



OVERTURE MAPS
FOUNDATION

MEMBER SUMMIT



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Humanitarian OpenStreetMap Team

Closing the data gap: Human-contributed data in Overture in the age of AI



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Open
Mapping
Hub
ASIA-PACIFIC

HOT is works towards a world where...

...community needs are addressed through mapping.

...everyone can access and contribute to the map.

...open map data is available and used for impact.



COMMUNITY: HOT works through 4 Regional Hubs



Open Mapping Hub
LATIN AMERICA & THE CARIBBEAN



Open Mapping Hub
WEST & NORTHERN AFRICA



Open Mapping Hub
EASTERN & SOUTHERN AFRICA



Open Mapping Hub
ASIA-PACIFIC





HOT

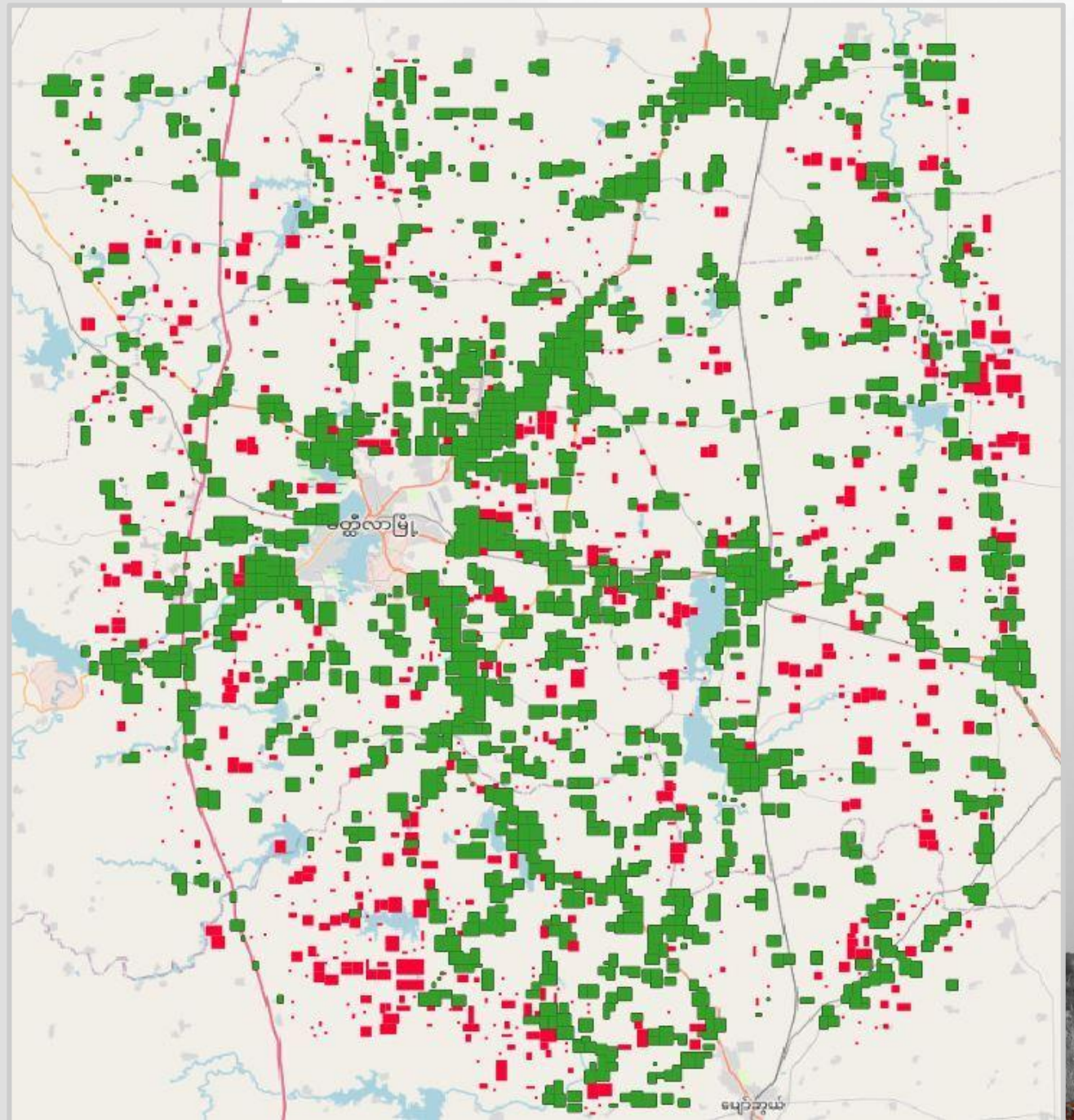
Why do we all need better data?

