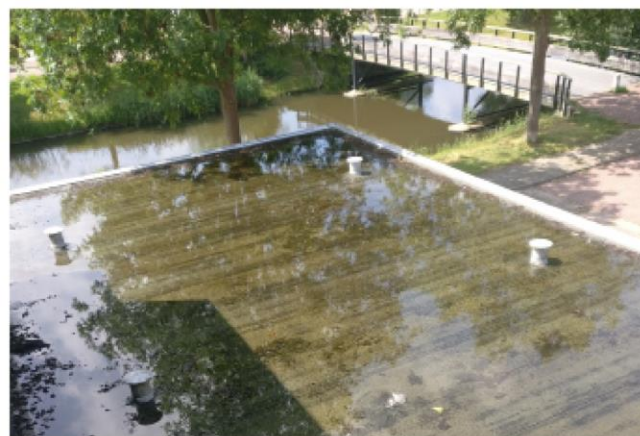


# WOCO VAN DE TOEKOMST









**91%** van de gebreken kunnen worden herkend

**72%**  
zonder het dak  
en achtergevel





**1/6th van portfolio** elk jaar door een steekproef van **10%**







$$91\% \times 1/6\text{th} \times 10\% = 1,5\%$$

informatie level









**GOEDE BESLUITVORMING IS ONMOGELIJK  
ZONDER KWALITATIEVE INFORMATIE**









G4P4

# Kansen voor West II



Den Haag

aws

Google





# REAL ESTATE SEARCH ENGINE

You won't have to leave your desk.

A database that stays up to date.

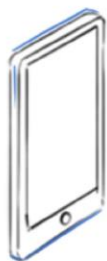
Portfolio wide insight with clear ROI.







Sensor



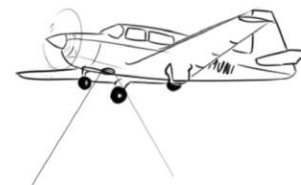
Inspection Images



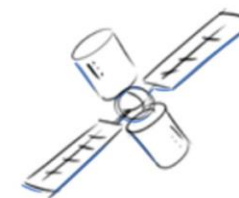
Street View



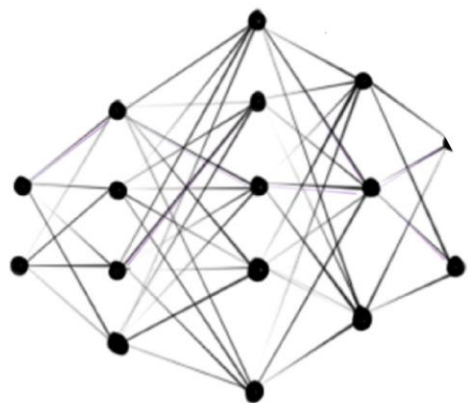
Drone Images



Aerial Photography



Satellite Images



Computer Vision



Dashboard



Action



# Scope

## Roof

Pitched or Flat  
Solar panels  
Chimneys  
Satellites  
Dormers  
Copings

## Surfaces calculation

Objects  
Defects

## Materials

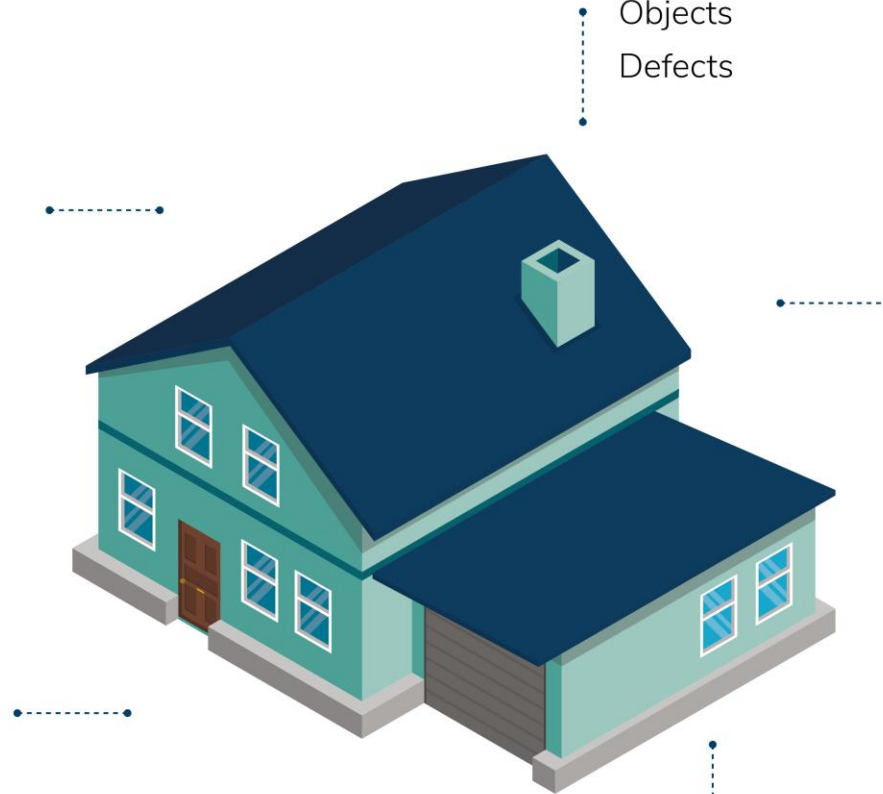
Felt  
Tiles  
Masonry  
Wood  
Plastics  
Rubber

## Facade

Windows  
Doors  
Satellites  
Balconies  
Etc.

