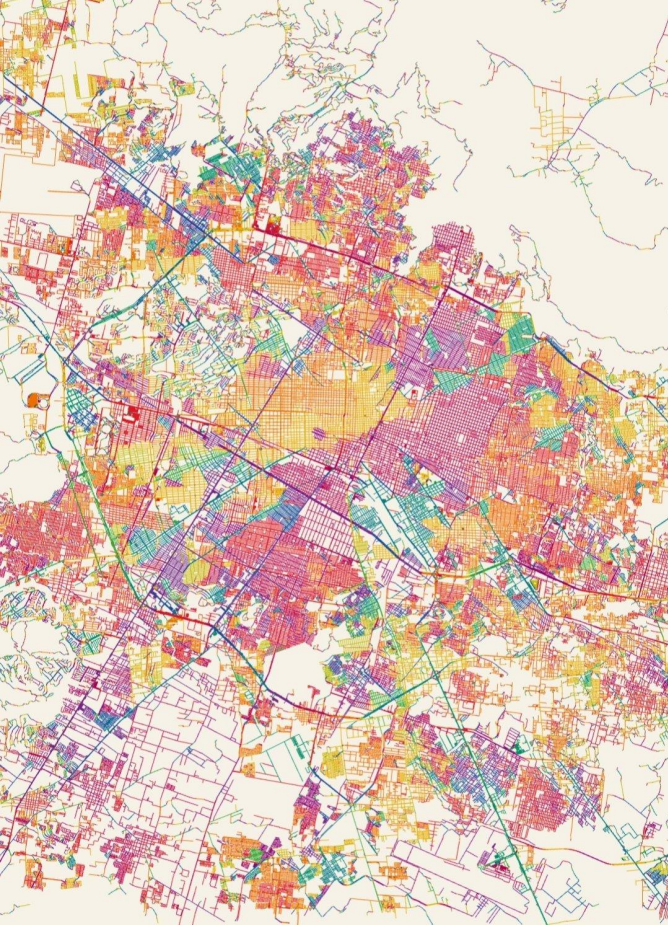




Guadalajara
Data: OpenStreetMap Contributors
road.tiny-app.net

OpenStreetMap: Caminos para Contribuir a la Geobase de Datos más Grande del Mundo

Josué Rodríguez G.

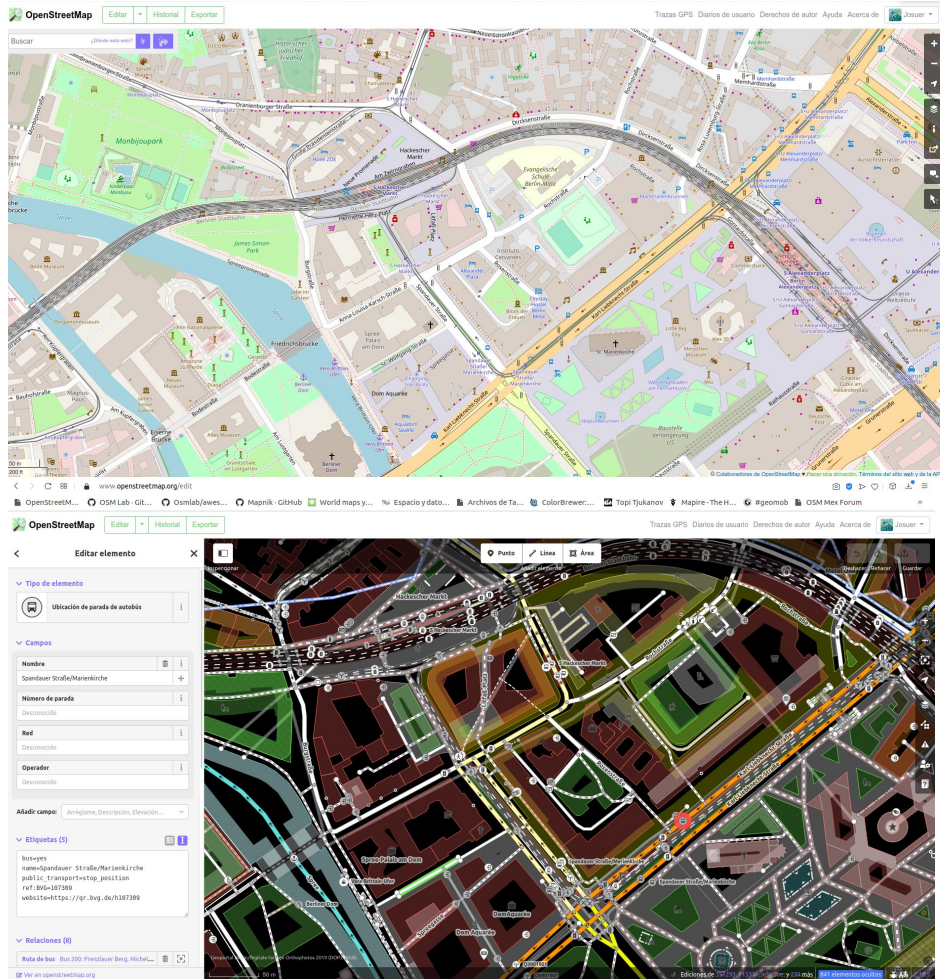
CCOSS 2020

¿Qué es OpenStreetMap?

- Con 1304 GB es la base de datos geográficos abierta y gratuita más grande del mundo.
(53,3 GB de comprimido en PBF)
- Más de 6 millones de contribuidores y creciendo.

¿Qué es OpenStreetMap?

- Un proyecto donde todos pueden contribuir y agregar objetos, “Wikipedia de los Mapas”.
- Un proyecto mundial realizado en varios idiomas.
- Con licencia ODBL cualquiera puede acceder a los datos del mapa de OSM de forma gratuita, es usado en muchas aplicaciones.



¿Qué hay en OpenStreetMap?

- Casi de todo, la comunidad OSM recopila datos sobre carreteras, vías fluviales, rutas para bicicletas, negocios, edificios parques y áreas naturales, uso del suelo, recursos culturales y mucho más.
- Hay más de 40 categorías principales y cientos de tipos individuales de datos que se recopilan.

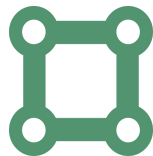
Puntos



Líneas



Áreas

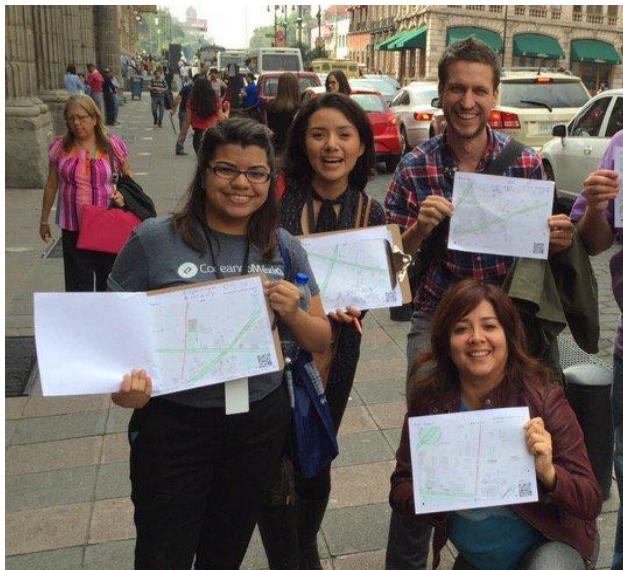


Highway [\[editar código \]](#)

Key	Value	Element	Comment	Rendering carto ?	Photo
Roads [editar código]					
These are the principal tags for the road network. They range from the most to least important.					
highway	motorway		A restricted access major divided highway, normally with 2 or more running lanes plus emergency hard shoulder. Equivalent to the Freeway, Autobahn, etc..		
highway	trunk		The most important roads in a country's system that aren't motorways. (Need not necessarily be a divided highway.)		

© OpenStreetMap Contributors

Hay Comunidad



Activismo

🔍 Buscar lugar o dirección

🛒 Compras

🍴 Comida y bebidas

🚗 Transporte

🎮 Recreación

🏨 Hoteles

🏰 Turismo

🎓 Educación

🏛️ Gobierno

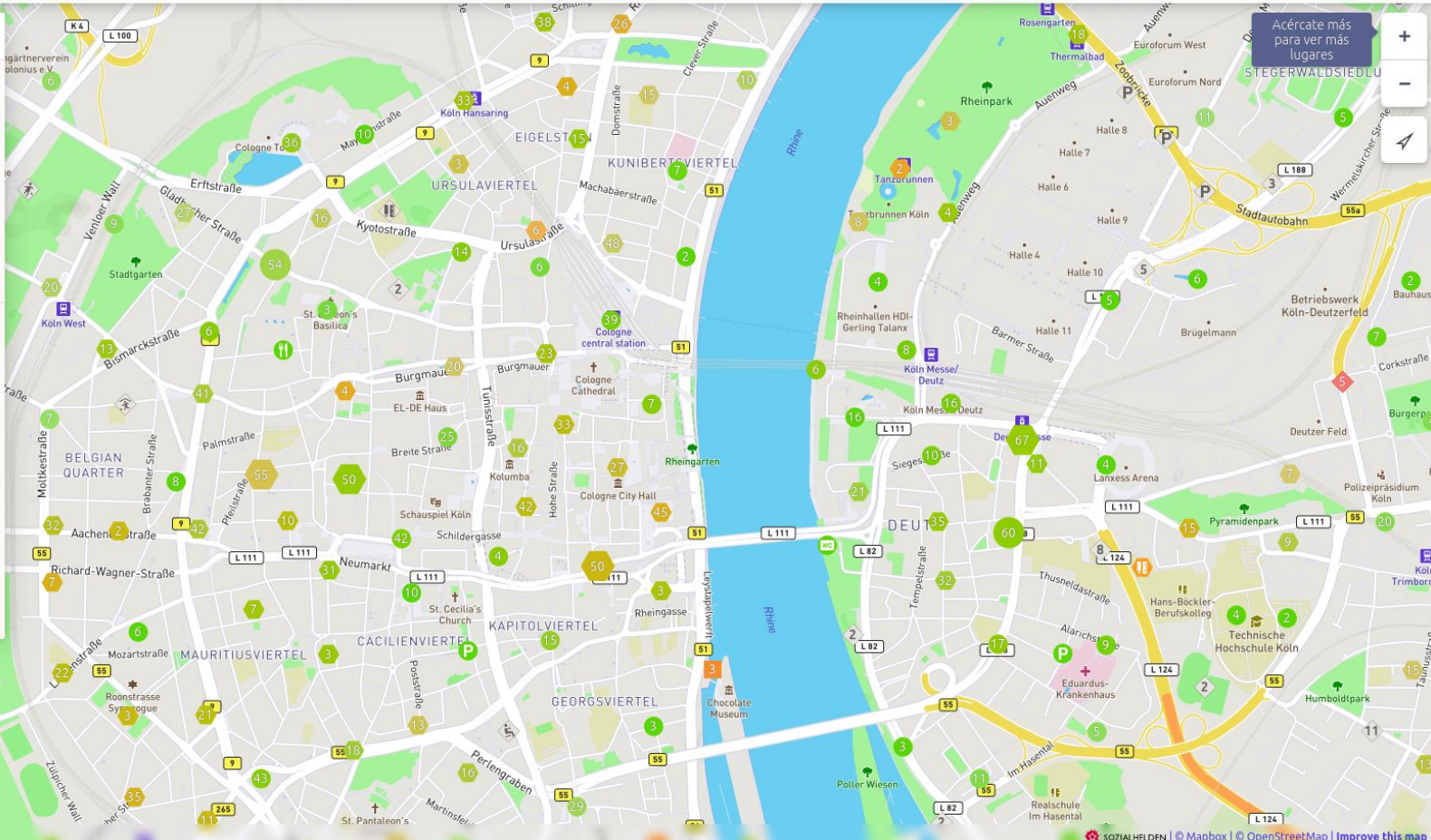
⚕️ Salud

💰 Dinero

🏃🏻‍♂️ Deporte

🚻 Baños

-  Parcialmente accesible en silla de ruedas
-  Parcialmente accesible con WC accesible.
-  Solo lugares completamente accesibles en silla de ruedas
-  Solo completamente accesible con WC accesible
-  Lugares a los que puedo contribuir
-  Solo lugares que no son accesibles



Filtrar datos

Mostrar puntos de tipo:

No mostrar puntos

Marcar todos

Desmarcar todos

Incidente vial
Asalto
Robo de bicicleta en estacionamiento
Robo de bicicleta estacionada en la calle
Bicicleta blanca
Cruce peligroso
Diseño urbano peligroso
Condiciones peligrosas
Comercio/Servicio Bikefriendly
Colectivo/Punto de encuentro
Vehículos estacionados en carril confinado
Vehículos en movimiento en carril confinado
Comercio en carril confinado
Invasión recurrente de banqueta

Incidente vial
2016-09-23

modo: peaton
calle1: Avenida Chapultepec
calle2: Burdeos
fuente:

<https://twitter.com/OVIALCDMX/status/779326051348471808>

Comentario: Persona atropellada en Av. Chapultepec a la altura de Burdeos con dirección al Poniente



Filtrar datos

Mostrar puntos de tipo:

No mostrar puntos

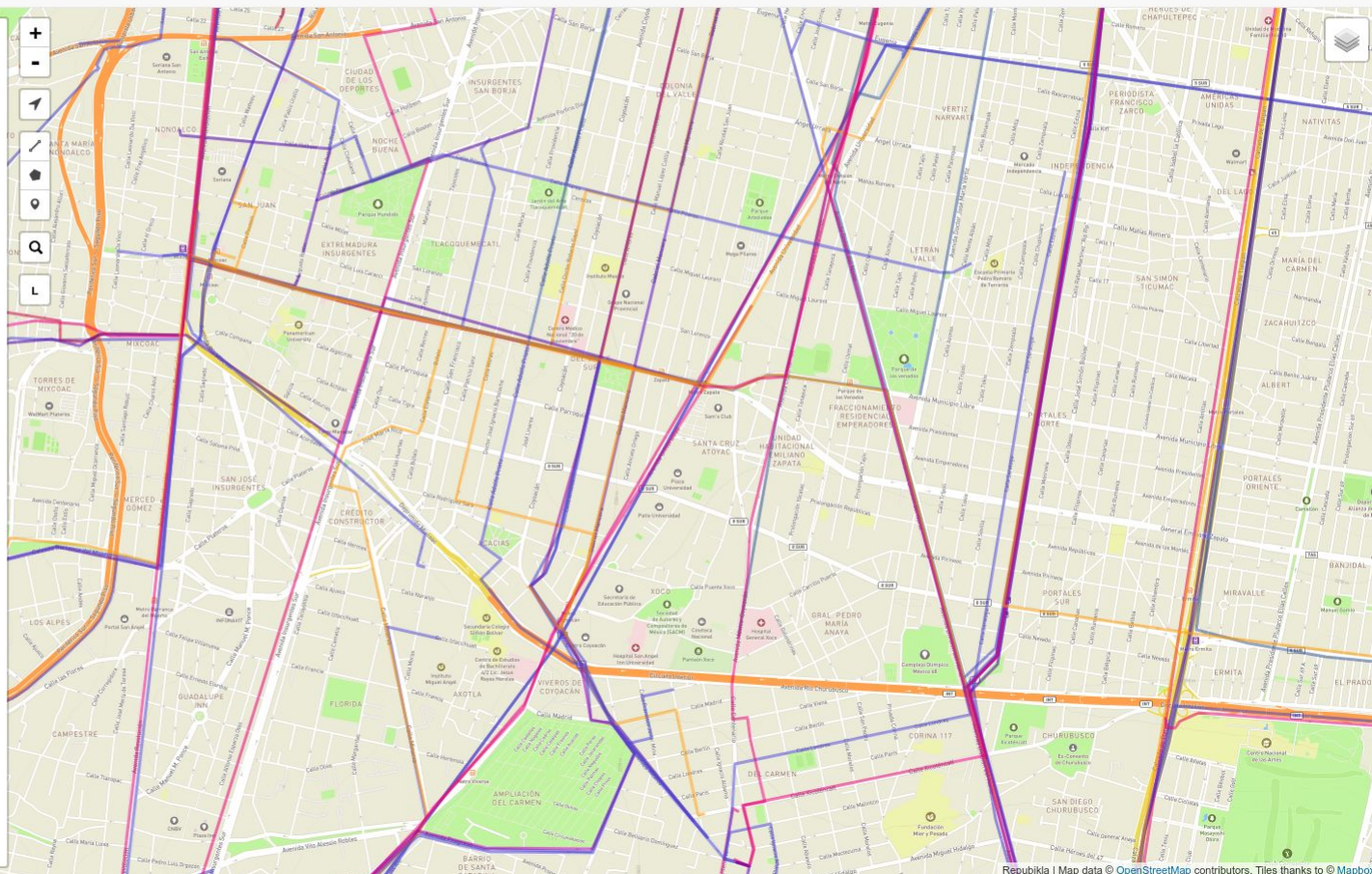
Mostrar rutas con motivo:

10 ítems seleccionados

Marcar todos

Desmarcar todos

- ☒ Ir al trabajo
- ☒ Regreso a casa
- ☒ Desplazamientos de trabajo
- ☒ Estudios
- ☒ Visitas
- ☒ Compras
- ☒ Paseo, turismo
- ☒ Deporte
- ☒ Comida
- ☒ Otra actividad



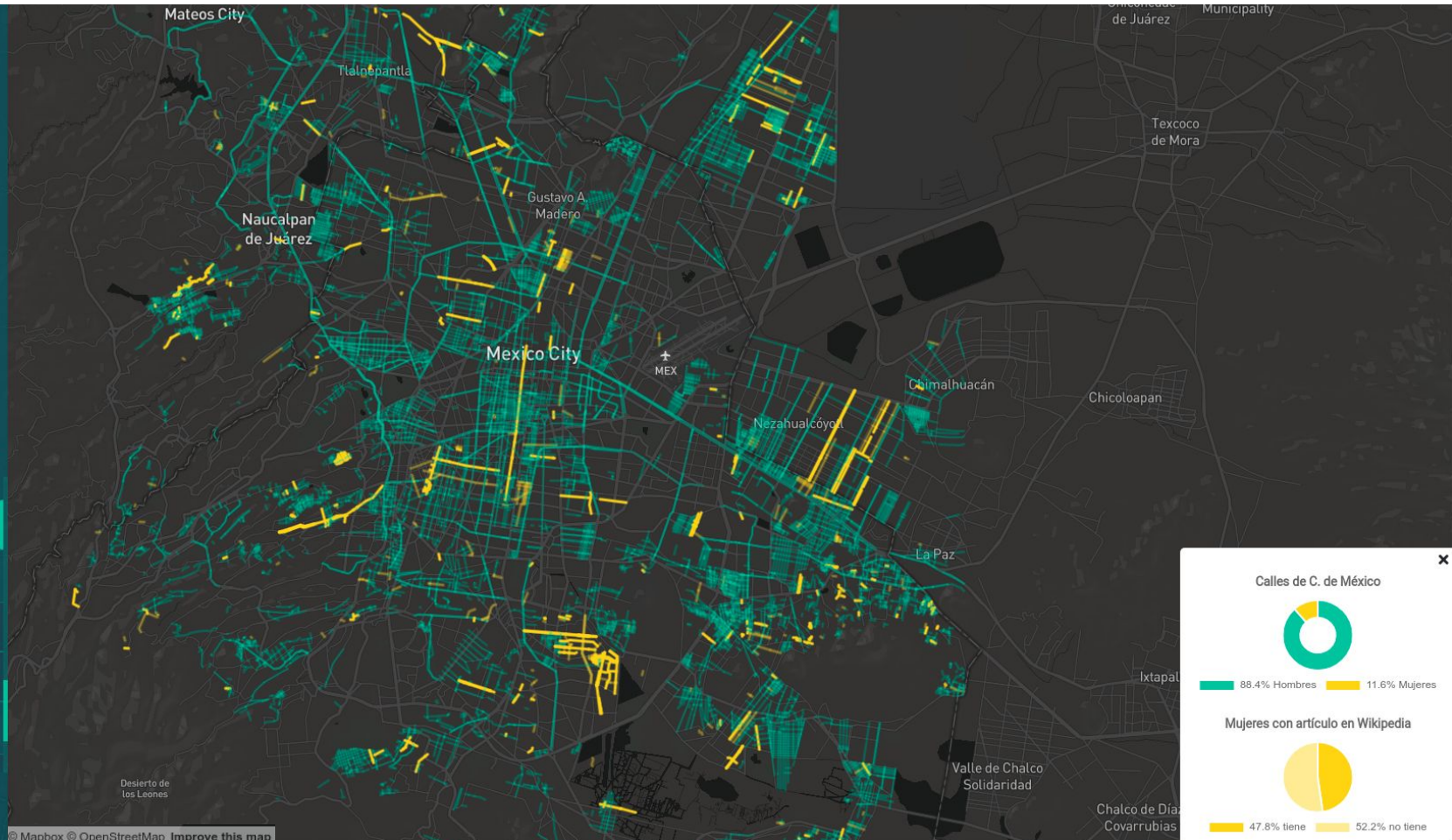
LAS CALLES DE LAS MUJERES

Mapa generado a partir de las calles con nombre de mujeres, en diferentes ciudades de habla hispana (Latinoamérica y España).

El objetivo es visibilizar la brecha que existe históricamente en la representación de figuras femeninas en las calles de las ciudades.

Un proyecto de
GE@CHICAS
@GeochicasOSM
geochicasosm

- MEXICO
- C. DE MÉXICO
- PARAGUAY
- ASUNCIÓN
- ENCARNACIÓN
- PERÚ
- La Marquesa



Arte y Creatividad

Guadalajara

Find

+

-

[<buy>](#)

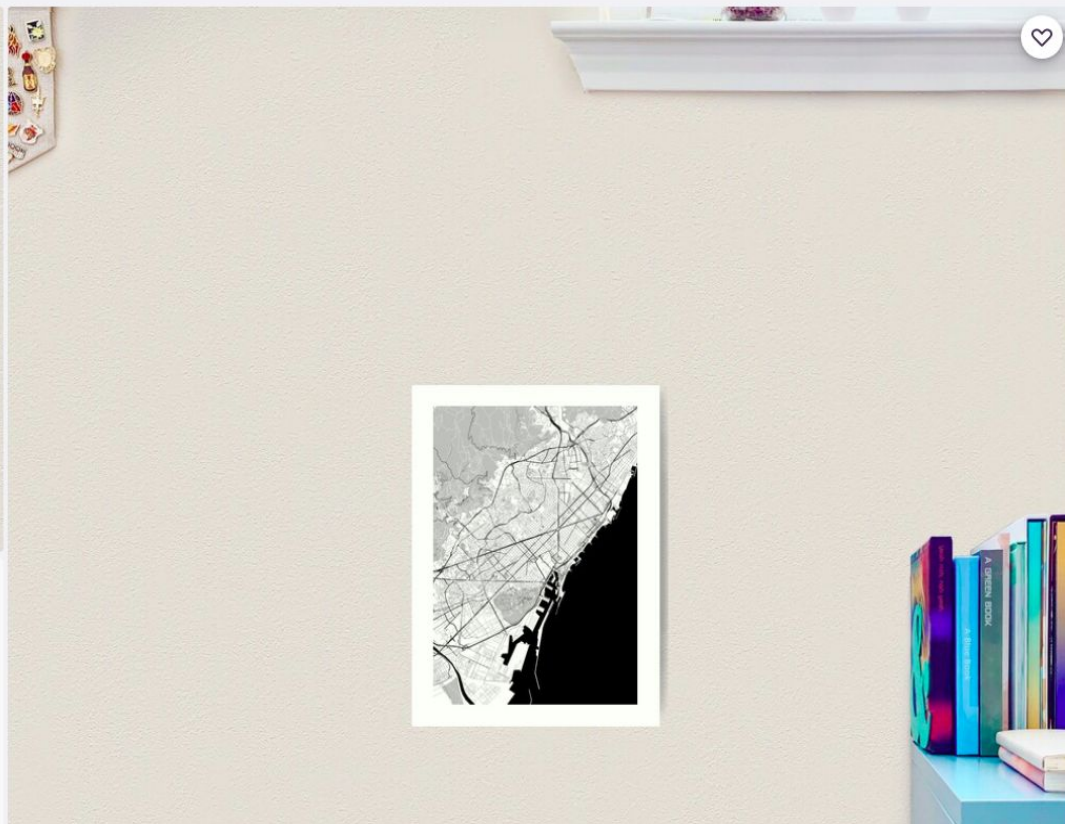
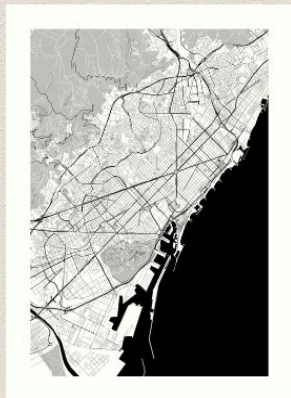
[donate](#)

[<image>](#)

[<embed>](#)

Olivia R De Yañez, Avenida Francisco Javier Mina, San Juan de Dios, Guadalajara, Jalisco, 44360, México

Altos Del Mercado Libertad
Sienta bien Jalisco
Un pájaro silba



Cartel Barcelona OpenStreetMap Lámina artística

Diseño de Traut1

18,52 US\$

15,74 US\$ al comprar 2+

Tamaño

Pequeño (12 x 16 in)

 Añadir al carrito

 Ver guía de tallas

 Envíos

Con envío urgente: 28 de octubre

Con envío ordinario: 10 - 12 de noviembre

Humanitario

Buscar

¿Dónde está esto?

El Emi in Naturaleza - OpenStreetMap Argentina

Buen día!! les cuento que desde el miércoles a las 23:30 hasta el jueves a las 11:30 estuvimos trabajando bomberos del Cuartel 113 de La Granja, junto con vaqueanos de la zona, en un área cercana al Uritorco (<https://www.openstreetmap.org/#map=14/-30.7991/-64.4639>) en lo que fue el último foco de este incendio que duró 12 días.

Mientras estuvimos allá arriba, sin conexión a internet, tuvimos la ayuda de nuestro amigo OsmAnd con los mapas que ustedes estuvieron editando! con lo cual ubicamos caminos y ríos cercanos que nos ayudaron a diagramar la estrategia de combate del fuego ahí mismo, y luego el repliegue hacia las camionetas que quedaron arriba.

El fuego ahora está apagado, pero el riesgo sigue durante la temporada de incendios, que cada vez dura más y es más intensa, en especial por las consecuencias del cambio climático, en conjunción con otras causas. Los mapas detallados de OSM salvan bosques.

Gracias infinitas a toda la comunidad!!

OpenStreetMap

OpenStreetMap is a map of the world, created by people like you and free to use under an open license.

t.me/OSM_Naturaleza/5882

Aug 28 at 07:14

© Colaboradores de OpenStreetMap · Hacer una donación · Términos del sitio web y de la API

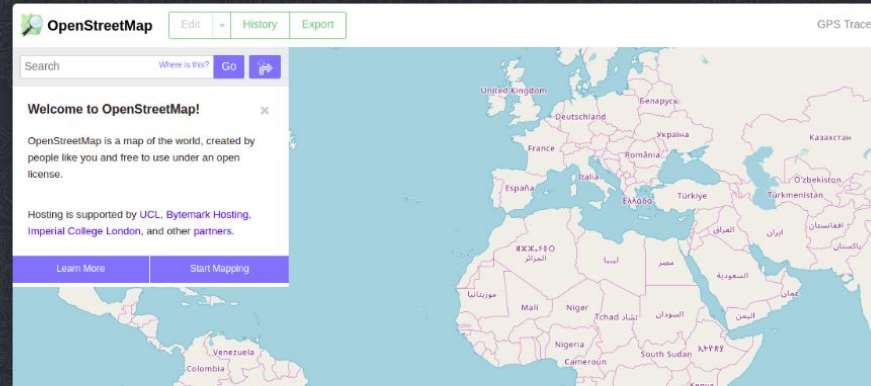


Working to support and build OpenStreetMap

All of this work is done through [OpenStreetMap](#). OpenStreetMap is the community-driven free and editable map of the world, supported by the not-for-profit OpenStreetMap Foundation. HOT works around the globe to support and increase the use of OpenStreetMap and help build local OpenStreetMap communities.

Learn more about OpenStreetMap

[OpenStreetMap Foundation](#) > [OSM Wiki](#) > [Local community discussions](#) >



OUR IMPACT

HOT's work is global in scale and contributes to the achievement of the Sustainable Development Goals (SDGs). Our Monitoring and Evaluation framework is constantly evolving to ensure tangible and measurable impact. Check out our core impact areas and learn more about where we're making a difference.

[Disaster Risk Reduction](#)

[Transportation](#)

[Poverty Elimination](#)

[Gender Equality](#)

[Sustainable Cities](#)

[Refugee Response](#)

[Environment](#)

[Public Health](#)

[Disaster Response](#)

[Clean Energy](#)

[Water & Sanitation](#)



HOT is an international team dedicated to humanitarian action and community development through open mapping.



Open Cities Monrovia project activities were centered on addressing flooding and challenges relating to flooding through the provision of up-to-date data of Zone 300, the area of interest. Flooding in Monrovia is cyclical and occurs during the rainy season every year (April - October).

Impact Areas:  [Disaster Risk Reduction](#)
[Sustainable Cities](#)
[Water & Sanitation](#)

Coordination:  [David Luswata](#)
[Paul Uithol](#)

Partners:  [Global Facility for Disaster Reduction](#)
[Open Data for Resilience](#)
[World Bank](#)





HOT TASKING MANAGER

🏠 HOT Tasking Manager

Proyectos

🔍 Buscar

Ordenar por: Alta prioridad primero ▼

☐ Tus proyectos

#2022 Mapping Ulaanbaatar, Mongolia - Su'xbaatar and Chingeltei Districts

👤 1 🟡 27%

Mapping of Ulaanbaatar, the Capital City of Mongolia. Монгол Улсын нийслэл хот - Улаанбаатар хотын газрын зураглалд мэдээлэл оруулах.