“In rural areas of Myanmar there are a whole series of settlements that are completely missing from [Overture buildings](#) - only spotted this by comparing results of [first completed MapSwipe project](#).

Only 66% of the polygons identified by humans in MapSwipe contain Overture buildings. MapSwipe polygons that do not contain Overture buildings are highlighted red in the image below. Green are areas where MapSwipe built up areas intersected with Overture data. This effectively means that the Overture dataset for this rural area is completely omitting **roughly a third** of the villages / towns in Myanmar. “

Meiktila, Mandalay, Myanmar (as of April 2025)

-  Overlap between MapSwipe & Overture
-  Missing from Overture



The Marketplace concept



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Purpose

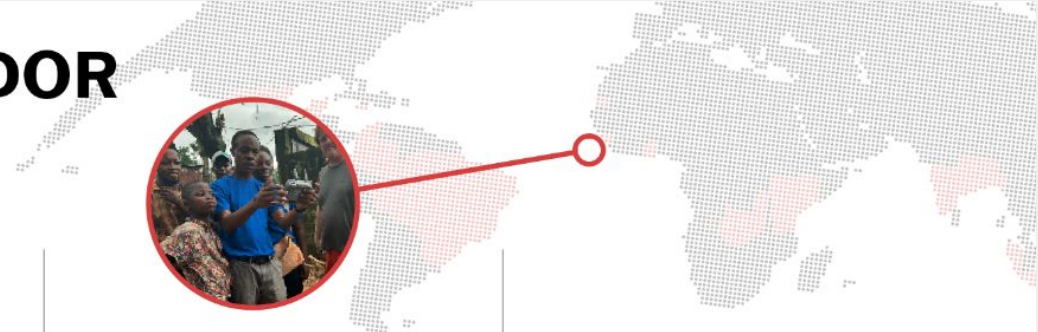
Create an ecosystem where **local communities supply the data needed** for decisions in domains such as climate adaptation, urban planning, health, and disaster response. **Enable growth in paid work for local mapping communities**, which increases the volume and quality of local data.

How It Works

1. **Accreditation and Training:** HOT trains and certifies local mappers and organizations as community vendors, ensuring quality and compliance
2. **Marketplace Platform:** the marketplace makes it easy for clients to find, contract, and pay local vendors for geospatial services
3. **Quality and Oversight:** HOT provides the technology, quality assurance, and responsible data frameworks to guarantee reliability
4. **Revenue Model:** Community vendors earn livelihoods through paid work

JOURNEY OF A COMMUNITY-BASED VENDOR

This is the story of Tommy Charles, from Freetown, Sierra Leone. Hundreds of our community mappers have followed similar paths.



2016



Learns to map
with the
Sierra Leone
Red Cross.

2017-2018



Volunteers
with
YouthMappers,
a HOT partner.

2020-2022



Receives
training and a
microgrant
from HOT.

2024



Subcontracts for
HOT in Sierra
Leone and trains
as a drone pilot.