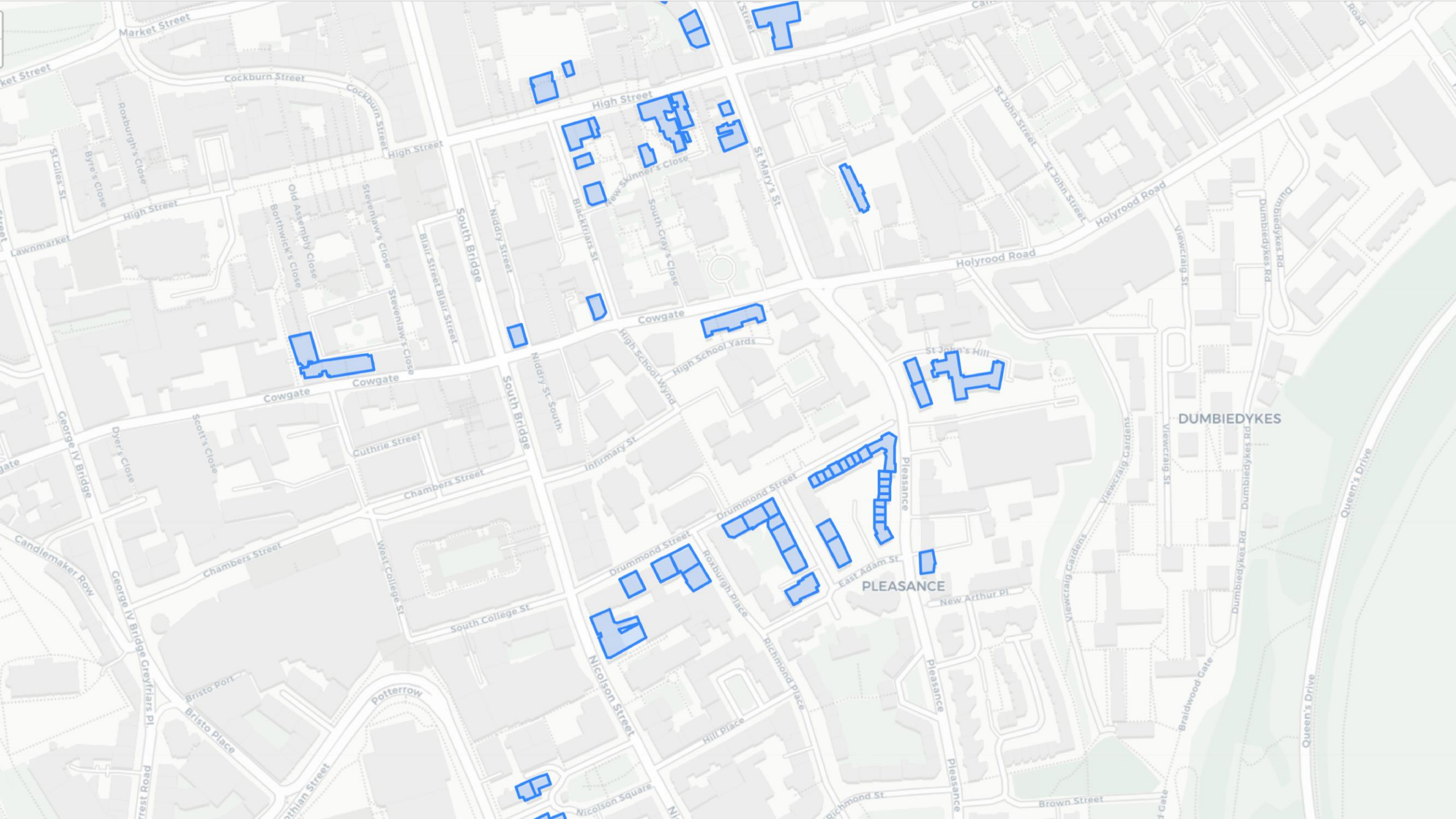
## Defects

Cracks  
Dirt  
Colour loss  
Blistering paint





33,953 roofs  
80,000+ houses

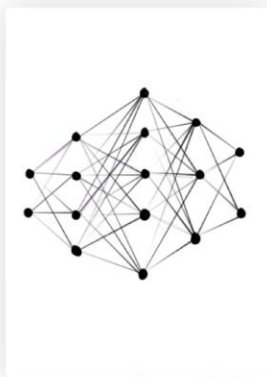