Creado por [russdeffner](#) - Actualizado hace unos 23 minutos - Prioridad: media

#2017 Thimphu Thromde building footprints import

🟡 100%

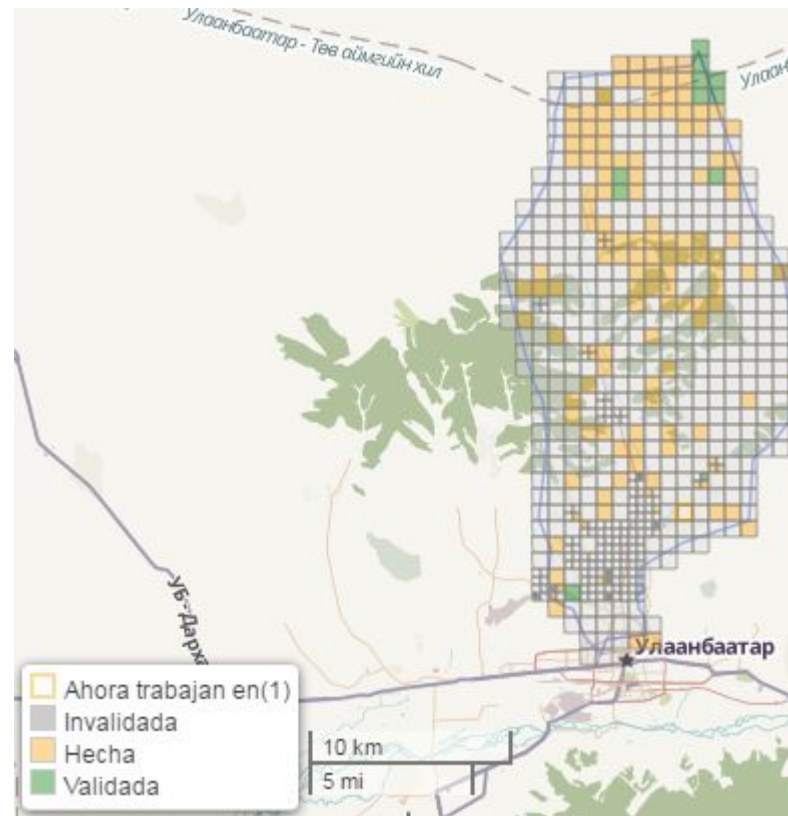
This project is for experienced mappers

- Author: **HOT**
- Requesting organization: **HOT**
- Priority: **Medium**
- Imagery: **Bing/Mapbox**

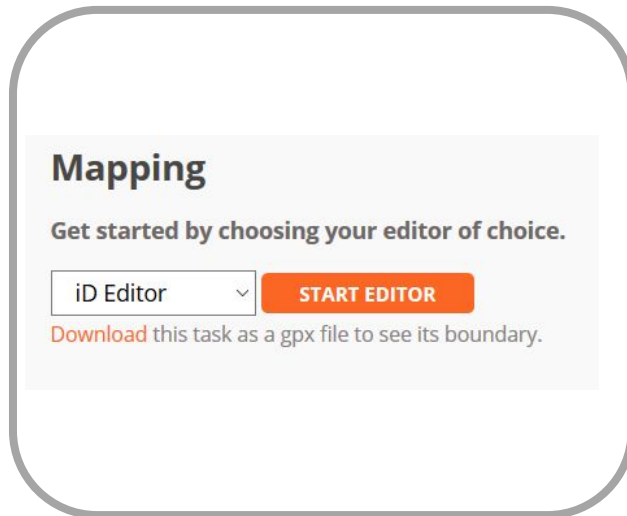
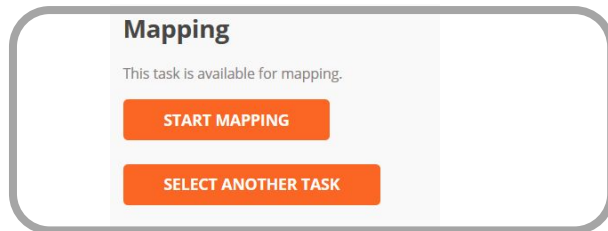
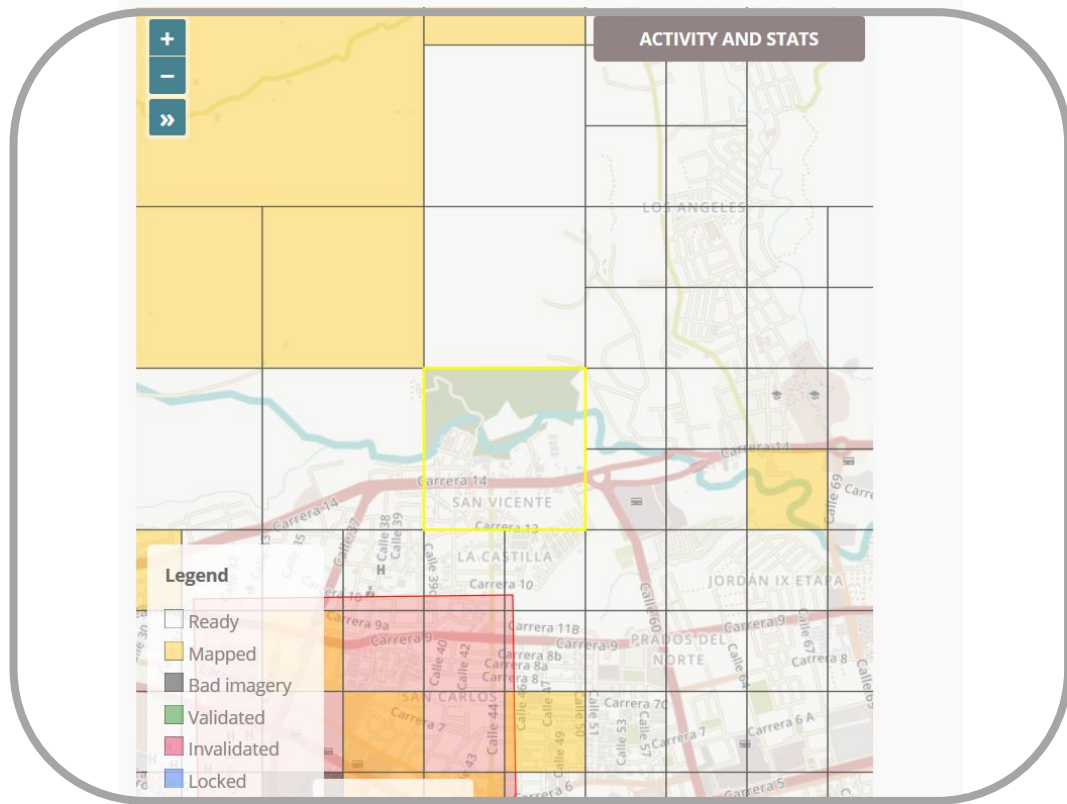


Import of building footprints in the Thimphu city area from the Thimphu Thromde (Thimphu city council).

Creado por [edvac](#) - Actualizado hace 2 días - Prioridad: media



HOT TASKING MANAGER (CONT)



Innovación

RESEARCH ON MAPPING WITH OPEN MACHINE LEARNING

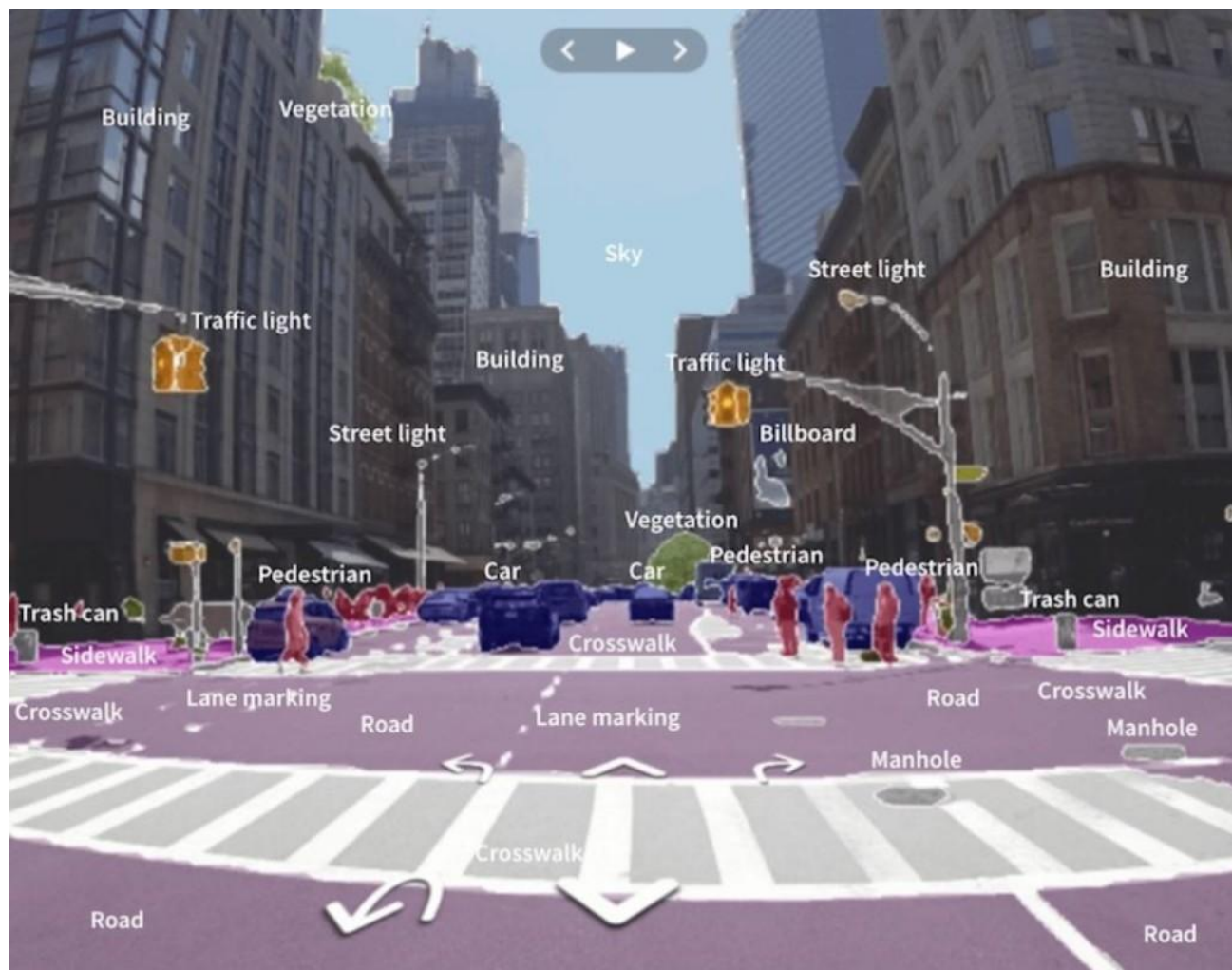
HOT Program · Global · ACTIVE

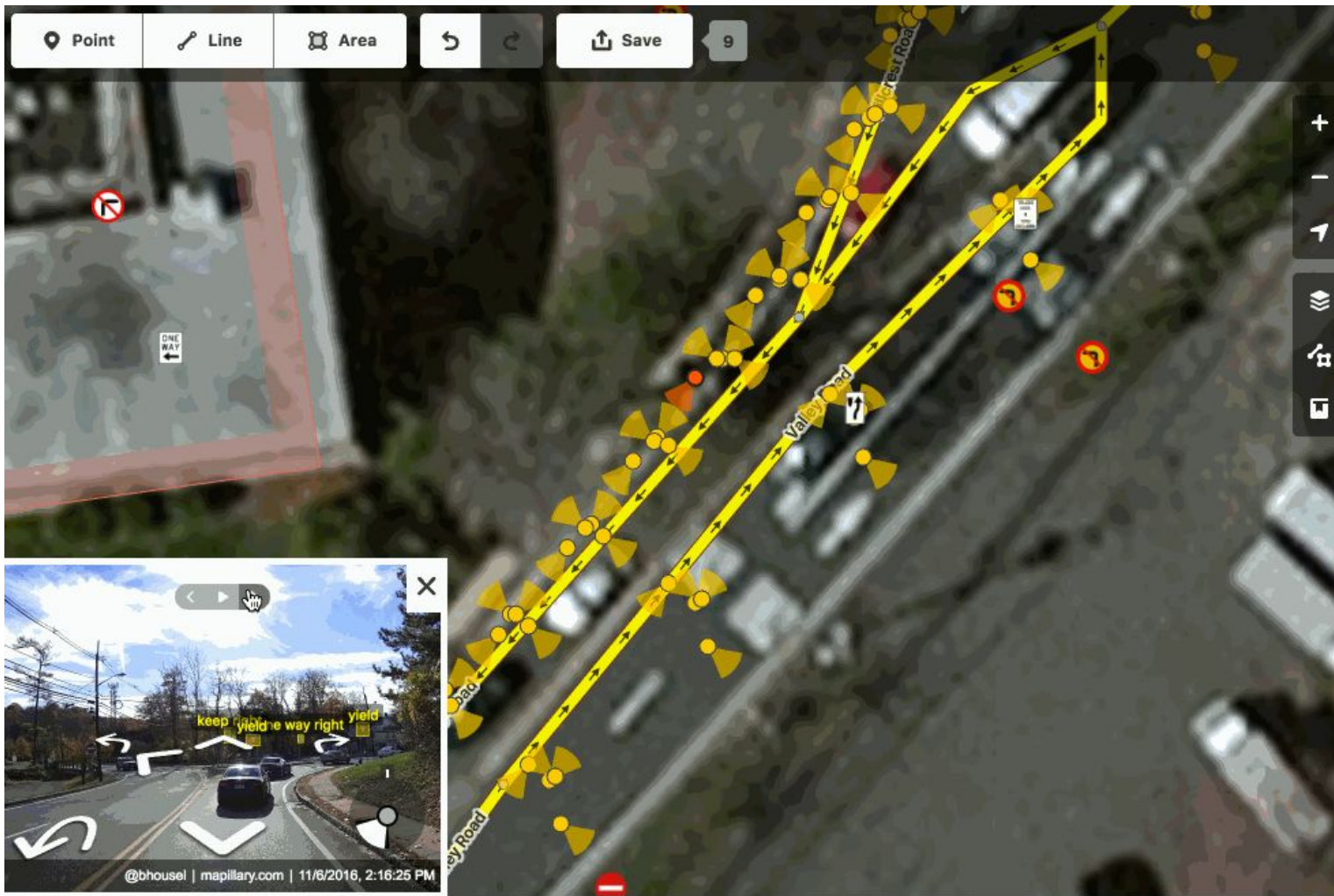


HOT is working with the Netherlands Red Cross to have an evidence-based look at current AI-supported mapping flows and to take the next step towards using OSM data for training machine learning models.

