iResponse

The iResponse Project
Crowdsourcing methods to determine wood burning emissions

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NILU – Norwegian Institute for Air Research

FAIRMODE
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Forskningsrådet

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- The aim of the iResponse project
- What is Crowdsourcing?
- Examples of methods
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iResponse aims at developing and assessing ICT-based crowdsourcing tools for citizen participation in environmental research and decision-making, and focusing on the urban environment

a) Air quality _ Wood Burning
b) Stormwater Management
c) Urban Planning process

What is Crowdsourcing?

iResponse

Dictionary

crowdsourcing

noun | crowd·sourc·ing | \ˈkraůd-ˌsȯr-siŋ\

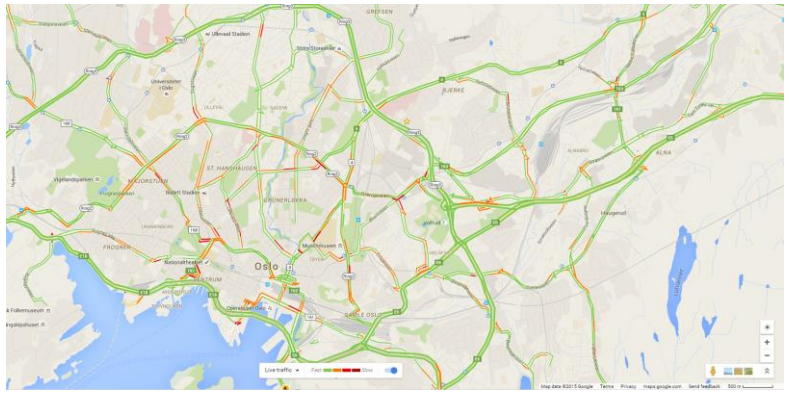
: the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people and especially from the online community rather than from traditional employees or suppliers

Source: Merriam Webster Dictionary

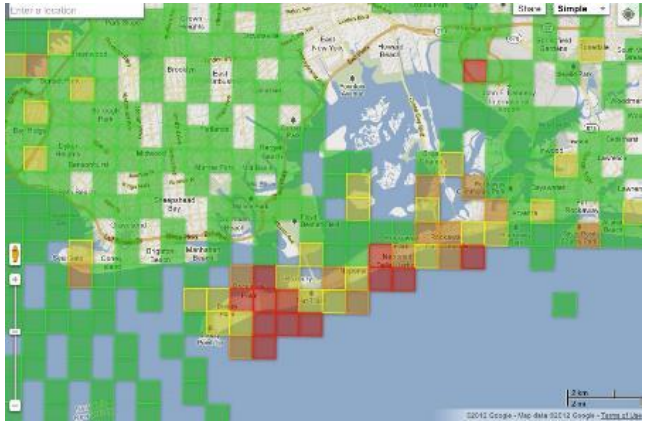
WIKIPEDIA
The Free Encyclopedia

Google maps

e.g. traffic flow



e.g. flooded streets (Chennai, India)



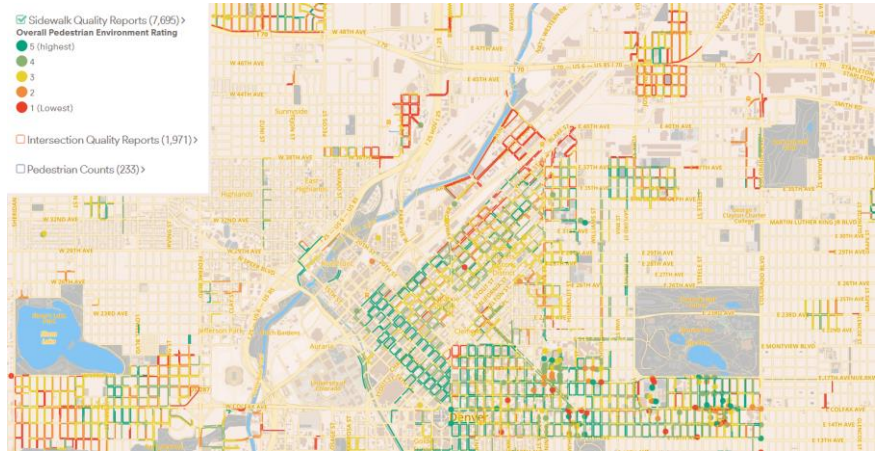
e.g. level of hurricane damage for decision making and based on Public Participation

Crowdsourced map helps users choose good bike routes within Berlin

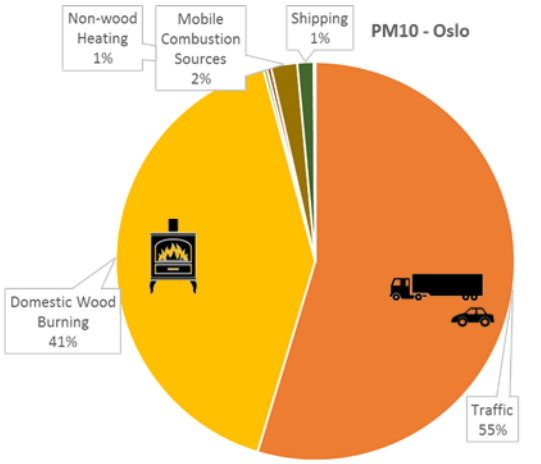
A project of the BMW Guggenheim Lab, Dynamic Connections is an interactive cycle map of Berlin.