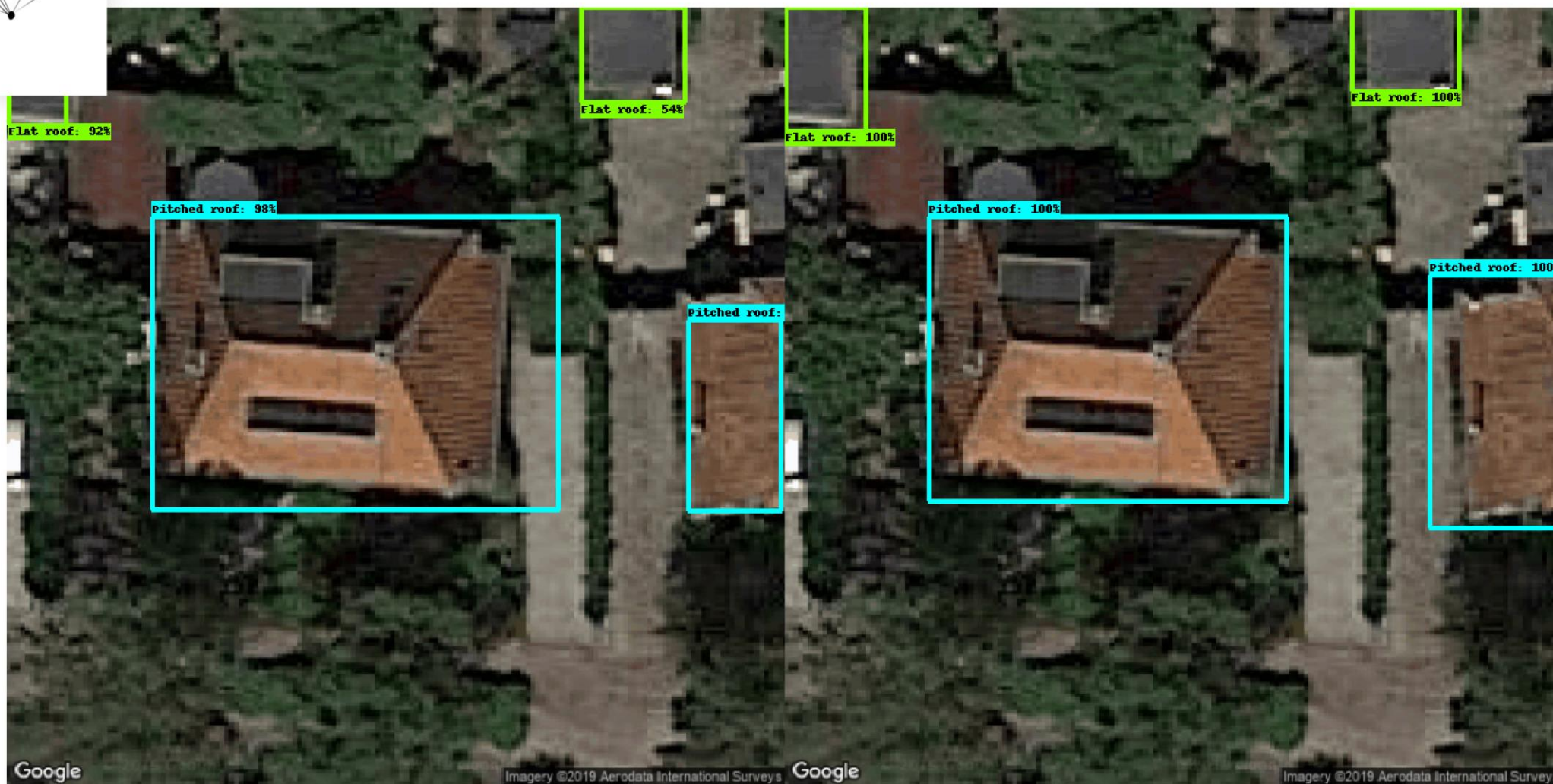
RECORDED WITH  
SCREENCAST  MATIC

20 roofs per second  
/ 33.953 roofs = 28 minutes

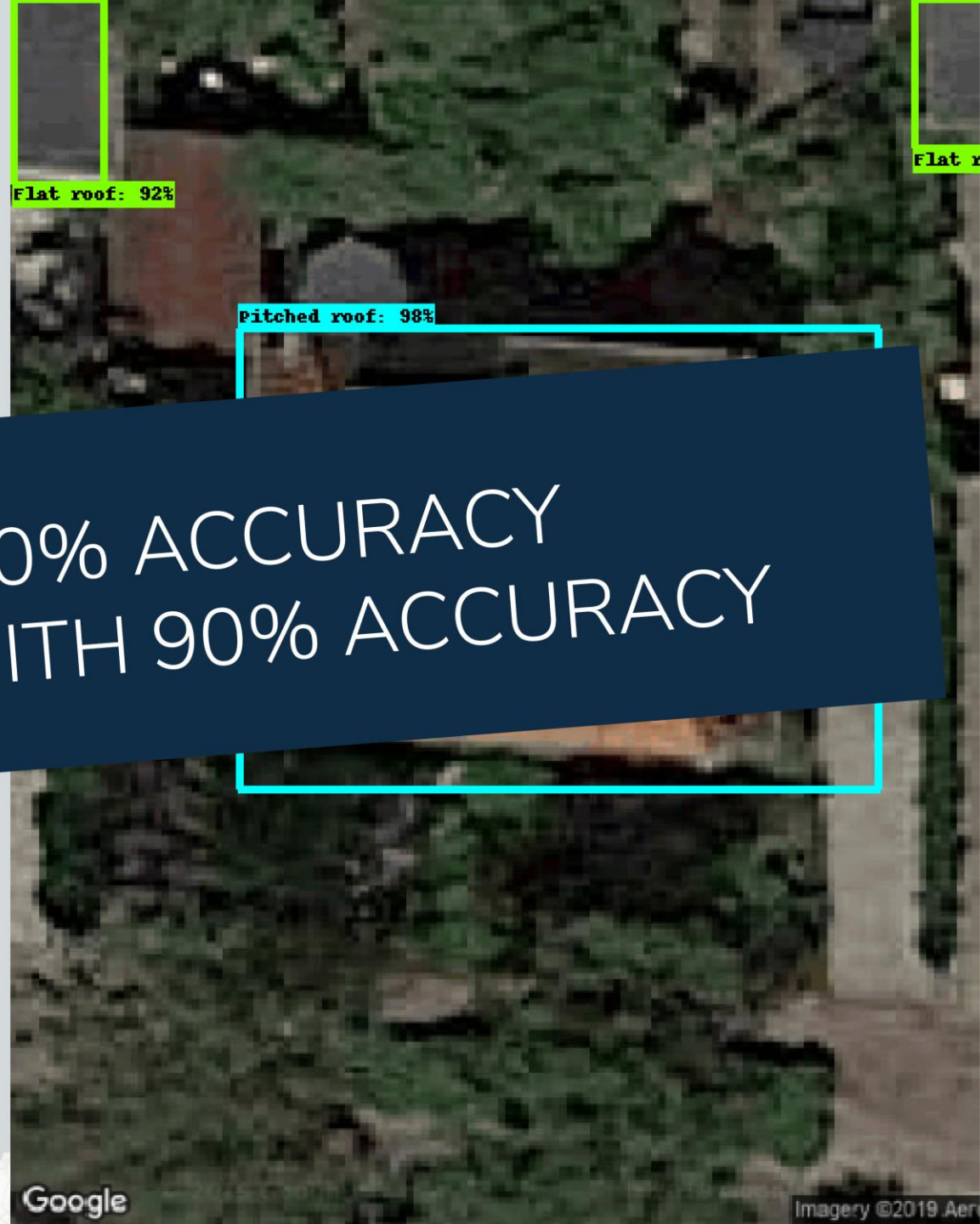
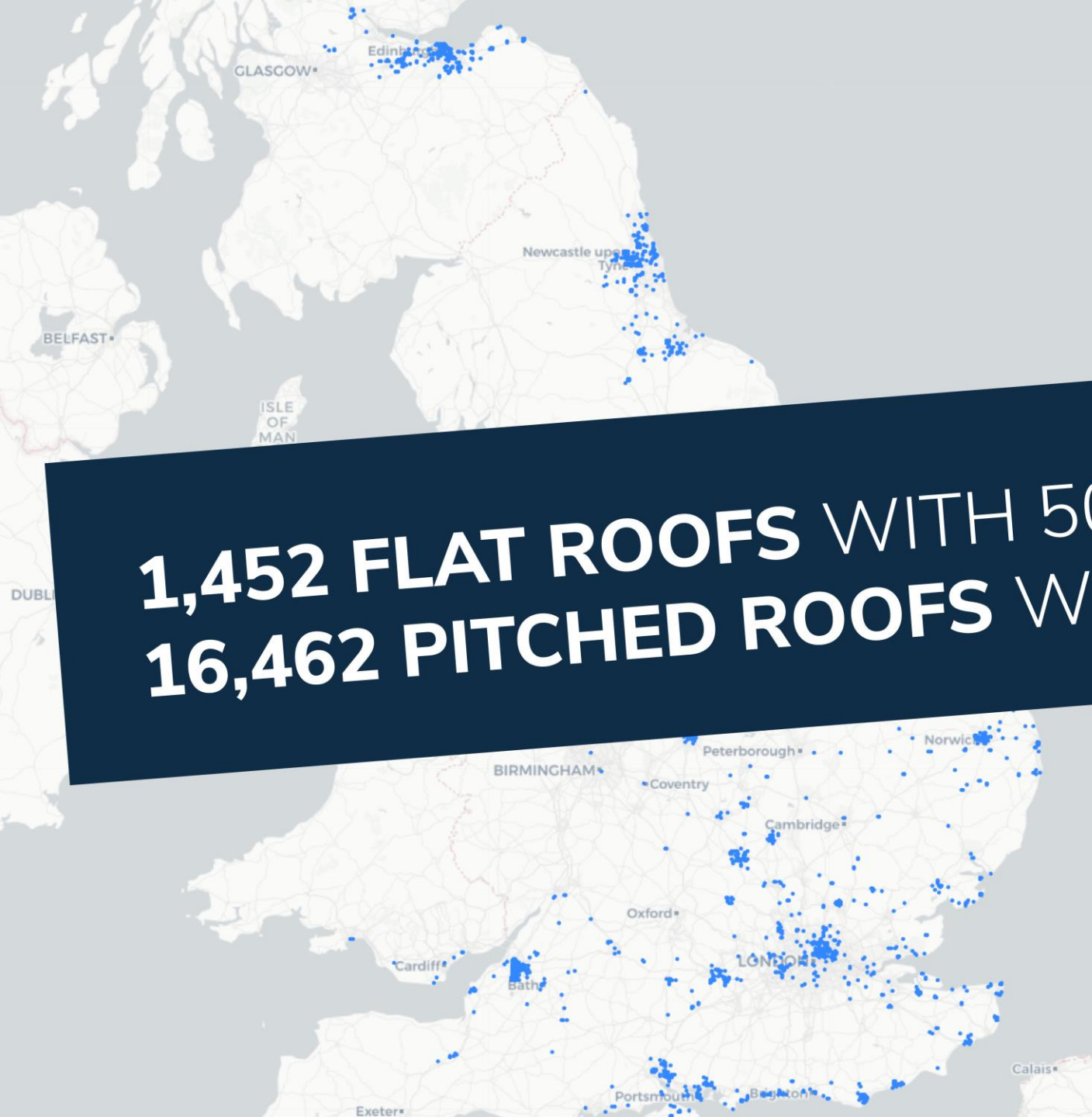