Impact Areas ©
Disaster Risk Reduction







Search features

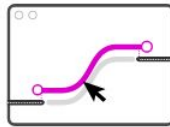
Search





Artificial Intelligence Detected
Roads

+



Mapping the World w/ RapiD
Editor

+



Humanitarian Prioritized
Community Task Mapping

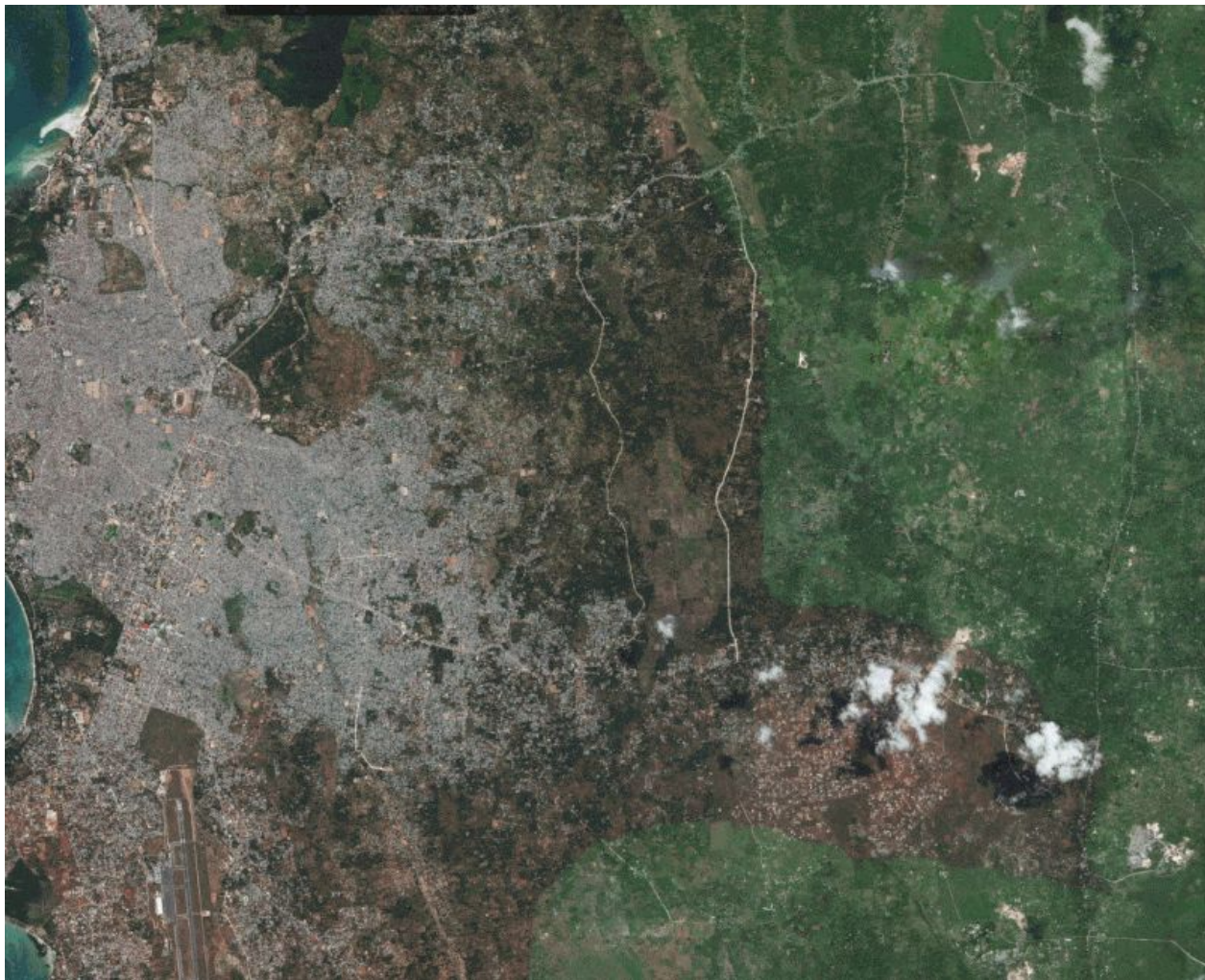
ML Roads

**From satellite imagery to
predicted features.**

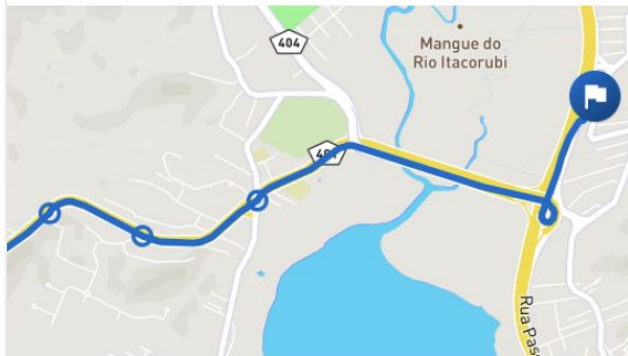
Browse the map. The magenta layer
you're seeing here is a map overlay
created from artificial intelligence,
converting pixels of satellite map data
into predicted features, like the roads
shown here.

RapiD Editing

RapiD by Facebook © OpenStreetMap Contributors



Beautiful Maps



Displays stations or your entire trip on a map and always knows where you are to not miss where to get off the bus.

Routing & Directions

in 2min

15:28 Berlin Hbf

+2



0:16

15:46 Kottbusser Tor (U)

in 2min

15:30 Berlin Hbf



0:25

15:55 Kottbusser Tor (U)

Just tell Transportr where you want to go! It will find the best connections for you, advises you where to change buses, and even gives you an estimated time of arrival.

Live Departures

now



15:30 > Flughafen Tegel Airport

now



15:28 > Berlin Ostbahnhof (S)

+2

15

now



15:30 > Halberstadt

14

Finds your Position



Offline Navigation

Car • Bicycle • Walking



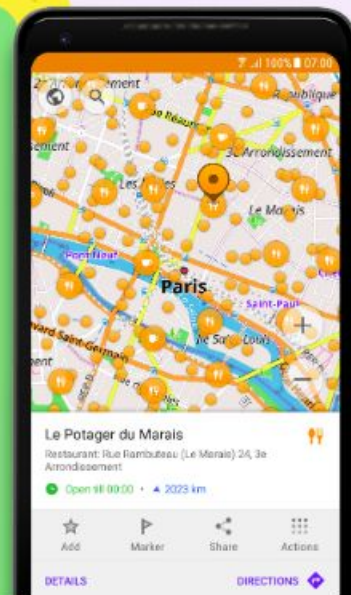
Contour lines and Hillshades

The whole relief in your phone



Search interesting POI

Museums, shops ...



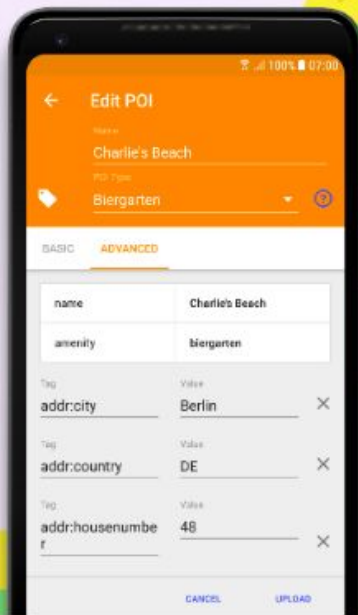
Trip recording

Record GPS track



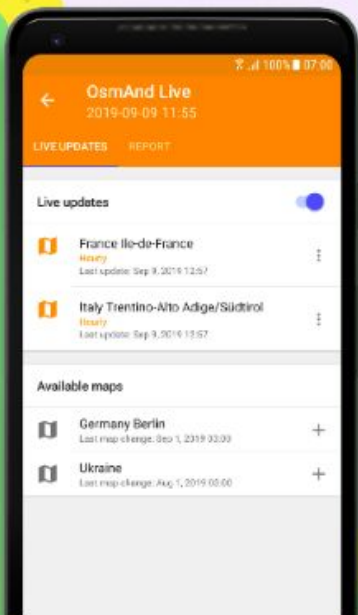
OpenStreetMap Editing

Make OSM Edits and Notes



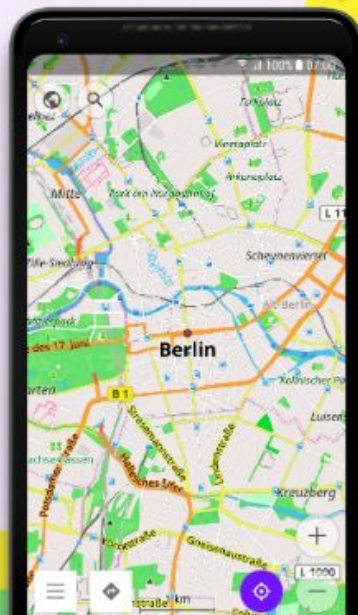
OsmAnd Live

Every hours map updates



Travel Maps

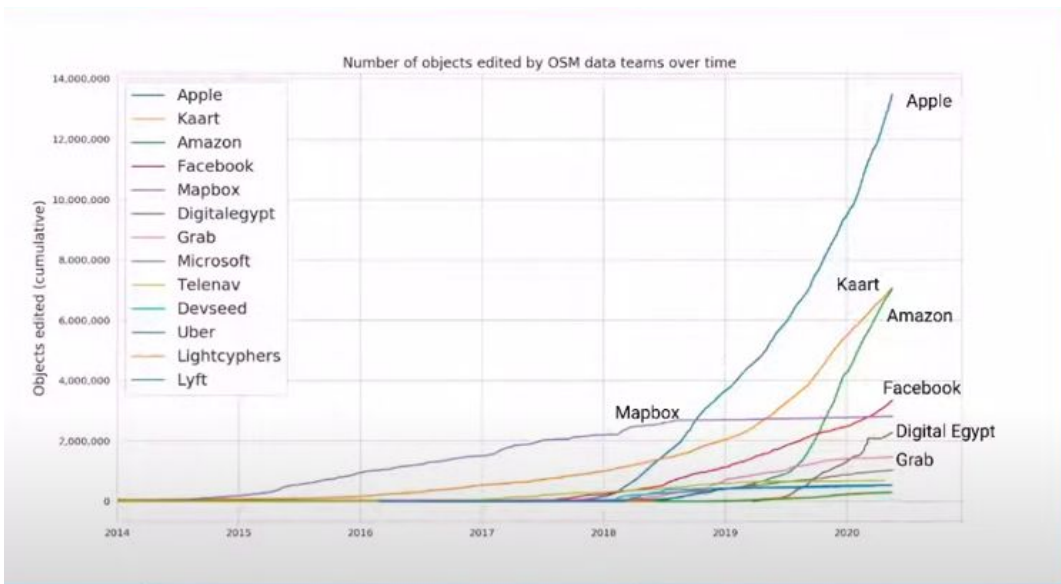
by OpenStreetMap data, Offline
Wikipedia



Offline Navigation

Car • Bicycle • Walking





Anderson et. al (2019) Anderson, J.; Sarkar, D.; Palen, L. Corporate Editors in the Evolving Landscape of OpenStreetMap. ISPRS Int. J. Geo-Inf. 2019, 8, 232.

master
3 branches
0 tags
Go to file
Code

awisemanapple Update README.md
6614844 on 8 Jun
14 commits

BUILDINGS.md	updating username	2 years ago
README.md	Update README.md	4 months ago

README.md

Apple Data Projects

Information about:

- Building Footprint Data that Apple is sharing.
- Data Improvement Projects being worked on by the Apple Data Team. Our team uses the hashtag #adt (for Apple Data Team) for our edits.
- A JOSM Paint Style we created for easier editing, visualization and data validation.
- Atlas, a tool Apple created for querying, visualizing, and storing OpenStreetMap data.
- MapRoulette challenges created using Atlas.

Additional Information

For more information please contact our community project lead [Andrew Wiseman](#).

Kaart
Grand Junction, CO
http://kaart.com

Repositories 41
Packages
People 3
Projects 1

Grow your team on GitHub
GitHub is home to over 50 million developers working together. Join them to grow your own development teams, manage permissions, and collaborate on projects.
Sign up

Find a repository...
Type: All
Language: All

josc-mappillary-plugin
Forked from mappillary/josc-mappillary-plugin
The Mappillary plugin for the JOSM OpenStreetMap editor
Java 13
Updated 18 hours ago

KaartValidator
Kaart Validator
Python 8
Updated 4 days ago

Chameleon
OpenStreetMap: companion for checking and understanding changes in OSM database.
Python GPL-3.0 4
Updated 8 days ago

JOSM_MapWithAI_plugin

Top languages
Python
Java
JavaScript
Objective-C
Swift

Most used topics
josc
opentripmap

People

Investigación



Cualquier momento

Desde 2020

Desde 2019

Desde 2016

Intervalo específico...

Ordenar por relevancia

Ordenar por fecha

Cualquier idioma

Buscar sólo páginas en español

☒ Incluir patentes

☒ Incluir citas

☐ Crear alerta

Openstreetmap: User-generated street maps

[M Haklay, P Weber](#) - IEEE Pervasive Computing, 2008 - [ieeexplore.ieee.org](#)

The **OpenStreetMap** project is a knowledge collective that provides user-generated street maps. OSM follows the peer production model that created Wikipedia; its aim is to create a set of map data that's free to use, editable, and licensed under new copyright schemes. A ...

☆ Citado por 2305 Artículos relacionados Las 13 versiones

[PDF] [ucl.ac.uk](#)

[LIBRO] OpenStreetMap

[J Bennett](#) - 2010 - [books.google.com](#)

This book introduces the OSM project, its aims and objectives, and its history, then guides you through the process of gathering, editing, and using OpenStreetMap data using a series of real-world examples. This book is the perfect aid for geographic-information professionals ...

☆ Citado por 161 Artículos relacionados

Quality assessment of the French OpenStreetMap dataset

[JF Girres, G Touya](#) - Transactions in GIS, 2010 - Wiley Online Library

Abstract The concept of Volunteer Geographic Information (VGI) has recently emerged from the new Web 2.0 technologies. The **OpenStreetMap** project is currently the most significant example of a system based on VGI. It aims at producing free vector geographic ...

☆ Citado por 641 Artículos relacionados Las 6 versiones

[PDF] [archives-ouvertes.fr](#)

Towards quality metrics for OpenStreetMap

[P Mooney, P Corcoran, AC Winstanley](#) - Proceedings of the 18th ..., 2010 - [dl.acm.org](#)

ABSTRACT Volunteer Geographic Information (VGI) is currently a "hot topic" in the GIS community. The **OpenStreetMap** (OSM) project is one of the most popular and well supported examples of VGI. Traditional measures of spatial data quality are often not ...