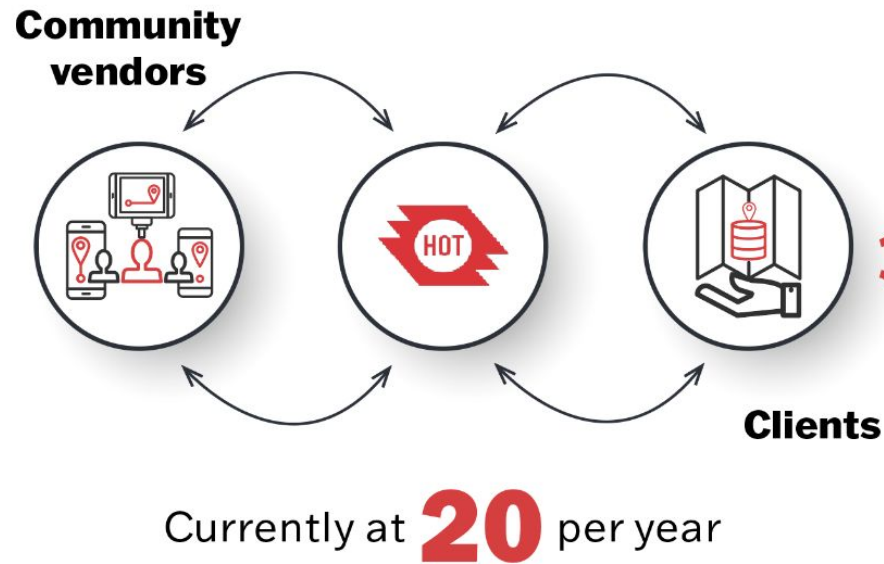
2025-2026



Set to lead mapping
activities on **\$750K**
of HOT contracts in
Freetown.

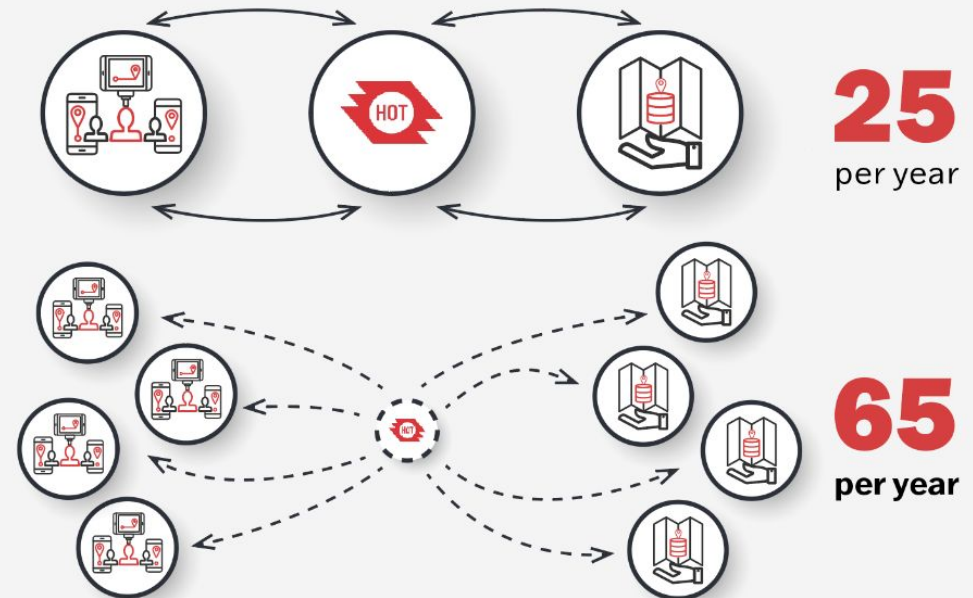
2025

In our current model, HOT leads mapping projects with clients and subcontracts local vendors to support data collection and training



2030

HOT-led projects will continue while the Open Mapping Marketplace will enable clients to contract services directly from community vendors at a lower price



The Open Mapping Marketplace: On-Demand, Ethical, Local Intelligence and Ground Truthing

Scaling Ground-Truthing: engage with a global network of mapping professionals to enhance the accuracy and trustworthiness of Overture datasets.