**computer generated**

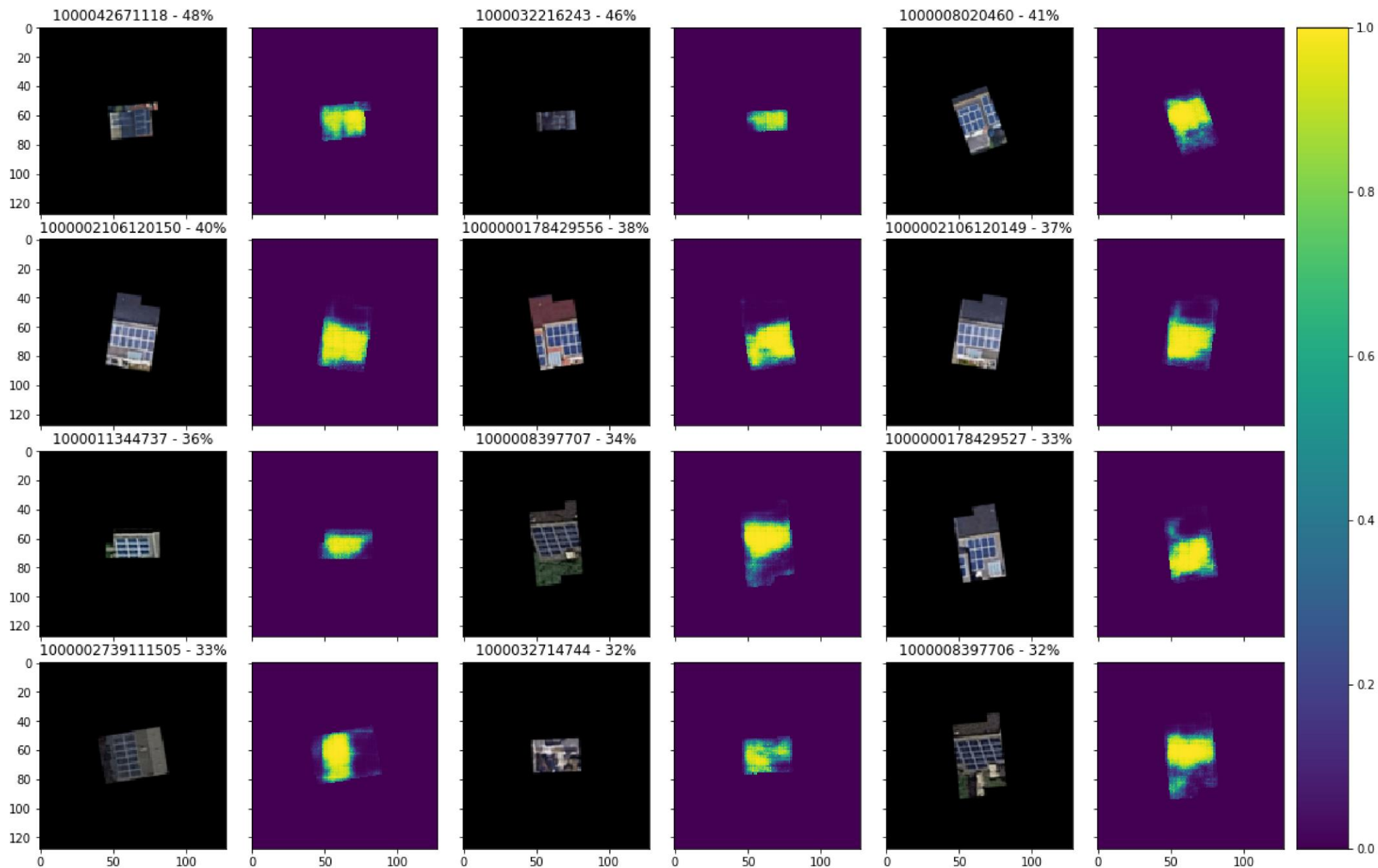
**annotated**



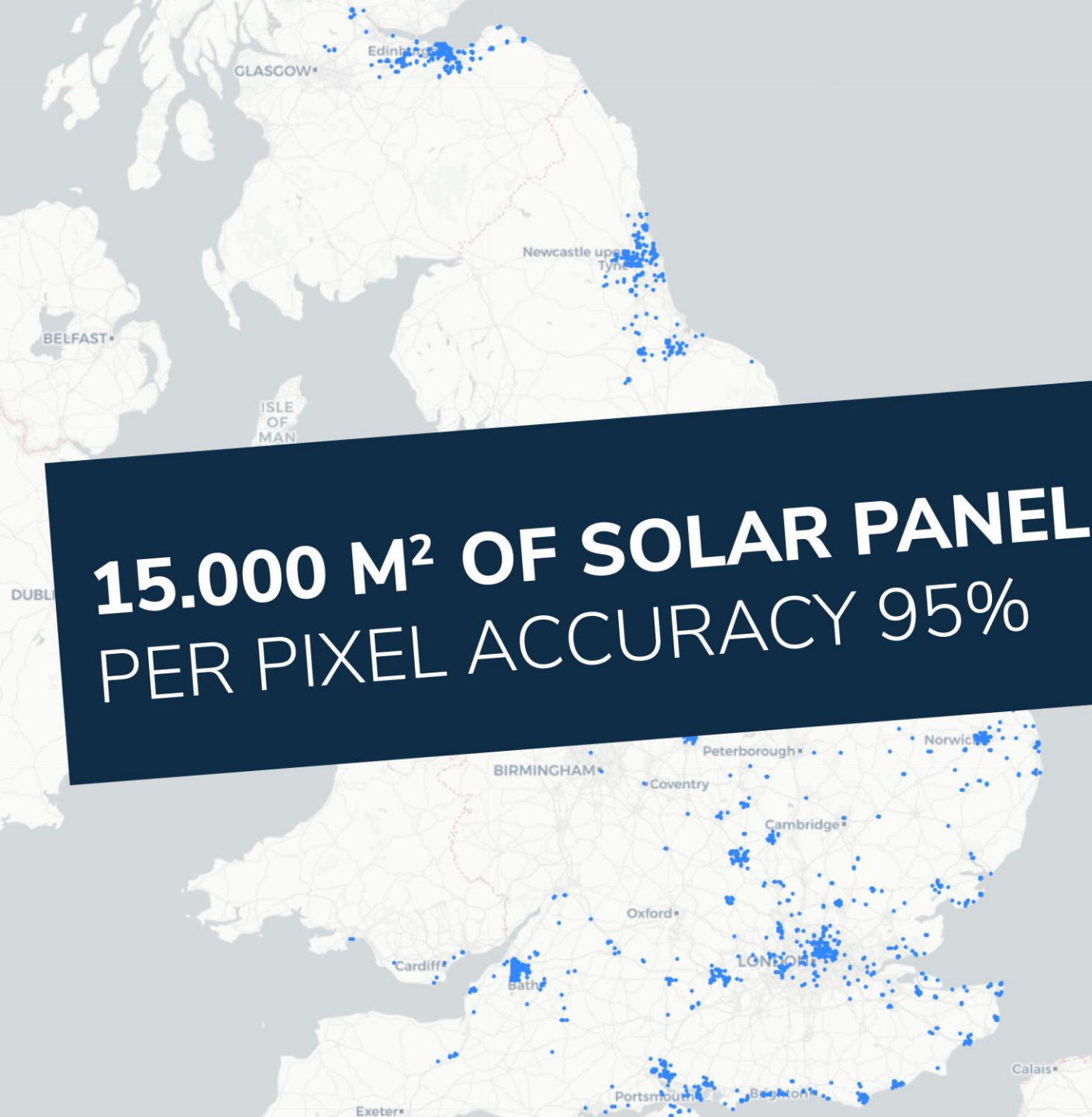




**1,452 FLAT ROOFS** WITH 50% ACCURACY  
**16,462 PITCHED ROOFS** WITH 90% ACCURACY



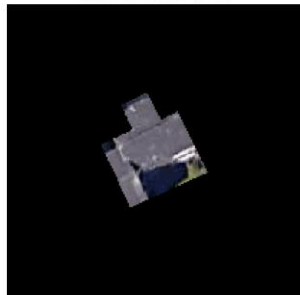




**15.000 M<sup>2</sup> OF SOLAR PANEL (0,7% OF PORTFOLIO)**  
**PER PIXEL ACCURACY 95%**



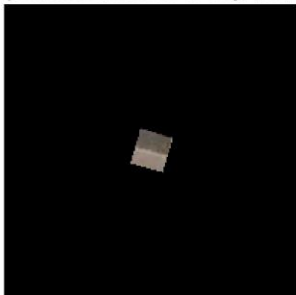
natural slate (m2)



natural slate (m2)



plain tiles (concrete or clay) (m2)