17th September 2012 in Lifestyle & Leisure.

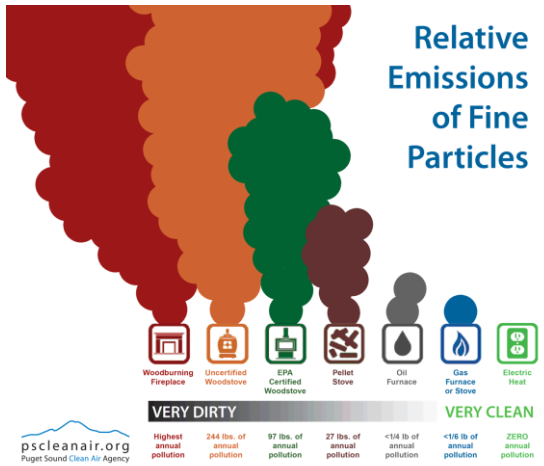
Environmental rating of sidewalks



Air Quality – Wood burning



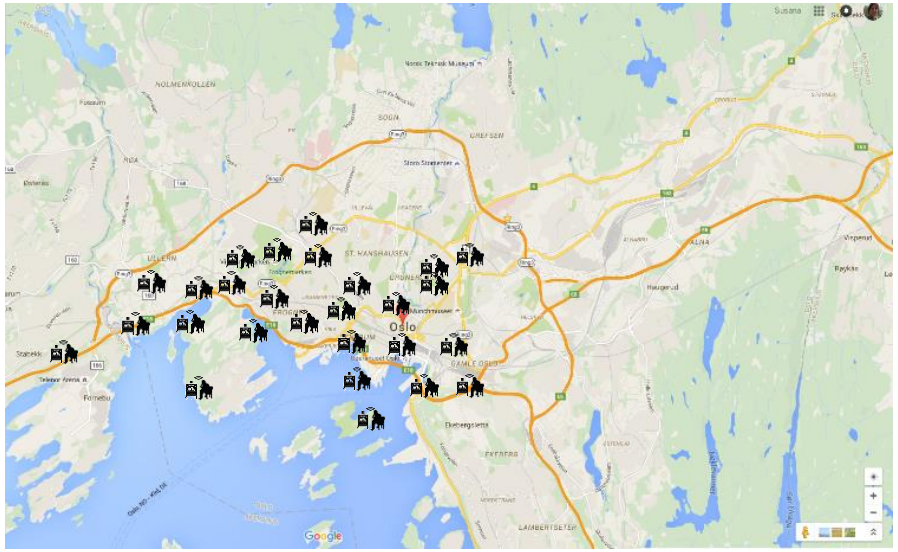
Oslo – PM_{10} Emissions



$$Emissions_{wood\ burning} = \underbrace{\sum Wood\ Consumption_{type\ of\ oven} \times EF_{type\ of\ oven}}$$

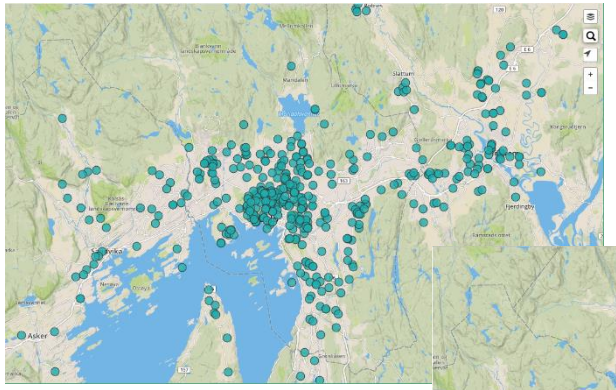
METHOD | DATA | RESOLUTION

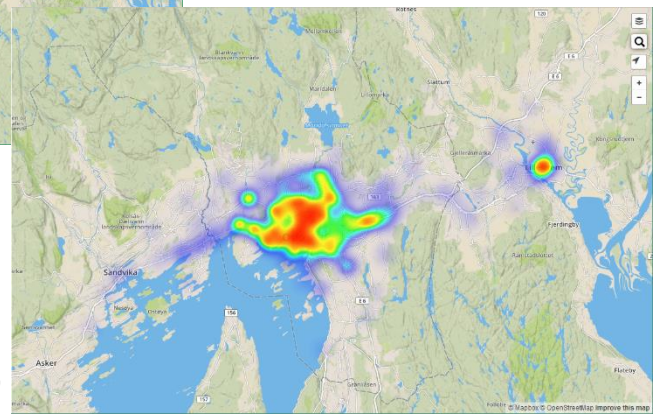
Crowdsourcing → ▪ Wood Consumption ▪ Type of stove technology → High space and time resolution