☆ Citado por 215 Artículos relacionados Las 12 versiones

[PDF] [maynoothuniversity.ie](#)

Búsquedas relacionadas

openstreetmap **map**

openstreetmap **osm**

openstreetmap **routing**

openstreetmap **accuracy**

openstreetmap **road network**

openstreetmap **data quality**

openstreetmap **gps**

openstreetmap **volunteered geographic information**

Real-time routing with OpenStreetMap data

[D Luxen, C Vetter](#) - Proceedings of the 19th ACM SIGSPATIAL ..., 2011 - [dl.acm.org](#)

Routing services on the web and on hand-held devices have become ubiquitous in the past couple of years. Websites like Bing or Google Maps allow users to find routes between arbitrary locations comfortably in no time. Likewise onboard navigation units belong to the ...

☆ Citado por 260 Artículos relacionados Las 4 versiones

How good is volunteered geographical information? A comparative study of

[PDF] [kfrichter.org](#)

Human Assisted Artificial Intelligence Based Technique to Create Natural Features for OpenStreetMap

Piyush Yadav

NUI Galway
Ireland

Dipto Sarkar

Carleton University
Canada

Shailesh Deshpande

TCS Research
India

Edward Curry

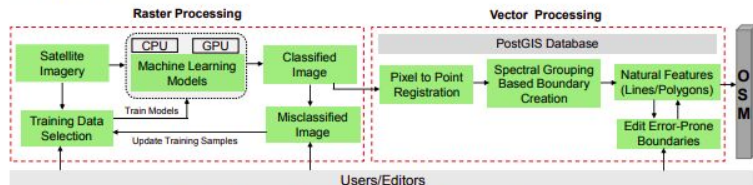
NUI Galway
Ireland

Introduction

OpenStreetMap (OSM) is arguably the largest crowdsourced geographic databases with more than one million contributors [1]. The ongoing contributions make OSM an ever-evolving spatial dataset with the improving quantity, quality, and coverage of data across all types of map features. While OSM has stood up to various tests of data quality and accuracy with regards to a variety of manmade features (e.g. building, roads), data completeness of high-level natural feature classes like vegetation (grass, forest), impervious surface (industrial regions) and water (lakes, river, delta) is relatively sparse. This is partly because OSM data creation tools (e.g. iD) provide an intuitive interface to digitize smaller features, such as building and road segments, but is cumbersome for natural features (e.g. delta, scree, geological regions) which are quite complex and are spread over larger regions.

Recently, Facebook presented RapiD editor¹ which uses Artificial Intelligence (AI) techniques to generate features for faster map editing. RapiD autodetects roads features from high-resolution satellite imagery which are then curated by users to create the final dataset. The RapiD program has certain limitations: for example, discovering linear features like road is easier as compared to natural elements (such as delta and forest) which are uneven [2]. Secondly, most of the high-resolution imagery is still not freely available which contradicts the preamble of the open-source community. In this work, we propose an AI-based technique using freely available satellite images like Landsat and Sentinel to create natural features over OSM in congruence with human editors acting as initiators and validators. The method is based on Interactive Machine Learning [3] technique where human inputs are coupled with the machine to solve complex problems efficiently as compare to pure autonomous process. We use a bottom-up approach where a machine learning (ML) pipeline in loop with editors is used to extract classes using spectral signatures of images and later convert them to editable features to create natural features.

Proposed Approach



Exploring OpenStreetMap Availability for Driving Environment Understanding

Yang Zheng, Izzat H. Izzat, and John H.L. Hansen, *Fellow, IEEE*

Abstract — With the great achievement of artificial intelligence, vehicle technologies have advanced significantly from human centric driving towards fully automated driving. An intelligent vehicle should be able to understand the driver's perception of the environment as well as controlling behavior of the vehicle. Since high digital map information has been available to provide rich environmental context about static roads, buildings and traffic infrastructures, it would be worthwhile to explore map data capability for driving task understanding. Alternative to commercial used maps, the OpenStreetMap (OSM) data is a free open dataset, which makes it unique for the exploration research. This study is focused on two tasks that leverage OSM for driving environment understanding. First, driving scenario attributes are retrieved from OSM elements, which are combined with vehicle dynamic signals for the driving event recognition. Utilizing steering angle changes and based on a Bi-directional Recurrent Neural Network (Bi-RNN), a driving sequence is segmented and classified as lane-keeping, lane-change-left, lane-change-right, turn-left, and turn-right events. Second, for autonomous driving perception, OSM data can be used to render virtual street views, represented as prior knowledge to fuse with vision/laser systems for road semantic segmentation. Five different types of road masks are generated from OSM, images, and Lidar points, and fused to characterize the drivable space at the driver's perspective. An alternative data-driven approach is based on a Fully Convolutional Neural Network (FCNN), OSM availability for deep learning methods are discussed to reveal potential usage on

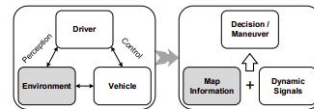


Fig. 1. Use map data to retrieve environment information, and combine with vehicle dynamic signals to understand driver behavior.

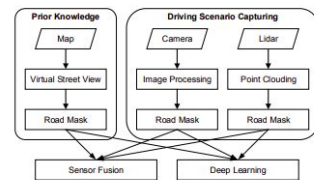


Fig. 2. Use map data to obtain prior road mask, and fuse with image and Lidar points for road semantic segmentation.

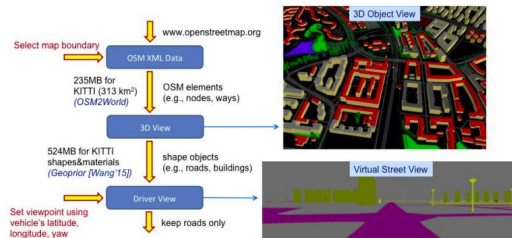


Fig. 5. Rendering virtual street view from OSM, with approach flow diagram and output example.



Fig. 6. The effect of overlaying the OSM road mask (displayed in red color) onto the real camera image. (a) good alignment and (b) bad alignment.

dynamic features and environment attributes, and their word contextual representation outputs will correspond with our frames (i.e., 70 second) as the maximum sequence length with zero padding. The input vector dimension is 25, and the

The Gendered Geography of Contributions to OpenStreetMap: Complexities in Self-Focus Bias

Maitraye Das
Northwestern University
Evanston, IL, USA
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ABSTRACT

Millions of people worldwide contribute content to peer production repositories that serve human information needs and provide vital world knowledge to prominent artificial intelligence systems. Yet, extreme gender *participation disparities* exist in which men significantly outnumber women. A central concern has been that due to self-focus bias [46], these disparities can lead to corresponding gender *content disparities*, in which content of interest to men is better represented than content of interest to women. This paper investigates the relationship between participation and content disparities in *OpenStreetMap*. We replicate findings that women are dramatically under-represented as OSM contributors, and observe that men and women contribute different types of content and do so about different places. However, the character of these differences confound simple narratives about self-focus bias: we find that on a proportional basis, men produced a higher proportion of contributions in *feminized* spaces compared to women, while women produced a higher proportion of contributions in *masculinized* spaces compared to men. We discuss the implications of these complex results for both theory and practice.

CCS CONCEPTS

• Human-centered computing → Empirical studies in collaborative and social computing; Empirical studies in

KEYWORDS

Peer production, gender, OpenStreetMap, self-focus bias, urban, rural

ACM Reference Format:

Maitraye Das, Brent Hecht, and Darren Gergle. 2019. The Gendered Geography of Contributions to OpenStreetMap: Complexities in Self-Focus Bias. In *CHI Conference on Human Factors in Computing Systems Proceedings (CHI 2019)*, May 4–9, 2019, Glasgow, Scotland Uk. ACM, New York, NY, USA, 14 pages. <https://doi.org/10.1145/3290605.3300793>

1 INTRODUCTION

Peer production is a powerful example of the potential of social computing in which communities like Wikipedia and OpenStreetMap (OSM)—the ‘Wikipedia of Maps’ [32, 73]—create high-quality content at previously unimaginable scales. This content has in turn satisfied billions of human information needs [26, 55, 76] and provided essential world knowledge to countless artificial intelligence systems [38, 45, 71].

Despite the many accomplishments of the peer production model, social computing researchers have also identified structural challenges that may be preventing peer production from reaching an even higher potential. One of the most serious arises from the demographic configurations of peer production communities. High-impact peer production communities tend to have major *participation disparities* with

Table 1: Male and Female Edits in Different Types of Regions

(a) Urban-Rural Divide (%pop-urban)			(b) Urban-Rural Divide (continuum code)		
County Type	Female Edits	Male Edits	County Type	Female Edits	Male Edits
Most Rural	41,382 (1.87%)	2,593,746 (7.37%)	Most Rural	21,743 (1.03%)	1,878,232 (5.86%)
Most Urban	2,169,078 (98.13%)	32,583,189 (92.63%)	Most Urban	2,097,586 (98.97%)	30,160,817 (94.14%)
$\chi^2 = 96076, p < 0.0001$			$\chi^2 = 88517, p < 0.0001$		
(c) Racial/Ethnic Diversity (%WnHL)			(d) Socio-Economic Status (MHI)		
County Type	Female Edits	Male Edits	County Type	Female Edits	Male Edits
Least diverse	71,144 (3.67%)	2,875,634 (12.59%)	Poorest	428,784 (18.66%)	2,934,839 (10.25%)
Most diverse	1,868,002 (96.33%)	19,956,337 (87.41%)	Wealthiest	1,869,162 (81.34%)	25,710,048 (89.75%)
$\chi^2 = 135868, p < 0.0001$			$\chi^2 = 155434, p < 0.0001$		

exhibit a substantial decrease of 73% in rural edits (a shortfall of 114,415 edits) relative to what would be expected if there were no difference in the proportion of edits produced by gender. Similar magnitudes exist for female edits in rural counties based on *rural-urban continuum* (-82%) and in the least diverse counties (-69%); and a similarly large increase exists in the poorest counties (+72%).

Another way to look at the data is from a *contributor-centric* perspective to understand the editing patterns of a typical male or female editor in our sample. We found that males are less likely to contribute to urban regions vs. rural regions than their female counterparts (for the interaction, Wald $\chi^2 = 7.92, p = 0.0049$ in terms of %pop-urban and Wald $\chi^2 = 11.31, p = 0.0008$ in terms of *rural-urban continuum code*). These are large effects as indicated by the incidence rate ratio values [77]: For %pop-urban, a male editor produces only 0.81 times what a female produces in urban regions, but produces 4.17 times that in rural regions, 95% CI [1.56, 11.14]. (For *rural-urban continuum* these values are 0.78, 6.01 and 95% CI [2.14, 16.90], respectively).

In regards to racial/ethnic diversity, men concentrate a lower proportion of their edits in the most diverse counties

and ethnic diversity and poorer areas (contribution-centric only) compared to their male counterparts, with women likely counteracting a bias that has been observed in OSM. However, the reverse is true in the case of the urban/rural spectrum. Of course, interpreting these intersectional results is complex and must be done with caution - a point we return to in the discussion section.

Edits Made with Bots. The above statistics describe the results for our *no-bots* dataset. Examining the results for our *with-bots* dataset, we see similar patterns but at different quantitative scales. For example, the number of counties with female edits in the *with-bots* dataset (1,469) increases by 61% in comparison to the *no-bots* dataset. At the same time, however, the number of counties with a higher ratio of female edits to male edits in the *with-bots* dataset is reduced from 72 (in the *no-bots* dataset) to 9. Furthermore, male editors produced a higher proportion of bot-based contributions than female editors: the number of edits by men in the *with-bots* dataset is 9.51 times as high as in the *no-bots* dataset, while for women it is only 3.55 times as high. Together these results suggest that the male influence on OSM

Using OpenStreetMap Data and Machine Learning to Generate Socio-Economic Indicators

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² Administration de la Gestion de l'eau, Ministère de l'Environnement, du Climat et du Développement Durable, 4361 Esch-sur-Alzette, Luxembourg; claude.meisch@eau.etat.lu

³ Department of Ecology, Ecosystem and Landscape Ecology, University of Innsbruck, 6020 Innsbruck, Austria

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Abstract: Socio-economic indicators are key to understanding societal challenges. They disassemble complex phenomena to gain insights and deepen understanding. Specific subsets of indicators have been developed to describe sustainability, human development, vulnerability, risk, resilience and climate change adaptation. Nonetheless, insufficient quality and availability of data often limit their explanatory power. Spatial and temporal resolution are often not at a scale appropriate for monitoring. Socio-economic indicators are mostly provided by governmental institutions and are therefore limited to administrative boundaries. Furthermore, different methodological computation approaches for the same indicator impair comparability between countries and regions. OpenStreetMap (OSM) provides an unparalleled standardized global database with a high spatiotemporal resolution. Surprisingly, the potential of OSM seems largely unexplored in this context. In this study, we used machine learning to predict four exemplary socio-economic indicators for municipalities based on OSM. By comparing the predictive power of neural networks to statistical regression models, we evaluated the unhinged resources of OSM for indicator development. OSM provides prospects for monitoring across administrative boundaries, interdisciplinary topics, and semi-quantitative factors like social cohesion. Further research is still required to, for example, determine the impact of regional and international differences in user contributions on the outputs. Nonetheless, this database can provide meaningful insight into otherwise unknown spatial differences in social, environmental or economic inequalities.

Keywords: indicators; machine learning; OpenStreetMap; vulnerability; resilience; climate

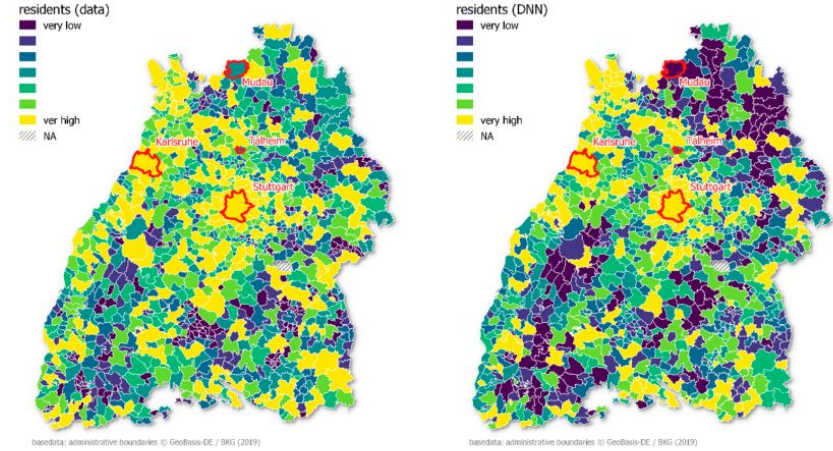


Figure 3. Map showing the normalized resident values (left) and predicted values (right) of the municipalities in Baden-Württemberg.