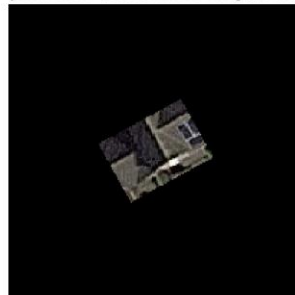
plain tiles (concrete or clay) (m2)



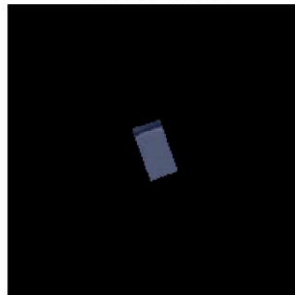
plain tiles (concrete or clay) (m2)



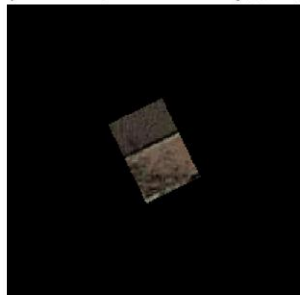
plain tiles (concrete or clay) (m2)



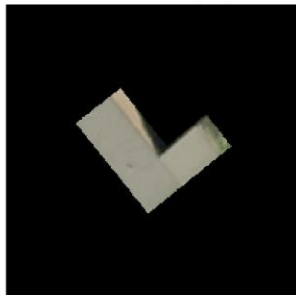
natural slate (m2)



plain tiles (concrete or clay) (m2)



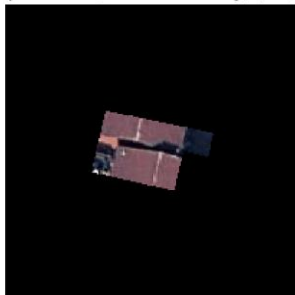
natural slate (m2)



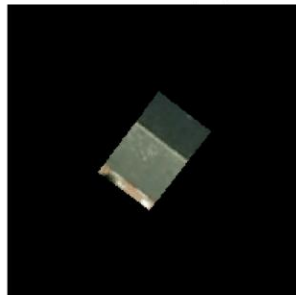
natural slate (m2)



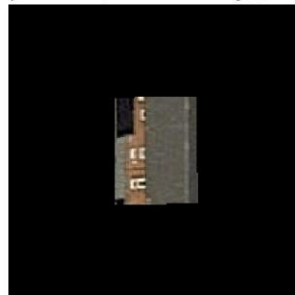
plain tiles (concrete or clay) (m2)



natural slate (m2)



plain tiles (concrete or clay) (m2)



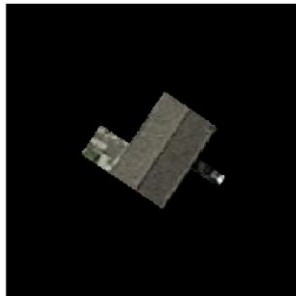
plain tiles (concrete or clay) (m2)



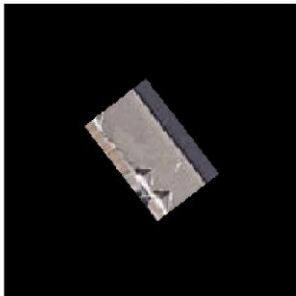
plain tiles (concrete or clay) (m2)



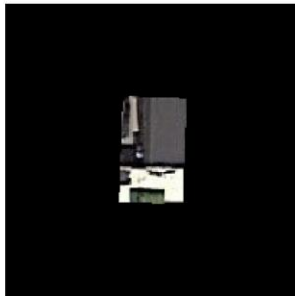
natural slate (m2)



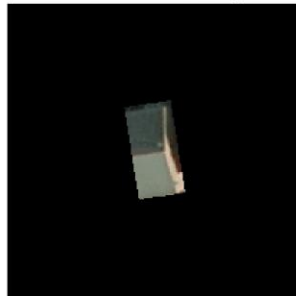
natural slate (m2)



natural slate (m2)



plain tiles (concrete or clay) (m2)



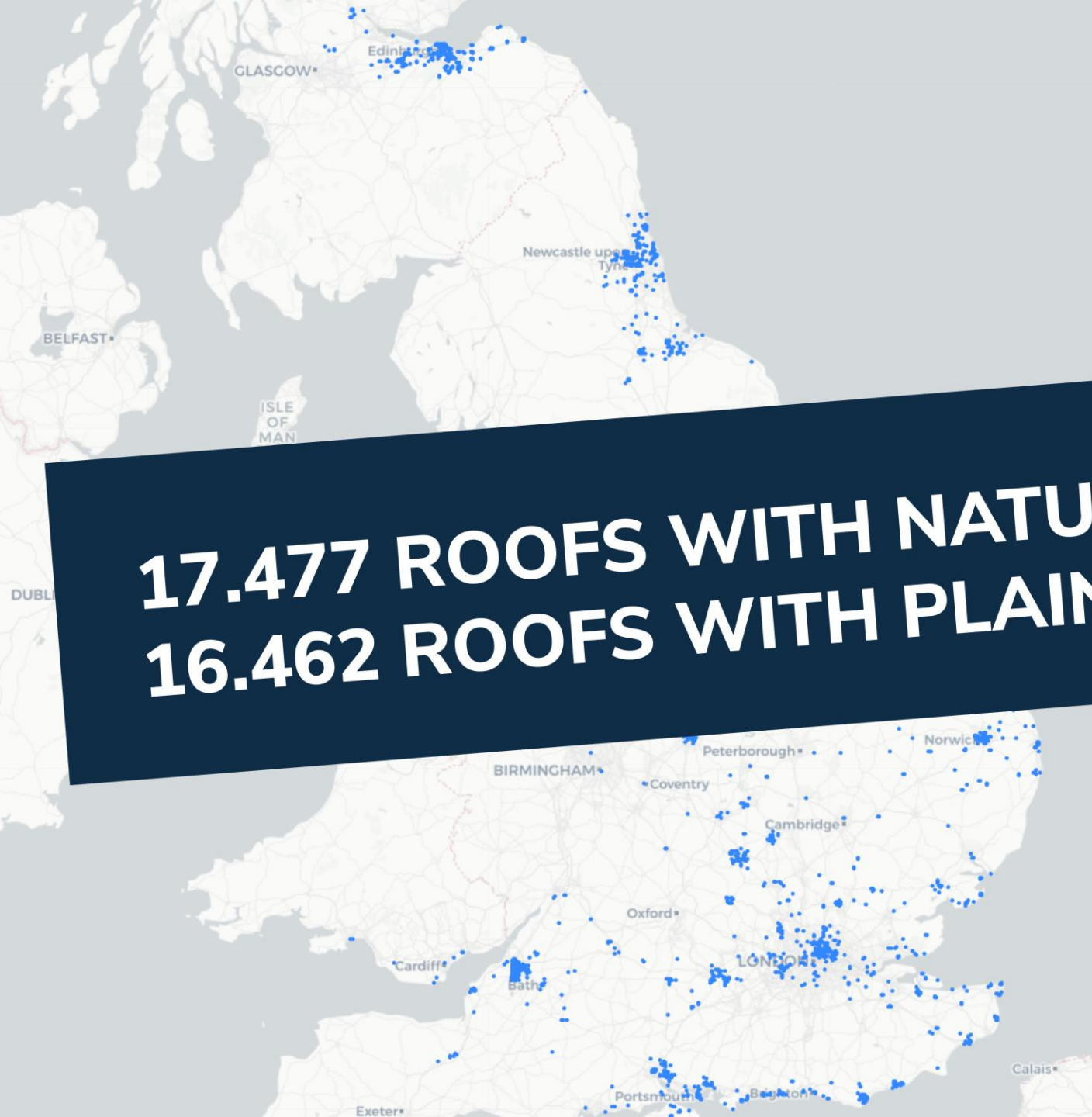
plain tiles (concrete or clay) (m2)



plain tiles (concrete or clay) (m2)



