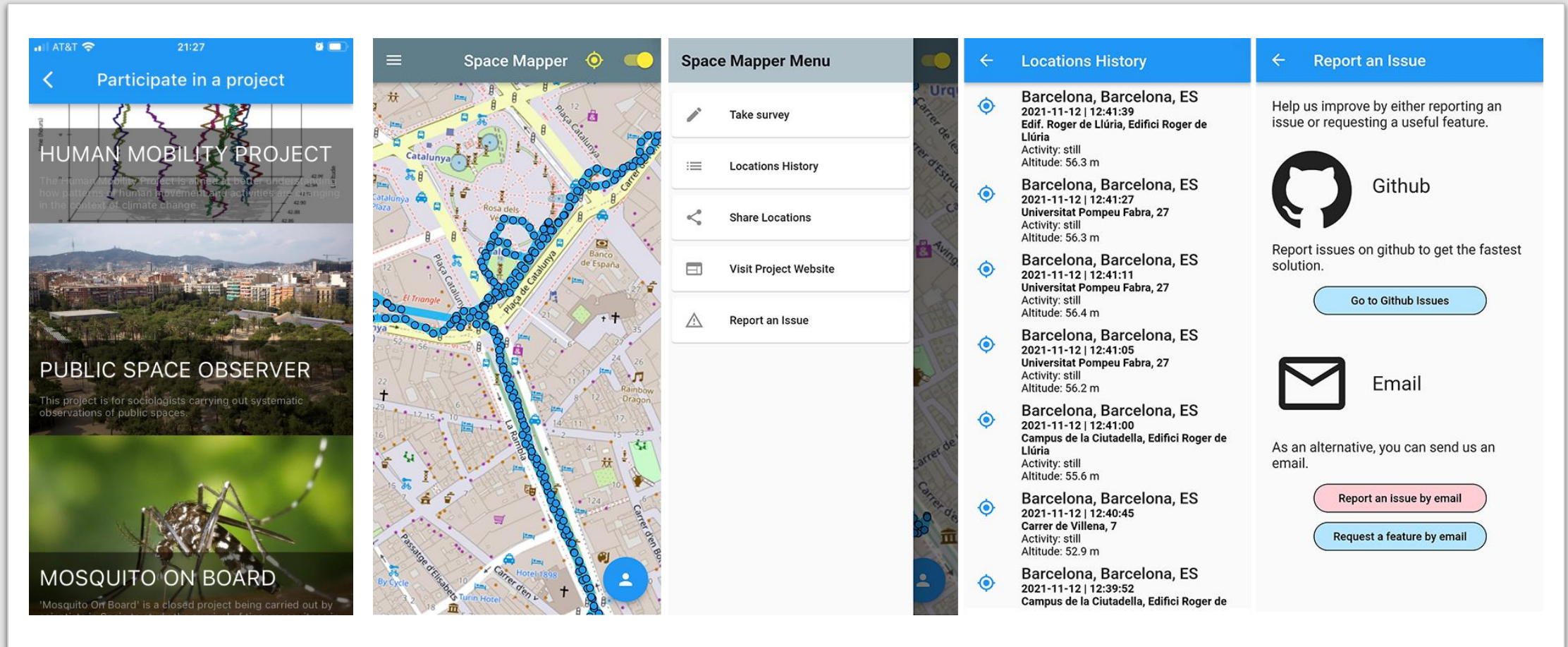


From: Palmer, J. R., Espenshade, T. J., Bartumeus, F., Chung, C. Y., Ozgencil, N. E., & Li, K. (2013). New approaches to human mobility: Using mobile phones for demographic research. *Demography*, 50(3), 1105-1128.



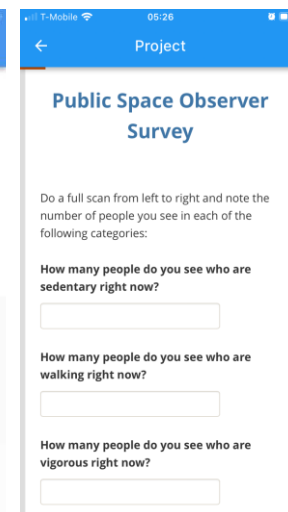
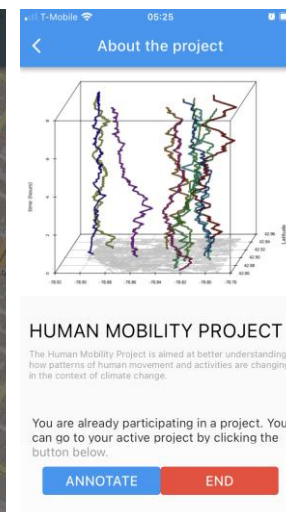
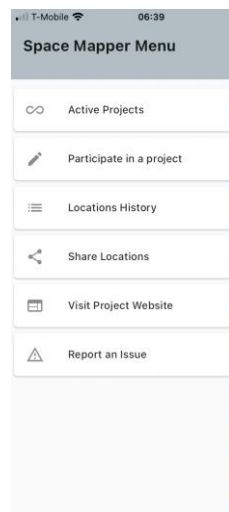
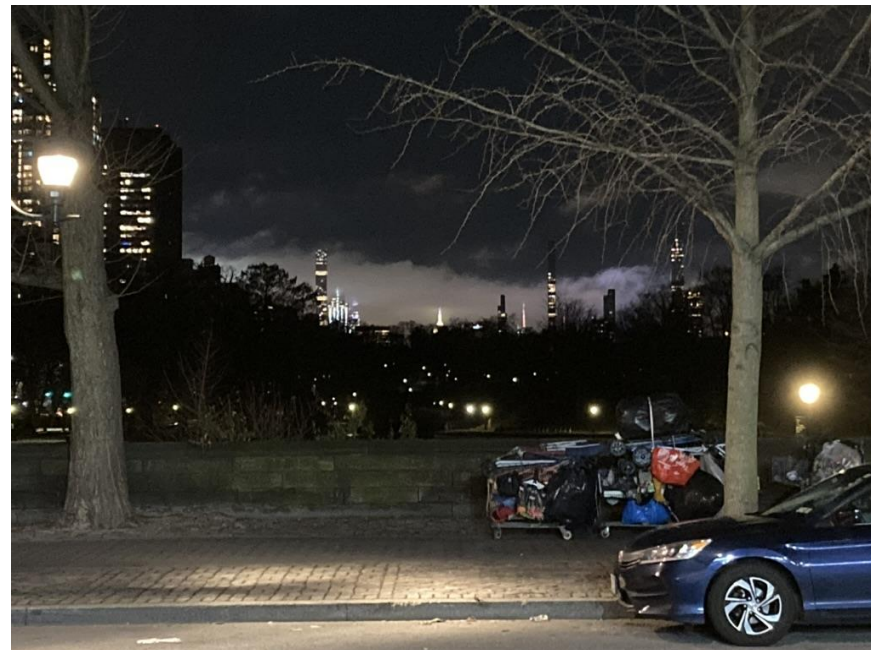
Tool Development and Maintenance

Logistical and organizational strategies



Space Mapper v3

Current and Future Directions



Acknowledgements

Huge thanks to Pablo Galve and Otis Johnson for their programming work on the latest version of Space Mapper.

This work is part of the Climate Change and Human Mobility Project, funded by the Spanish Ministry of Science and Innovation and implemented at Universitat Pompeu Fabra.



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