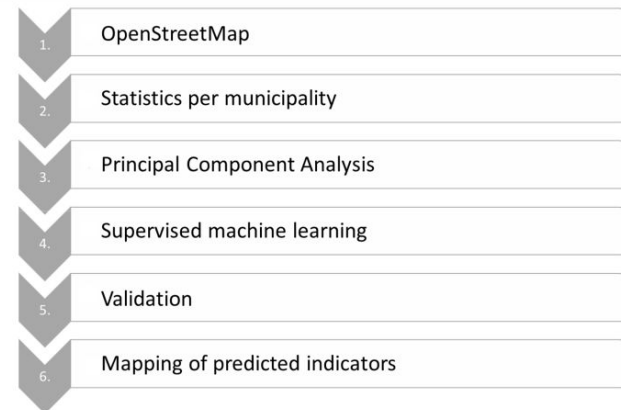


Figure 1. Overall workflow of the analysis conducted.

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Geographisches Institut >

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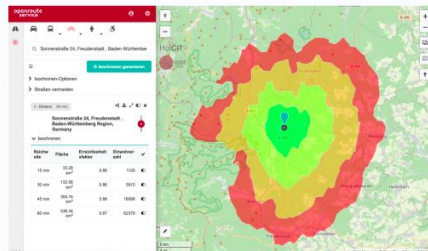
OpenStreetMap 3D Germany

The user-generated geodata of OpenStreetMap (OSM) and the elevation data of the Shuttle Topography Mission (SRTM) are used for developing an open standard based 3D Geodata Infrastructure (GDI-3D) for entire Germany. A Web 3D Service (W3DS) is providing the processed data as a 3D scene graph to the client. The OpenStreetMap-3D project aims to investigate the following aspects:

- Use potential and quality of user-generated geodata
- Scalability of concepts and services developed in GDI-3D.de
- Integration of user-generated data into interoperable geodata/geoservice infrastructures based on open standards
- Prototypical development of statewide GDI-3D (best practices)
- Interoperable platform for 3D city models
- Evaluation of cartographic visualisations in 3D



Openrouteservice planning tools:



Disaster maps client

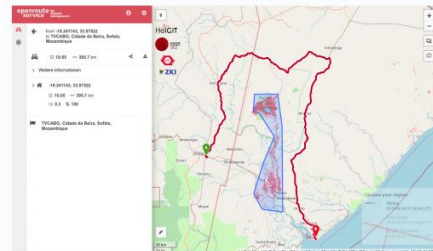
Based on the classic version, our client for disaster management is developed to support the work of humanitarian actors and disaster responders in the most vulnerable and disaster prone regions of the world. Thanks to the work of the **Humanitarian OpenStreetMap Team** and the **Missing Maps** project, in disaster situations the OSM data is continually updated and enriched with critical information. By limiting the service to active disaster regions, it is possible to recalculate the routing graph once every hour on basis of the most current OSM data.



Classic maps client

Our **classic route planning tool** enables you to use most of the openrouteservice API with only a few clicks on a map. Choose from a variety of profiles and set up to 50 waypoints to plan your route. Customize it by avoiding areas, specific street types or whole countries. Query POIs along your route, perform accessibility analyses for multiple points or simply inspect locations.

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New VueJs client

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Proceedings of the Academic Track at the State of the Map 2020

Minghini, Marco; Coetzee, Serena; Juhász, Levente; Yeboah, Godwin; Mooney, Peter; Grinberger, A. Yair;

Proceedings of the Academic Track at State of the Map 2020 - Online (originally planned in Cape Town, South Africa), July 4-6, 2020. Editors Marco Minghini – European Commission, Joint Research Centre (JRC), Ispra, Italy Serena Coetzee, Department of Geography, Geol

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Editorial: OpenStreetMap research in the COVID-19 era

Minghini, Marco; Coetzee, Serena; Grinberger, A. Yair; Yeboah, Godwin; Juhász, Levente; Mooney, Peter;

Minghini, M., Coetzee, S., Grinberger, A. Y., Yeboah, G., Juhász, L., & Mooney, P. (2020). Editorial: OpenStreetMap research in the COVID-19 era In: Minghini, M., Coetzee, S., Juhász, L., Yeboah, G., Mooney, P., Grinberger, A.Y. (Eds.). Proceedings of the Academic Track at the Sta

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Assessing global OpenStreetMap building completeness to generate large-scale 3D city models

Biljecki, Filip; Ang, Li Min;

Biljecki, F., & Ang, M. L. (2020). Assessing Global OpenStreetMap building completeness to generate large-scale 3D city models In: Minghini, M., Coetzee, S., Juhász, L., Yeboah, G., Mooney, P., Grinberger, A.Y. (Eds.). Proceedings of the Academic Track at the State of the Map 2020 Online

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Proceedings of the Academic Track at the State of the Map 2020

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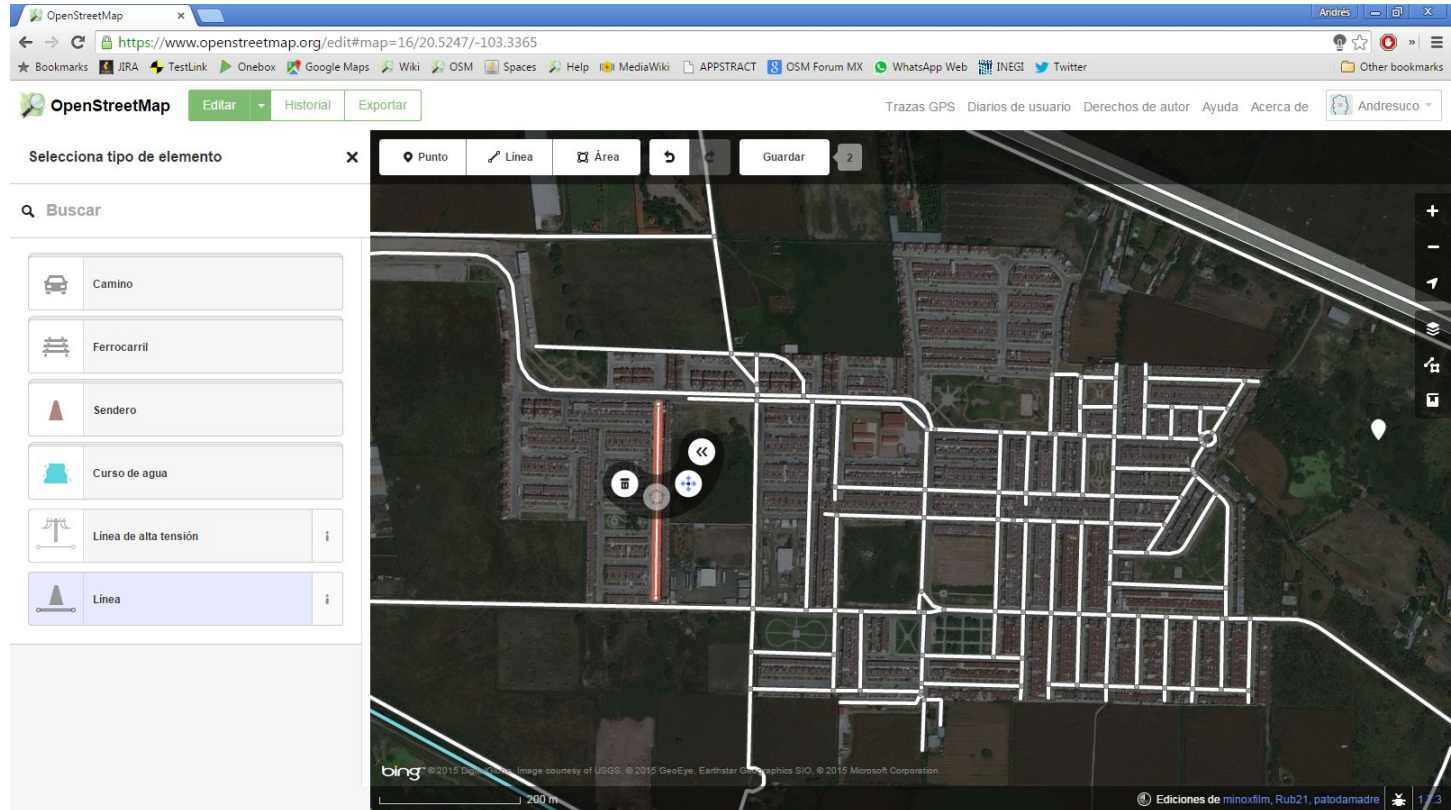
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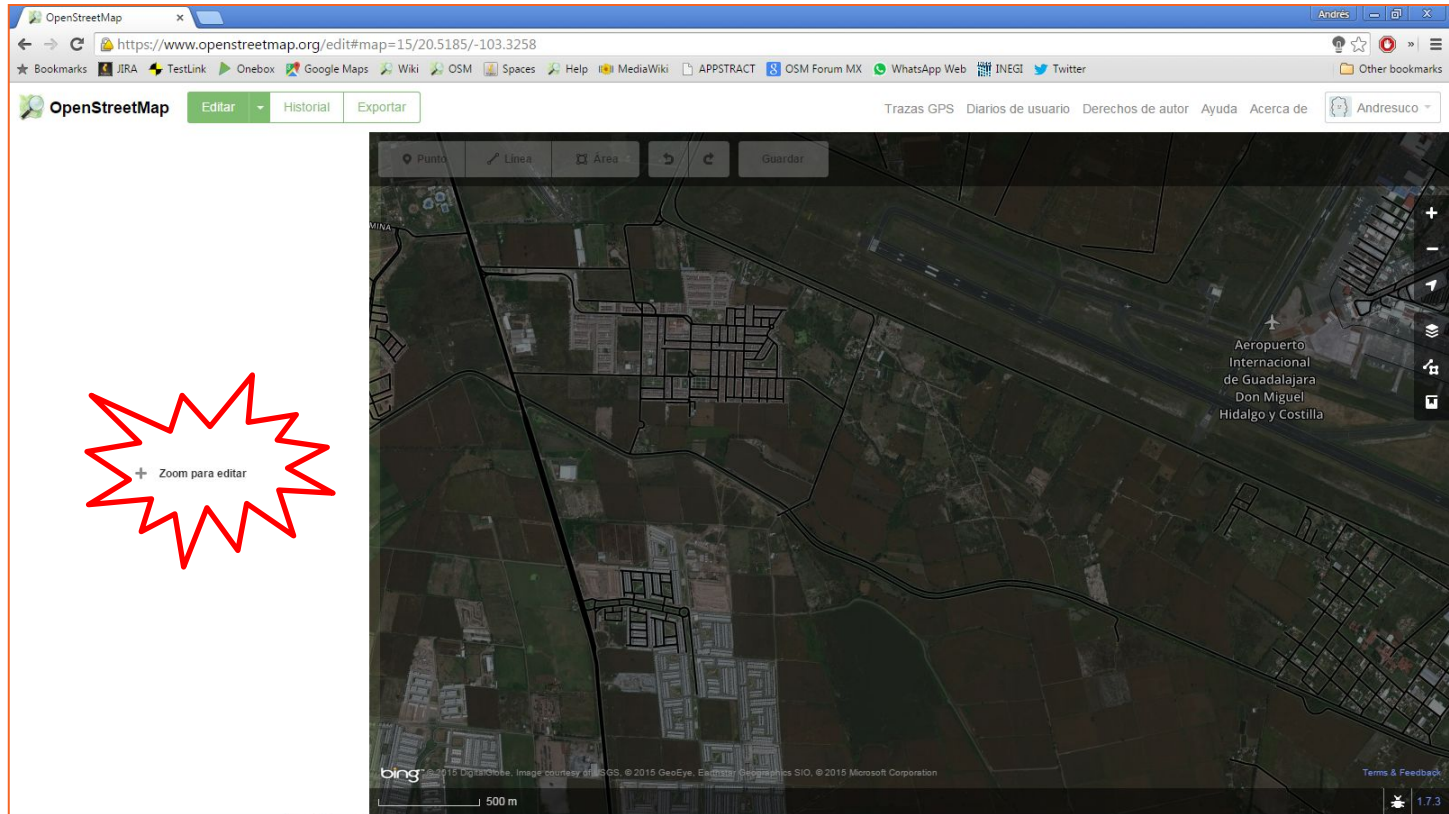
Minghini, M.¹, Coetzee, S.², Juhász, L.³, Yeboah, G.⁴, Mooney, P.⁵, Grinberger, A.Y.⁶

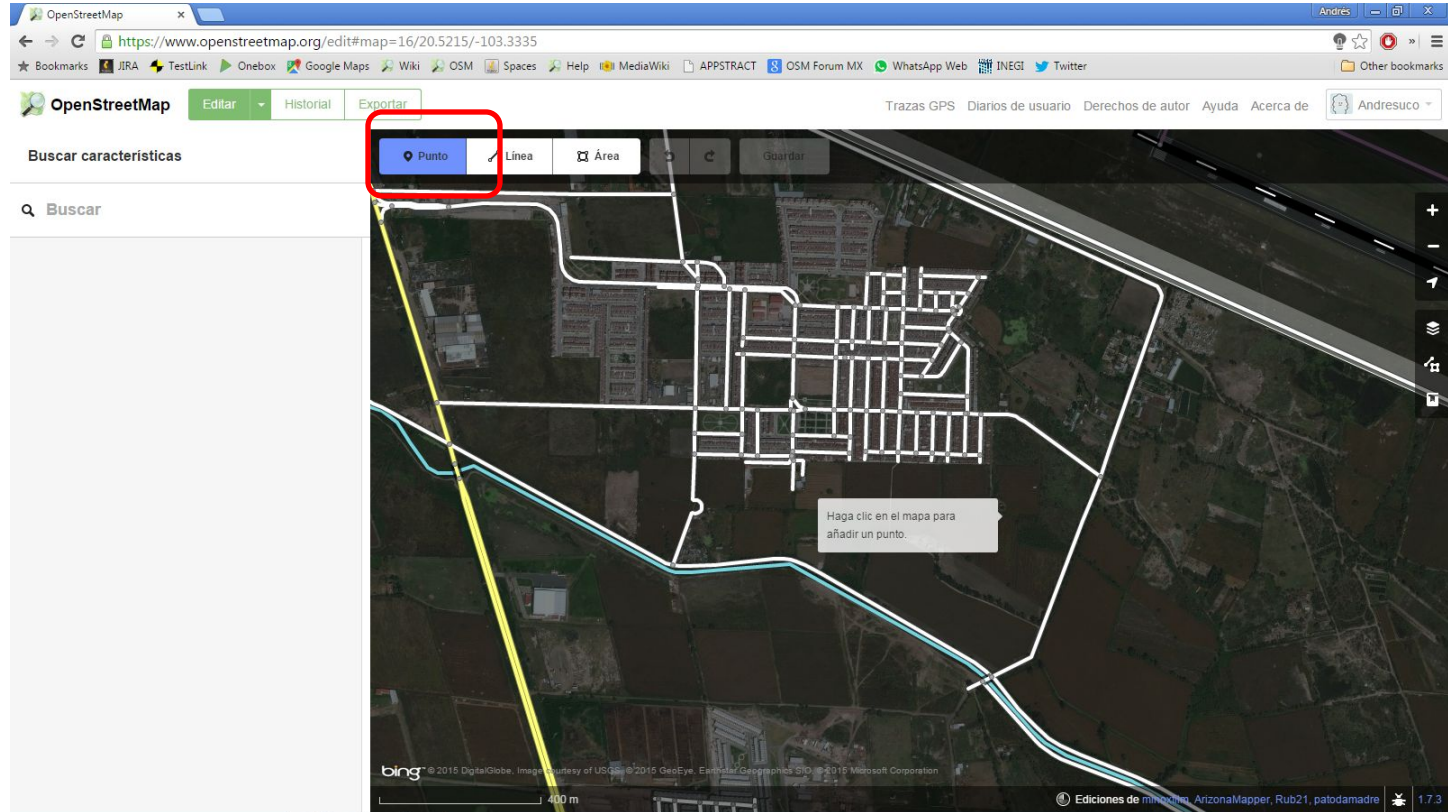
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⁵ Maynooth University, Ireland
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Selecciona tipo de elemento