Access accredited mapping vendors

Access high-quality, ground-truthed geospatial data sourced directly by vetted, local experts.

Ethical & Sustainable Quality

Drive investment directly into the communities that map their own environments, ensuring long-term sustainability.

Imagery & beyond

- Drone imagery acquisition
- AI model ground-truthing and customized training datasets
- Complex, locally-nuanced field data collection.

Data and tech examples



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An open source, community-led mapping workflow

HOT has developed a suite of 8 free and open source tools that enables the entire mapping process to be community-led

Thanks to philanthropic funding we've prototyped and built the foundation for the whole workflow.

Our next step is to make it more robust and usable, so it can be fully leveraged by our community members.

AERIAL IMAGERY

1

Drone and satellite imagery show features on the ground (buildings, roads, and more) that can be tied to a specific location. High-resolution, up-to-date imagery is usually costly, while openly available options have lower resolutions or are outdated.

Our solutions start here:



DRONE TM

Local residents use accessible drones and generate consistent, high-quality imagery.



OPEN AERIAL MAP

The imagery is uploaded to a public platform that anyone in the world can access and use.



TASKING MANAGER

Remote mappers coordinate their activities and the validated data is uploaded to OpenStreetMap.



fAIR

Mappers train and inform AI-mapping models through the whole process.



FIELD-TM

Project coordinators organize on-the-ground mapping to add local context to the traced features.

GEOSPATIAL (OR MAP) DATA

2

With eyes on the ground, we now can start tracing the shapes on the imagery and add them to databases, such as OpenStreetMap. The tracing is done remotely, either manually or with Artificial Intelligence (AI). Field mapping complements these databases by adding more context about the features (e.g., "this is a hospital").

ACTIONABLE INSIGHTS

3

The information collected in the previous steps is now used by different stakeholders and communities themselves for data-driven action. While most databases and analysis tools are too restrictive due to privacy, costs, or technical knowledge, we've lowered the barrier to entry so more people can use them.



HOT'S UMAP

Stakeholders visualize data in our free, easy-to-use platform.



EXPORT TOOL

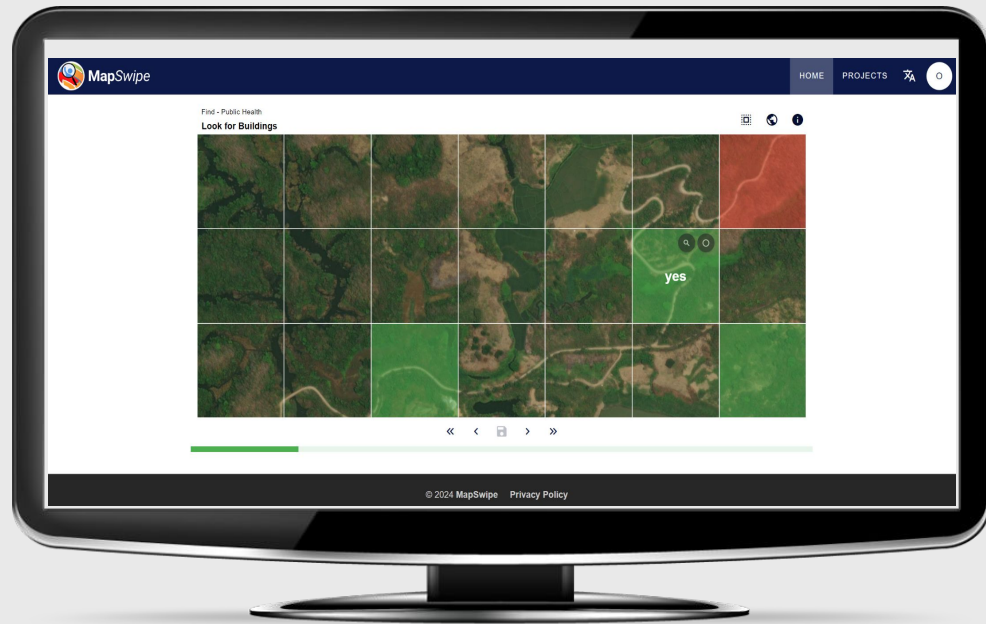
People download the collected data in various formats.