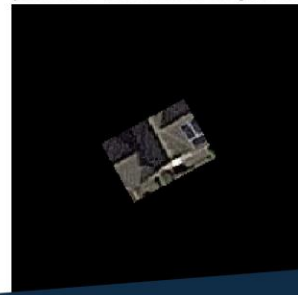




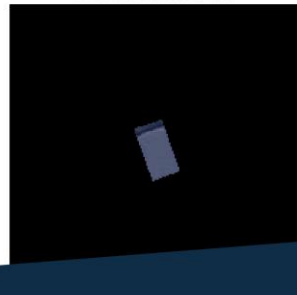
plain tiles (concrete or clay) (m2)



plain tiles (concrete or clay) (m2)



natural slate (m2)



**17.477 ROOFS WITH NATURAL SLATE**  
**16.462 ROOFS WITH PLAIN TILES**

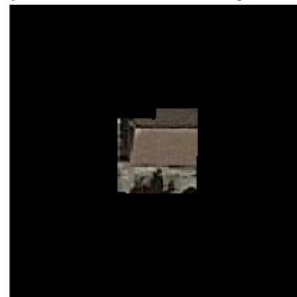
plain tiles (concrete or clay) (m2)



plain tiles (concrete or clay) (m2)



plain tiles (concrete or clay) (m2)