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- Terreno Hospital
- Lugar de culto
- Cafeteria
- Restaurante
- Comida rápida
- Bar
- Banco

Punto Línea Área Guardar 1

400 m

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Selecciona tipo de elemento

Buscar

	Parque	i
	Terreno Hospital	i
	Lugar de culto	i
	Cafeteria	i
	Restaurante	i
	Comida rápida	i
	Bar	i
	Banco	i
		

Punto Línea Área Guardar 1

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400 m

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Editar elemento

 Parque 

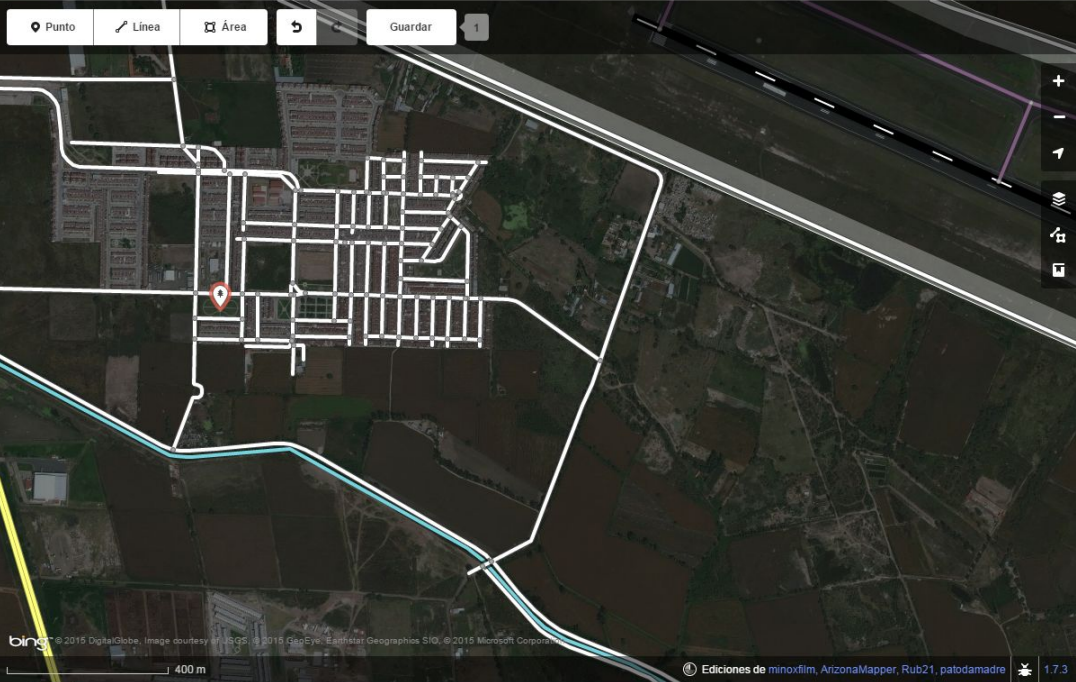
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▼ Todas las relaciones (0)





400 m

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Editar elemento

 Parque 

Nombre   
Parque fulanito 

Añadir campo: Dirección, Altitud, Nota ...

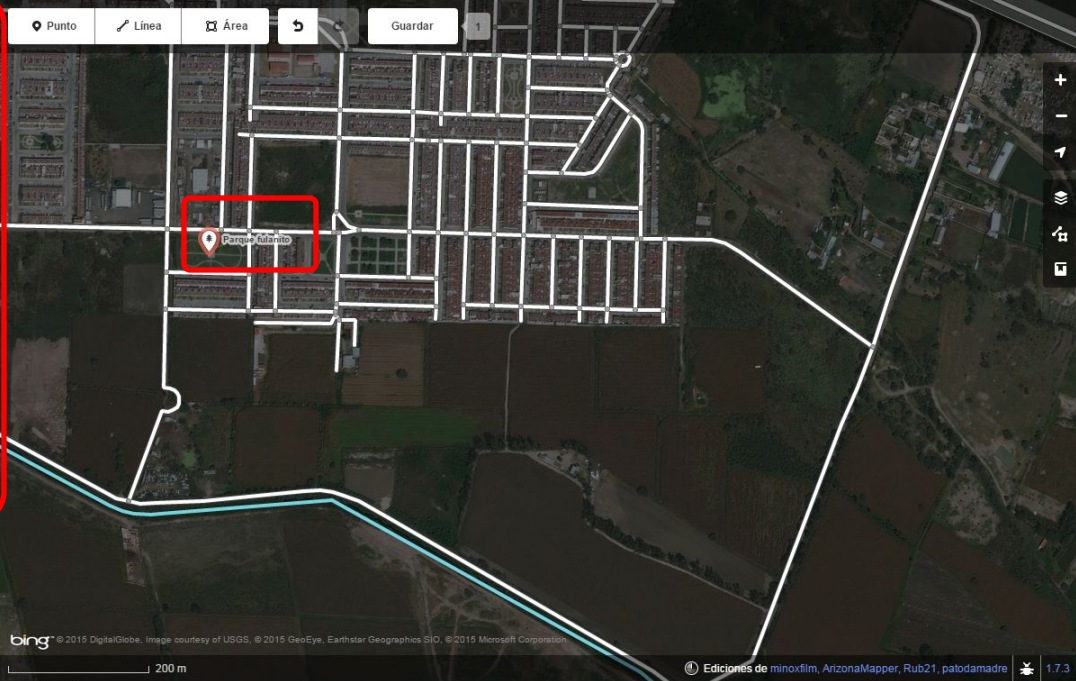
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leisure	park		
name	Parque fulanito		



▼ Todas las relaciones (0)





Guardar 1

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200 m

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Editar elemento

Parque

Nombre
Parque fulanito

Añadir campo: Dirección, Altitud, Nota...

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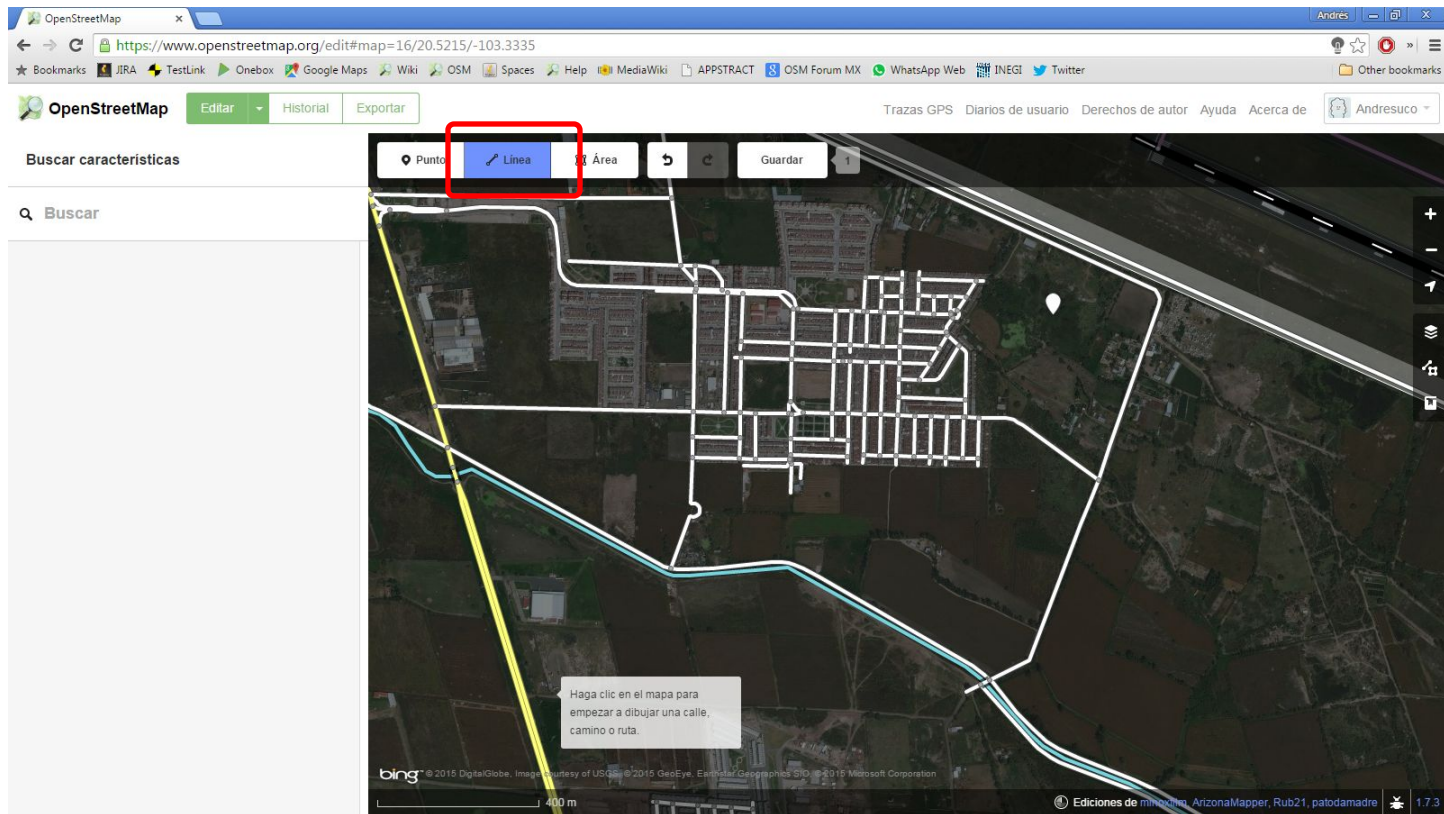
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name	Parque fulanito		

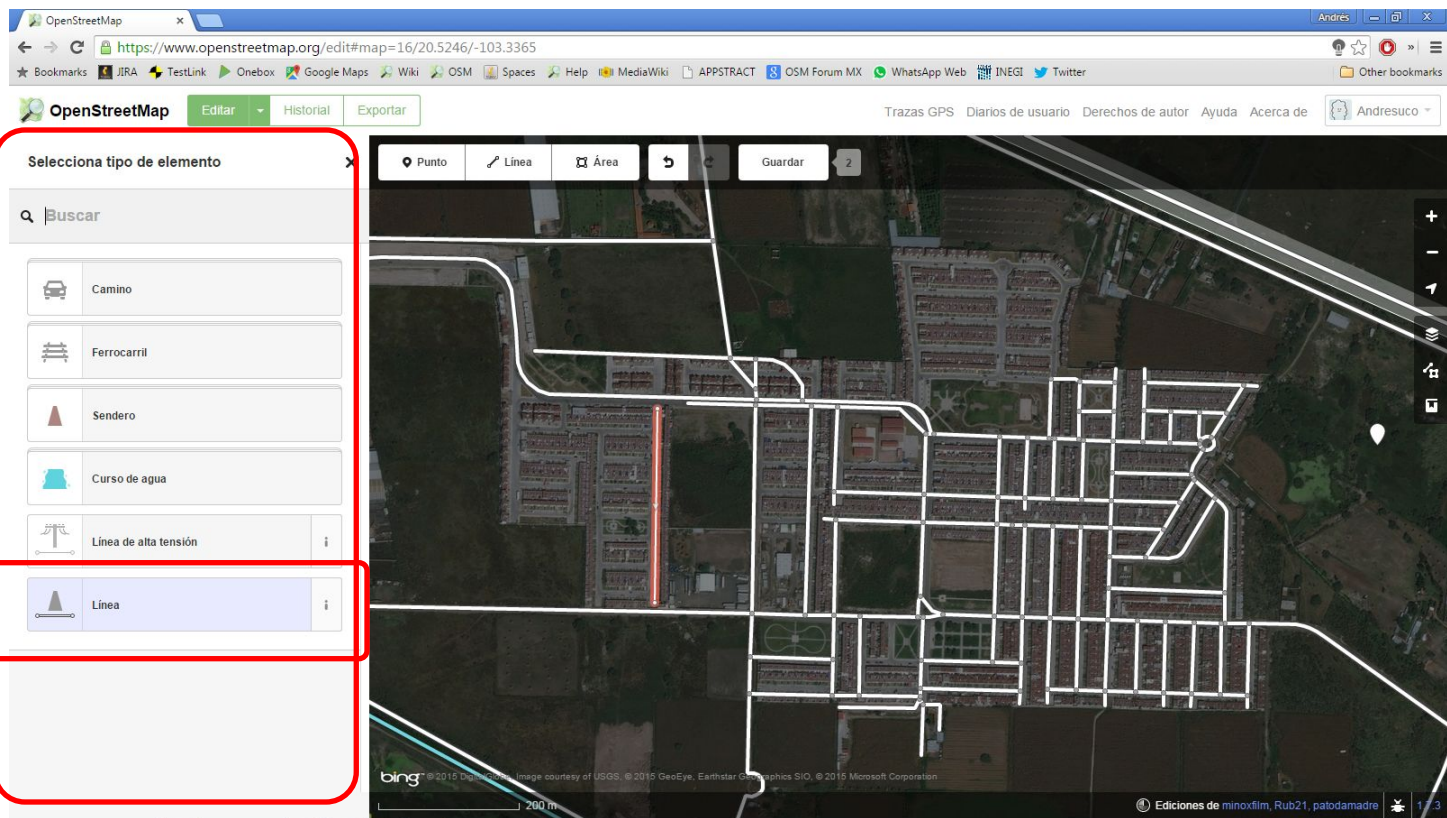
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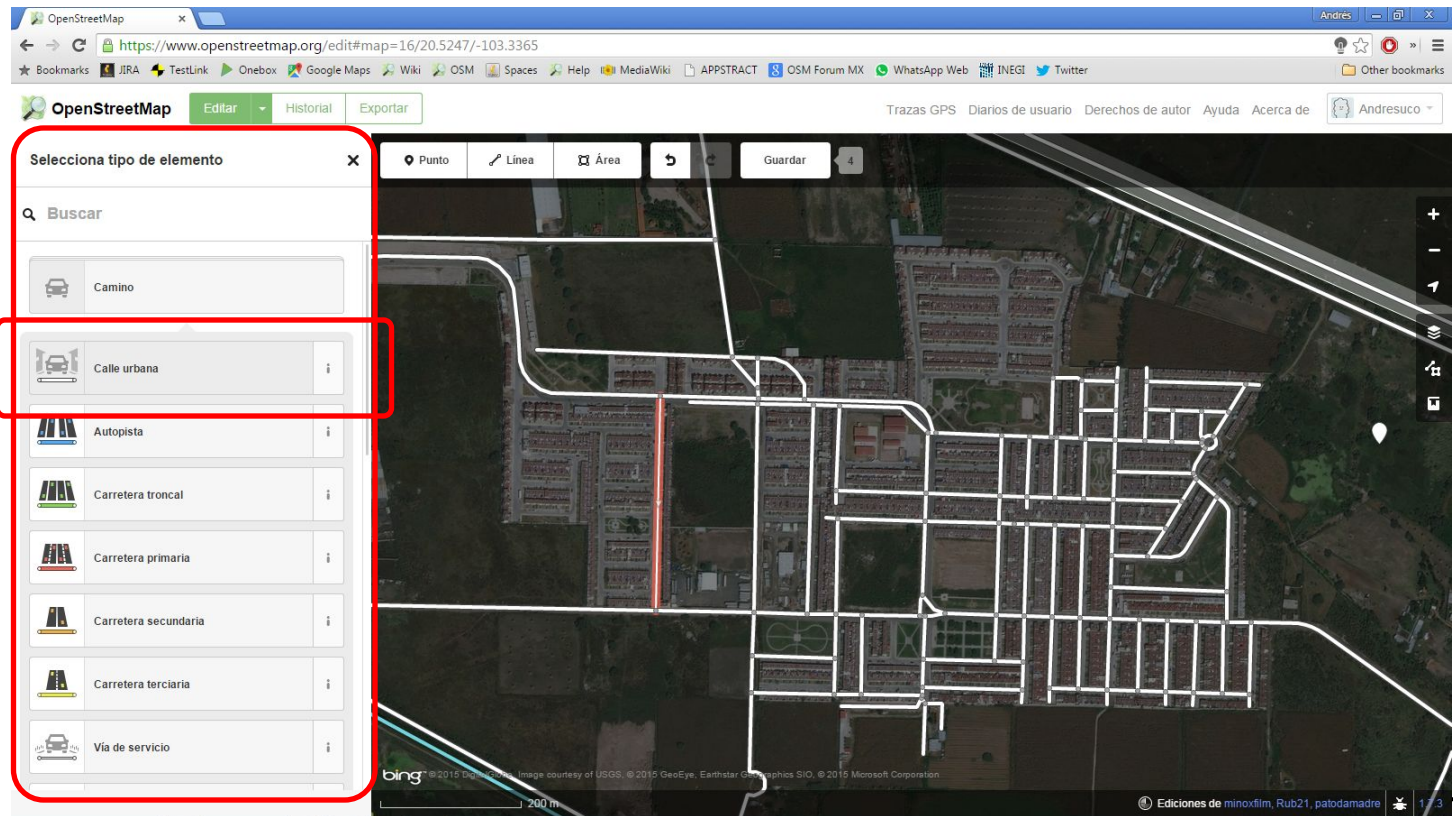
200 m