CHATMAP

Local residents use intuitive tools for field mapping, such as instant messaging apps.

If you're on a laptop..



<https://web.mapswipe.org>



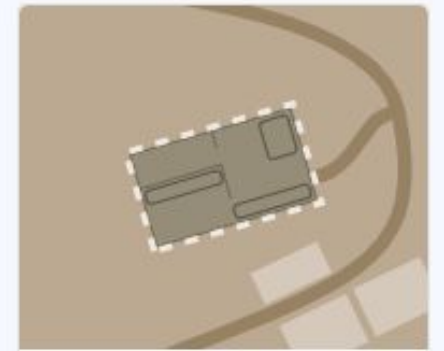
Find Features

- ✓ Know where the areas are with features - e.g. buildings, roadways, waterways
- ✓ Ignore areas with no features
- ✓ Ready to go for the HOT Tasking Manager



Compare Dates

- ✓ See where imagery has changed between two dates
- ✓ Assess damaged areas after an event
- ✓ Monitor land-use change over time



Validate Footprints

- ✓ Assess the quality of a mapping campaign
- ✓ Identify which features have been mapped correctly, and which have not.
- ✓ Focus future efforts on features that need improving



Check Completeness

- ✓ Compare mapped objects against aerial imagery to identify missing map data
- ✓ Identify which areas are already completely mapped
- ✓ Allow humanitarian organizations to focus mapping efforts to areas that most need attention



Assess Image

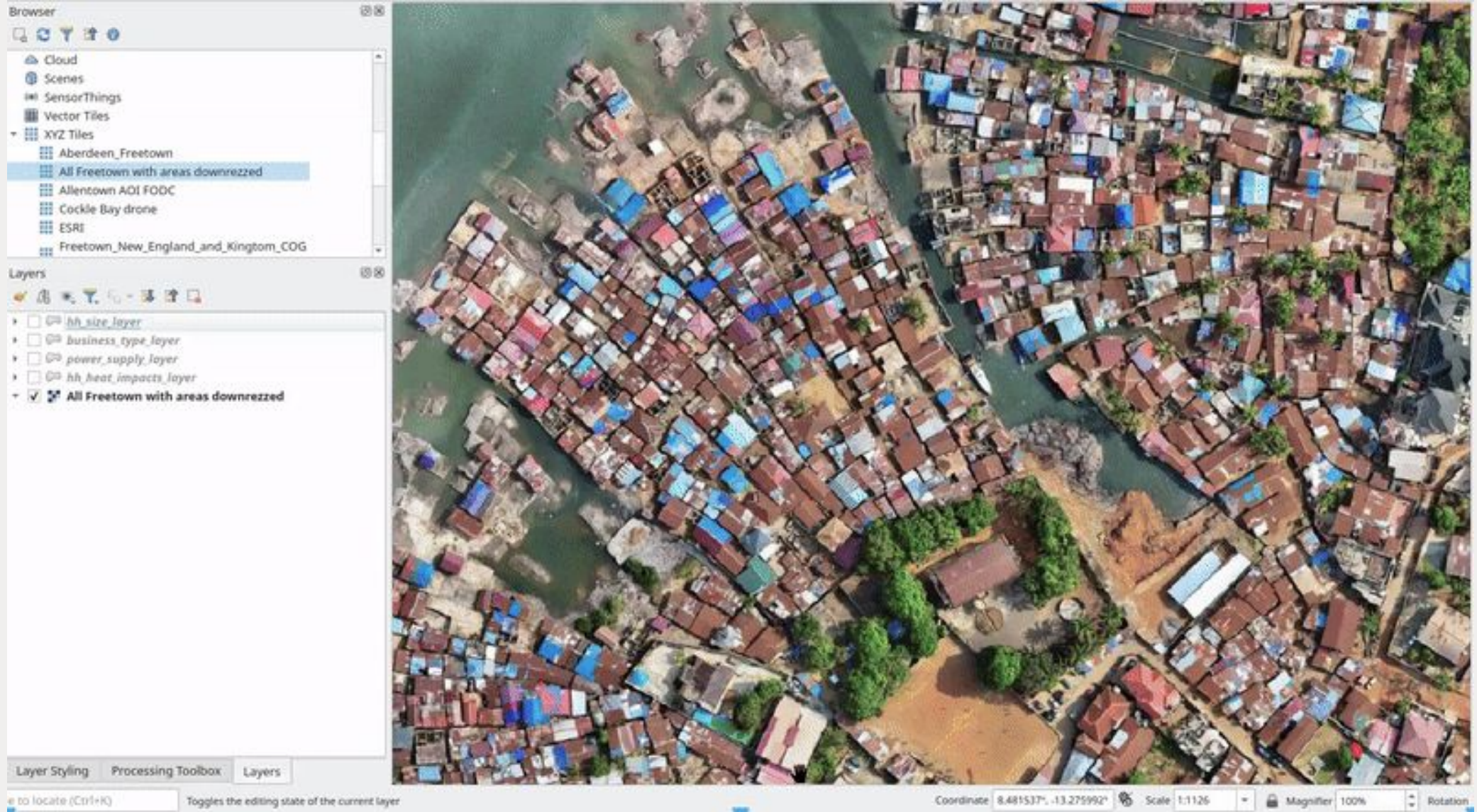
- ✓ Find features like potholes, or classify attributes like disaster damage to buildings
- ✓ Check the accuracy of machine learning detections
- ✓ Create better training data for computer vision techniques