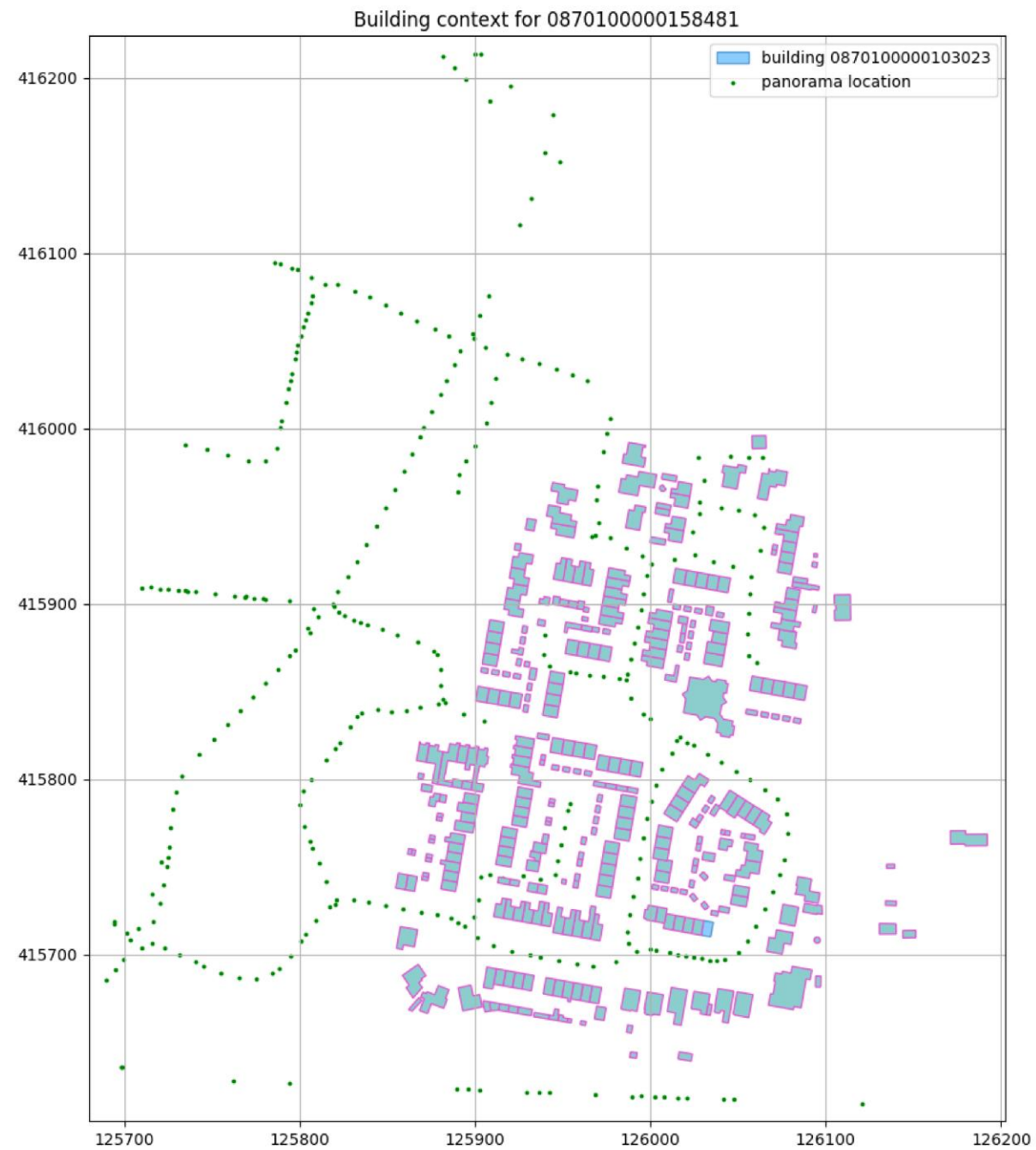




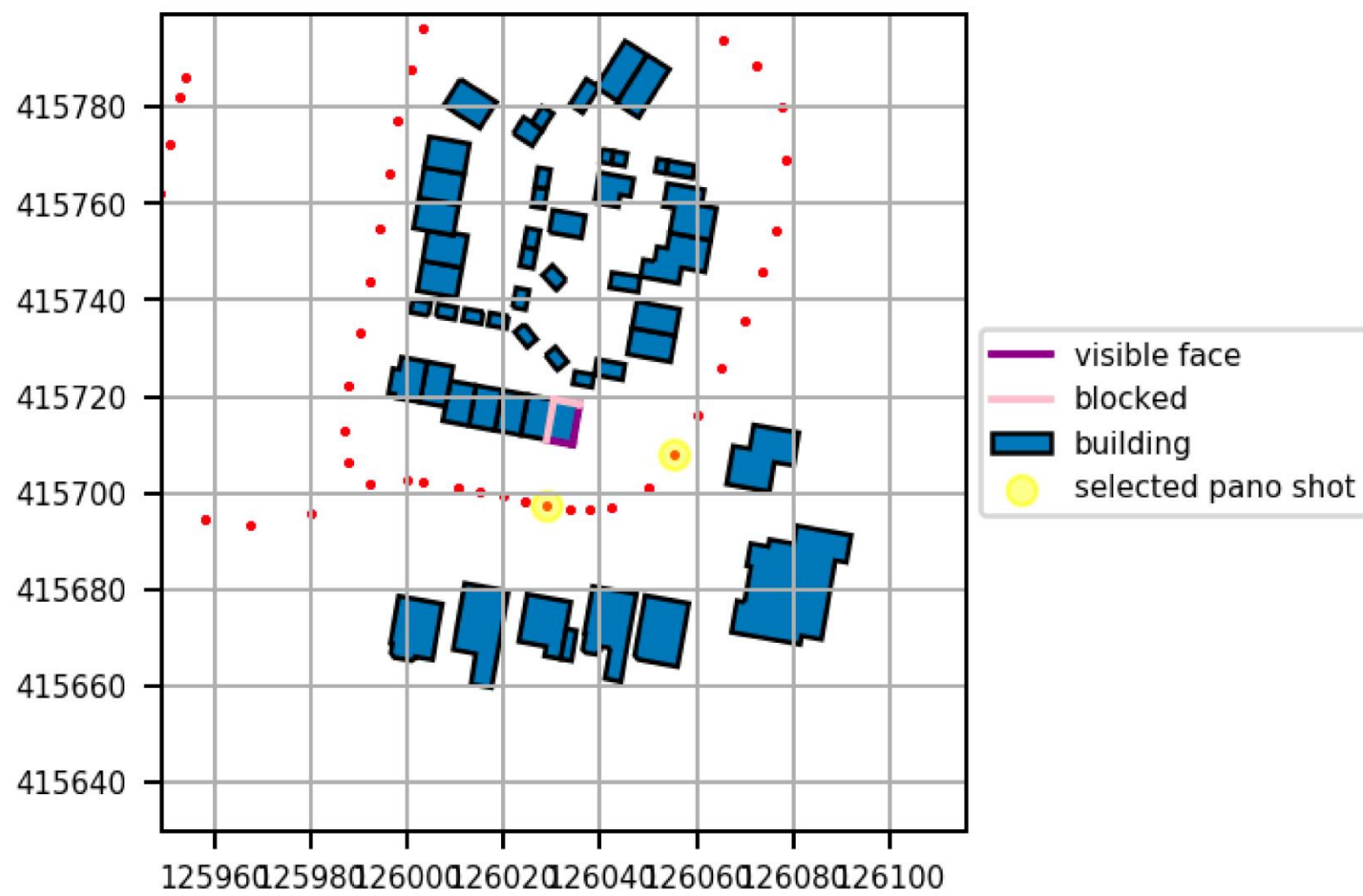
Street View







test\_find\_shots









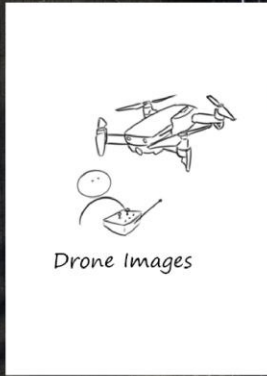
confidence

Facade	82%
Sash Window	82%
Real Estate	79%
Siding	73%
Architecture	73%
Brickwork	68%
Technology	68%
Brick	66%
Farmhouse	56%
Estate	52%
Chimney	51%













**Welcome back!**  
**Please log in to**  
**your account.**

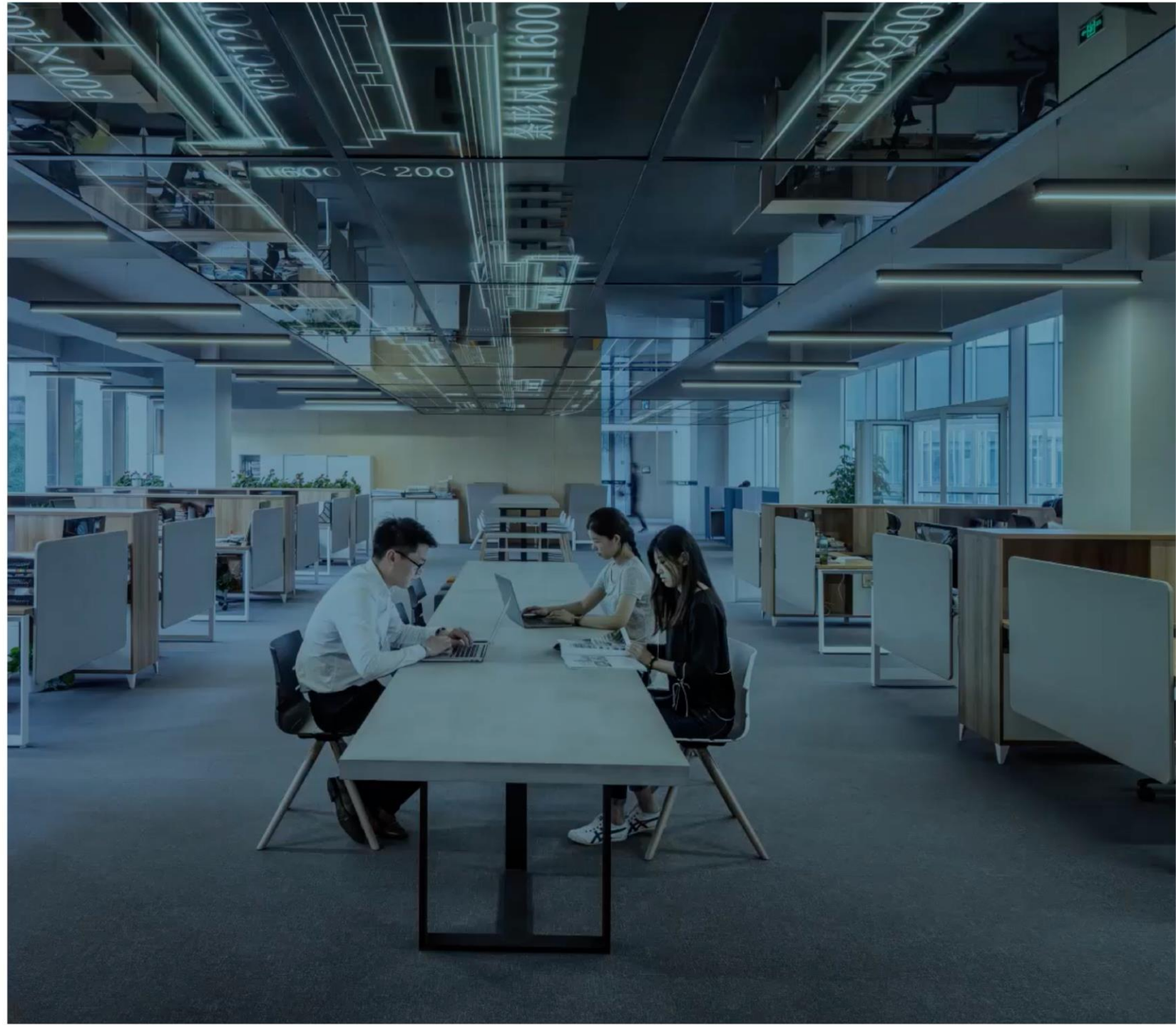
Username

Password

[Forgot your password?](#)

Log in

Go to Octo.nu







VIEW

List

Map

FILTERS

City

District

Year of construction

Unit Type

Orientation

Elements found

# My Portfolio



Marco de Manager



Search by complex number, name or city



## Complexes



Complex nr. 123456  
**Entrepotdok**  
Constructed: 1940  
Last maintenance: 2018  
Units: 363



Complex nr. 123456  
**Indische Buurt**  
Constructed: 1940  
Last maintenance: 2018  
Units: 363



Complex nr. 123456  
**Jacob Geelbuurt**  
Constructed: 1940  
Last maintenance: 2018  
Units: 363



Complex nr. 123456  
**Nieuwenhuysenb...**  
Constructed: 1940  
Last maintenance: 2018  
Units: 363



Complex nr. 123456  
**Molenwijk**  
Constructed: 1940  
Last maintenance: 2018  
Units: 363