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Editar elemento

 Calle urbana

Nombre

Nombre común (si existe)

Sentido único

Se asume que es No

Límite de velocidad

40, 50, 60...

km/h

Estructura

☐ Puente

☐ Túnel

☐ Dique

☐ Desmonte

☐ Vado

Acceso

General	yes
A pie	yes
Automóviles	yes
Bicicletas	yes

Punto Línea Área Guardar 4

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OpenStreetMap

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OpenStreetMap | Editar | Historial | Exportar

Trazas GPS | Diarios de usuario | Derechos de autor | Ayuda | Acerca de | Andresuco

Editar elemento

Nombre: Calle Fulanita

Sentido único: Se asume que es No

Límite de velocidad: 40, 50, 60... km/h

Estructura: Puente, Túnel, Dique, Desmonte, Vado

Acceso: General, A pie, Automóviles, Bicicletas, Caballos

Superficie: asphalt unaved paved

Punto | Línea | Área | Guardar

Calle Fulanita

bing

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200 m

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ES:Página principal

(Redirigido desde «[ES:Main Page](#)»)

Main Page - Otros idiomas

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Bienvenido a OpenStreetMap, el proyecto dirigido a crear y ofrecer datos geográficos *libres* al mundo. Comenzamos debido a que muchos mapas que se cree que son libres, tienen en realidad restricciones legales o técnicas para su uso, lo cual evita que cualquier persona los pueda utilizar de una manera creativa, productiva o inesperada.

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OpenStreetMap isn't just open data - it's also open source, and you can help!

There are two major ways you can get involved in OpenStreetMap:

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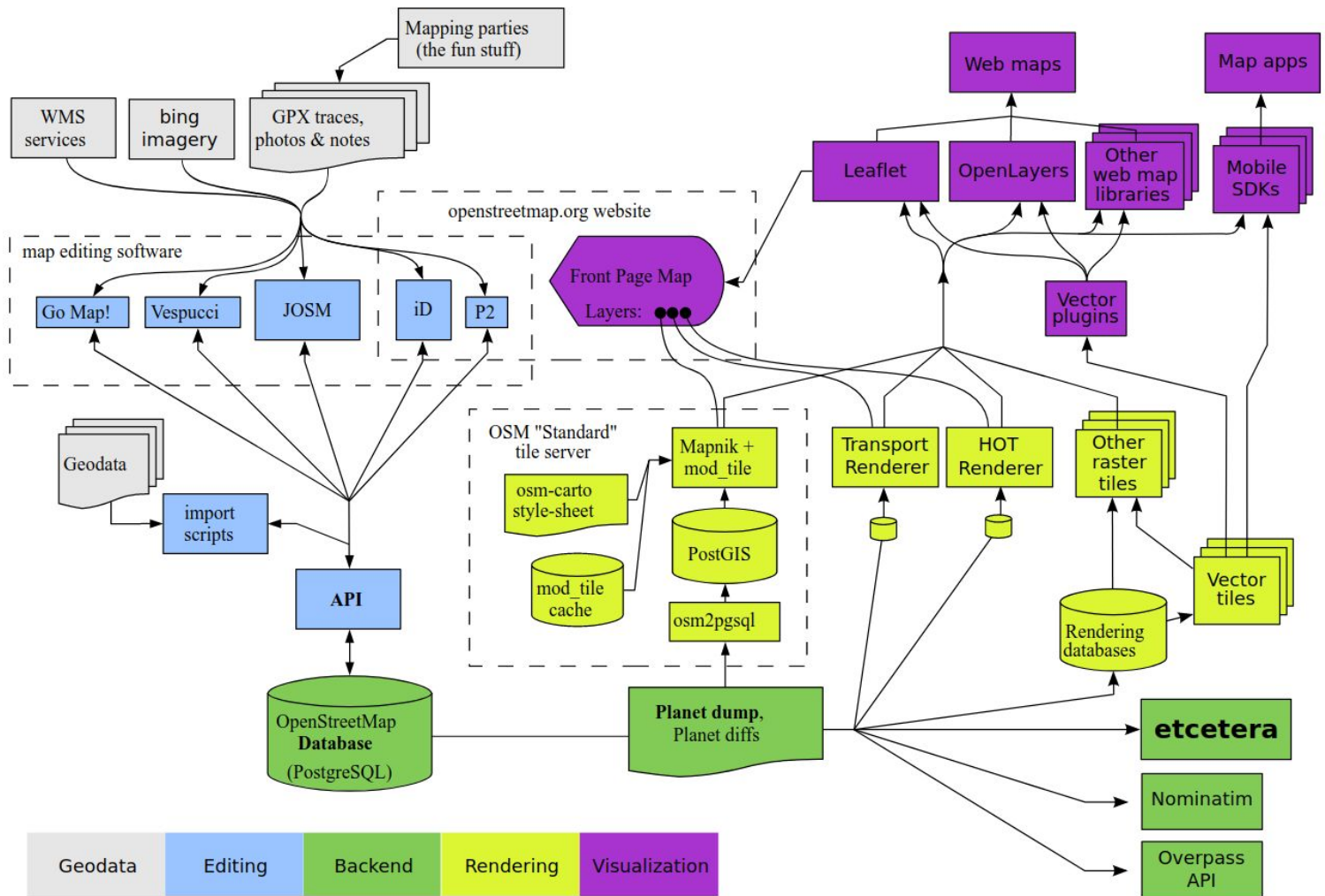
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OSM Lab

Worldwide <https://gist.github.com/tmcw/5157262> bhouse1@gmail.com

Repositories 129 Packages People 49 Projects

editor-layer-index

A unified layer index for OSM editors.

[openstreetmap](#) [wms](#) [tms](#) [imagery](#)

JavaScript 145 130 85 (8 issues need help) 34 Updated 20 hours ago



osm-community-index

An index of community resources for OpenStreetMap

[groups](#) [openstreetmap](#) [communities](#)

JavaScript ISC 94 87 3 0 Updated 21 hours ago



atlas-checks

OSM data integrity checks with Atlas

[osm](#) [integrity](#) [mapping-tools](#)

Java BSD-3-Clause 57 36 23 8 Updated yesterday



atlas

OSM in memory

[maps](#) [openstreetmap](#) [osm](#) [geospatial](#) [shard](#) [geospatial-data](#)

[spatial-analysis](#)

Java BSD-3-Clause 63 156 12 2 Updated 4 days ago



applepaintstyles

0 5 4 0 Updated 6 days ago



maproulette-python-client

MapRoulette Client Library for Python

[openstreetmap](#) [osm](#) [mapping-tools](#) [maproulette](#)



labuildings

Los Angeles County building import

Python BSD-3-Clause 14 43 16 0 Updated on 2 Feb 2017

welcome

A webapp designed to make it easier to welcome new mappers to OpenStreetMap.

MIT 0 2 0 0 Updated on 7 Jan 2017

routerelationranger

New incarnation of defunct Relation Pages. Lists out route relations state by state in the US with links to edit / inspect.

HTML 0 6 2 1 Updated on 13 Dec 2016

nycbikelanes

NYC bike lane cleanup and update

Python 3 6 2 0 Updated on 11 Nov 2016

basket

JavaScript MIT 3 4 10 0 Updated on 21 Oct 2016

osmlint2csv

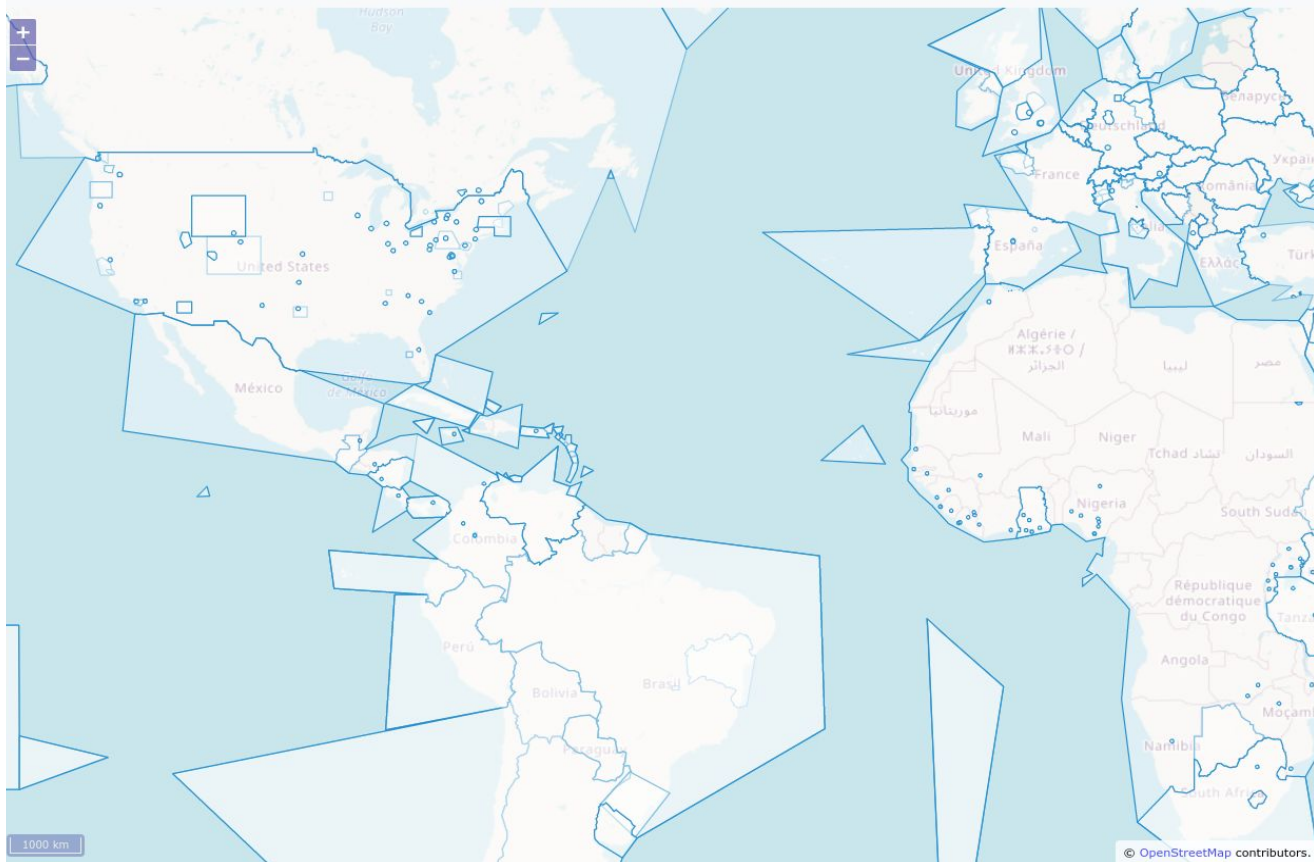
Forked from Rub21/osmlint2csv

JavaScript 1 1 1 0 Updated on 21 Oct 2016

id-upwards

JavaScript 0 0 0 0 Updated on 14 Oct 2016

OSM Community Index Map Resources Features



Filter:

Show all

Latin America and the Caribbean

- OpenStreetMap Latin America IRC
- OpenStreetMap Latin America Matrix
- OpenStreetMap Latin America Telegram
- OpenStreetMap Latin America Twitter
- Talk-latam Mailing List
- OpenStreetMap Wikiproject Latin America
- OpenStreetMap Latin America Facebook

World

- OpenStreetMap on Facebook
- OpenStreetMap on Reddit
- OpenStreetMap Discord
- OpenStreetMap Telegram
- OpenStreetMap Twitter
- OpenStreetMap Foundation
- OpenStreetMap Help
- OpenStreetMap IRC

Contacto y Redes Sociales



www.openstreetmap.mx



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OpenStreetMap México

OpenStreetMap México Comunidad

PosData: Comunidad de Datos
Abiertos

Twitter: @PosData_Libre

Foros y Wikis



www.openstreetmap.mx/contacto

Descarga de datos

<http://download.geofabrik.de/>