View Streets

- ✓ Explore ground-level photos
- ✓ Find relevant features or qualify their characteristics
- ✓ Capture more detailed information on local communities

Comprehensive household surveys for climate adaptation and resilience planning.

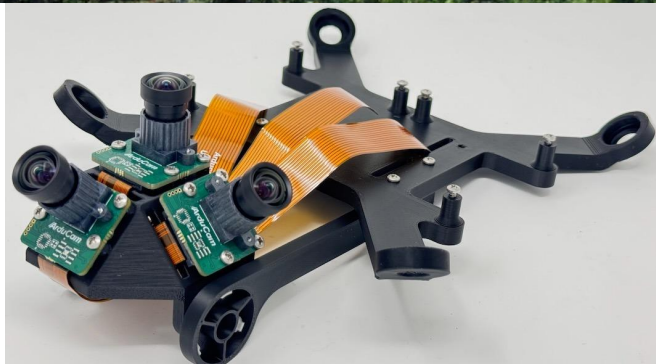
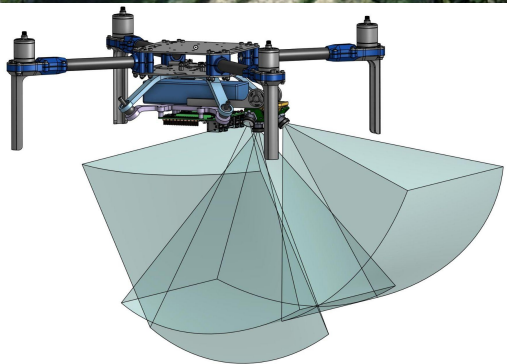


Low-Cost Drones for Community Mapping



Commercial drones are too expensive and complex for non-experts. HOTA is developing a multi-angle camera array that can be attached to a low-cost micro drone so that **community entrepreneurs are able to capture high quality imagery** that can be processed into 3D products, including technical maps and digital twins.

The multiple camera angles shown here create 3D data nearly as good as expensive and more complicated Lidar equipment at a fraction of the price.



Thank you



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