Complex nr. 123456





Find a complex

Sort by

Search by complex number, name or city



Newest data



102 Complexes found



Complex nr. 20180215

**Discushof**

Amsterdam • Stadsdeel Oost • 1900

245

Windows

16

Chimneys

45

Solar panels



Complex nr. 20180215

**Molenwijk**

Amsterdam • Stadsdeel Oost • 1900

154

Windows

18

Chimneys

16

Solar panels



Complex nr. 20180215

**Struikbuurt**

Amsterdam • Stadsdeel Oost • 1900

249

Windows

24

Chimneys

39

Solar panels



Complex nr. 20180215

**Staalmanplein**

Amsterdam • Stadsdeel Oost • 1900

159

Windows

6

Chimneys

43

Zonnepanelen



Complex nr. 20180215

**Nieuwenhuysenbuurt**

Amsterdam • Stadsdeel Oost • 1900

278

Windows

15

Chimneys

26

Solar panels



Complex nr. 20180215

**Jacob Geelbuurt**

Amsterdam • Stadsdeel Oost • 1900

148

Windows

23

Chimneys

34

Solar panels

VIEW



List



Map

FILTERS



City



District



Year of construction



Unit Type



Orientation



Elements found







Octo WoCo

# De Alliantie

## FILTERS

- Year of construction ▼
- Unit type ▼
- Orientation ▼
- Elements found ▼

## < Indische Buurt

Marco de Manager

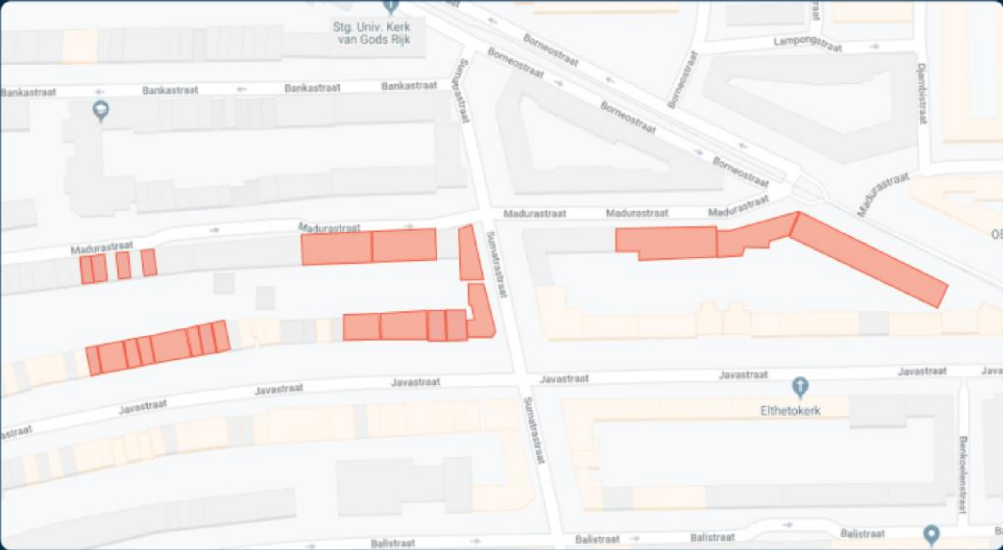
Built in  
1900

Houses  
213

Offices  
24

District  
Oost

### Location



### Photographs



### Elements

154 elements found

Element ID	Element	Type	Address
1234	Window	-	Insulindeweg 12

### History of maintenance

October 2021

Painting windows

March 2020

Cleaning chimneys

Today

October 2015

Cleaning facades

### Data timeline

March 2016

2100 Images  
Google Street View

September 2014

420 Images  
Inspectors

July 2013

120 Images  
Google Street View





FILTERS



Year of construction



Unit type



Orientation



Elements found



Street view

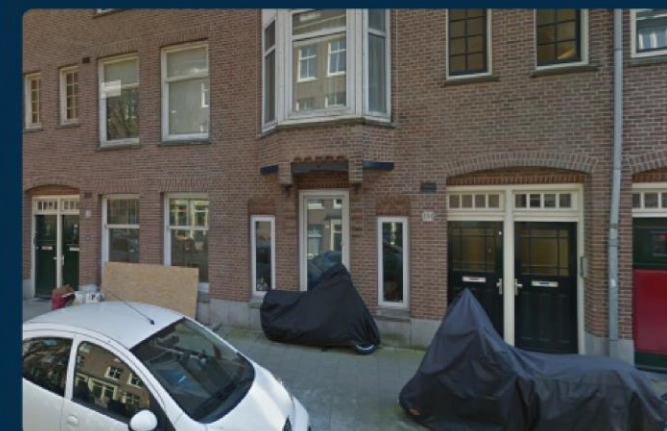
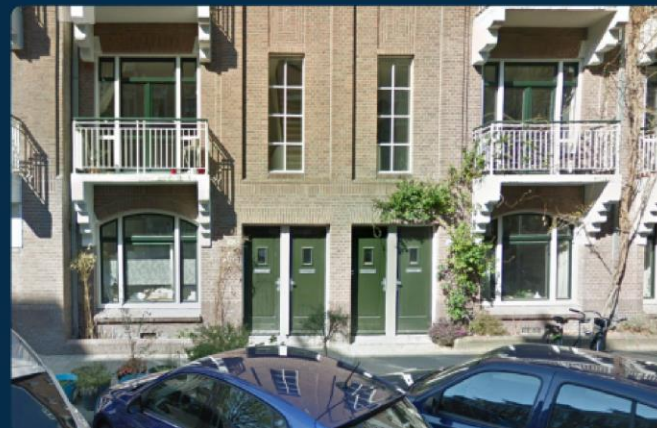
Sort by ...



Car

Bicycle

Windows





2019 - 2020

## Roadmap

	1/7/19 - 3/10/19	3/10/19 - 3/1/20	3/1/20 - 3/4/20	3/4/20 - 3/7/20	3/7/20 - 3/10/20	3/10/20 - 1/1/21
 Dashboard Design	Gathering requirements and user feedback	Implementation of the dashboard. Check & correction ability on labels by customer.	Ustertests & refactoring	Continuous reassessment	Continuous reassessment	Continuous reassessment
 Data aquisition	(GIS) Land Registry in the UK. Google Streetview images Satelite images Defect images	Photo's from inspectors and customers Defect image library	Pipeline Globespotter (alternative to Google Streetview)	Customer and inspector upload app	Drone data	tbd
 Business case	Maintainance savings Risk management	Inspection savings	Compliance & safety	Validation of properties	Health & Comfort	Sustainability
 Machine learning	Labeling windows & roofs Training model on window object	Labeling roofs, dormers & facades Training model on roofs & winow frame surface	Labeling facades, balconies & defects Training model on facades, dormers & roof surface	Training model on balconies, defects & interior	Training model on open ground	Training model to define degradation curve
 Data processing	Determining of object	Calculating ratio between surfaces from a picture	Calculating extent from a picture determining intensity of defect	Determining condition based on Extend, Intensity & Seriousness	Determining condition based on Extend, Intensity & Seriousness	Determining condition based on Extend, Intensity & Seriousness
 API's	CSV	Integration / alignment with current asset management system	Rest / Json	Notifications		
 Results	Count of all front facade windows in portfolio Meta data added to addresses like appartement, commercial, residential	Amount of flat roofs and pitched roofs in portfolio.  Meta data of flat/pitched roof added to complex/adresses	Material detection facade Material detection roof m1 painted window frames Defects on paint Ratio of defects on paint vs ok surface	Defects on roofs Object detection on roofs Defects on facades NEN condition of elements	Object and defects in interior	Object and defects in garden Machine Learning to determine appropriate response



80%



18 months

1,5%









Challenges 2019

Program 2019 ▾

# PAINT THE FUTURE

The **AkzoNobel** startup challenge

Join us →

Login

OCTO  
THE  
NETHERLANDS



AWARD:  
**KPMG Scale-up Track  
Award**

INNOVATION:  
Digital solutions for inspections  
using sensors, drones and AI



# DANK VOOR DE AANDACHT