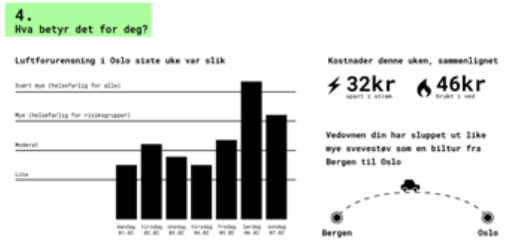
Air Quality – Wood burning

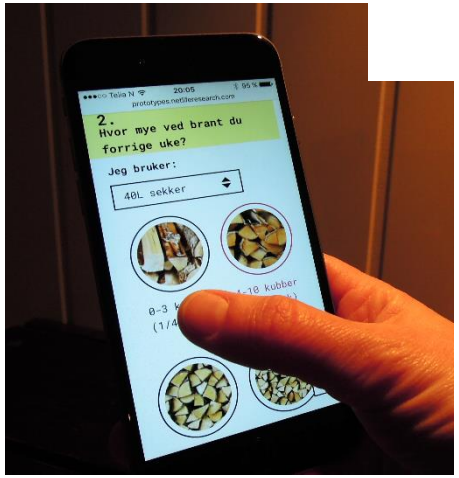
METHOD: PUBLIC PARTICIPATION GIS





METHOD: CO-DESIGNING A TOOL FOR REPORTING



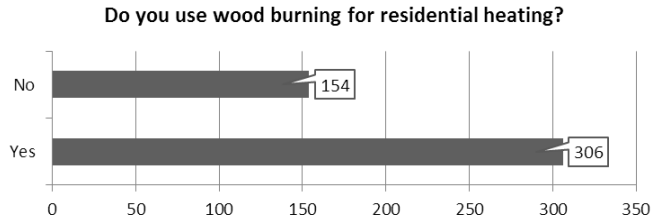


TESTING
w/USER GROUP

EVALUATION

RE-DESIGN

- User-friendliness
- Design towards high participation and engagement



Air Quality – Wood burning

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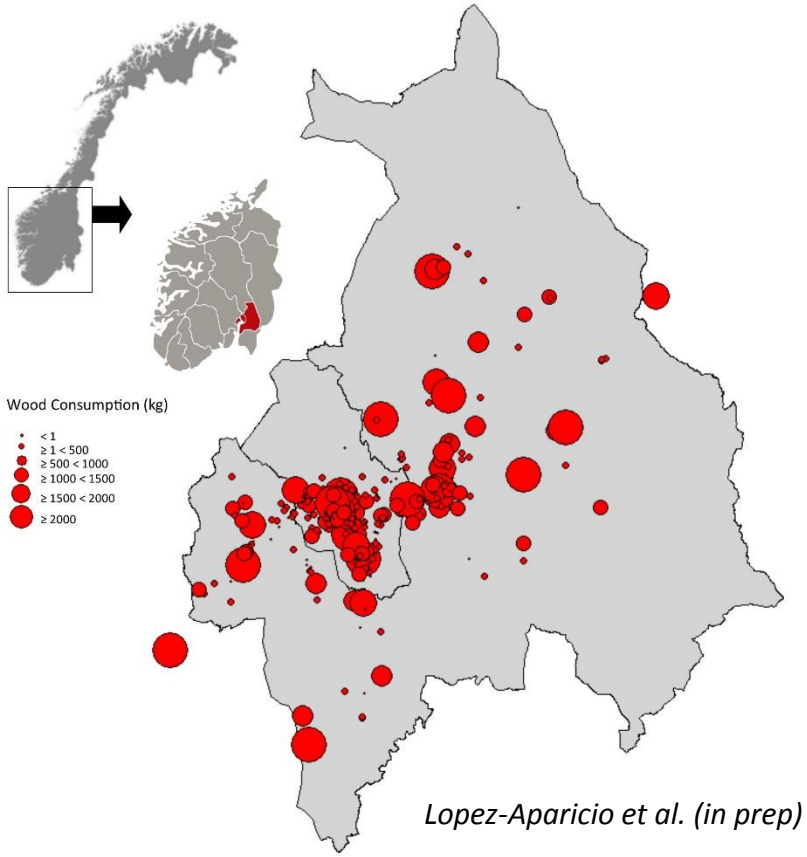
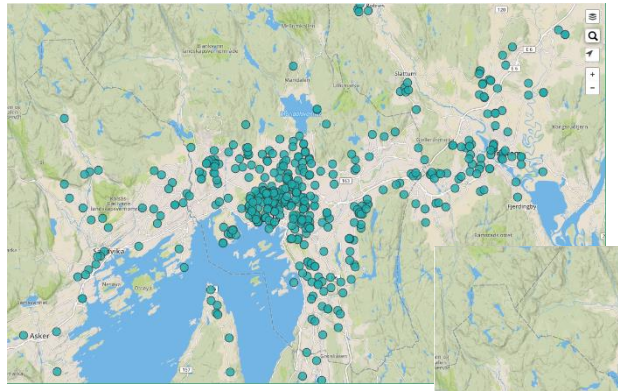
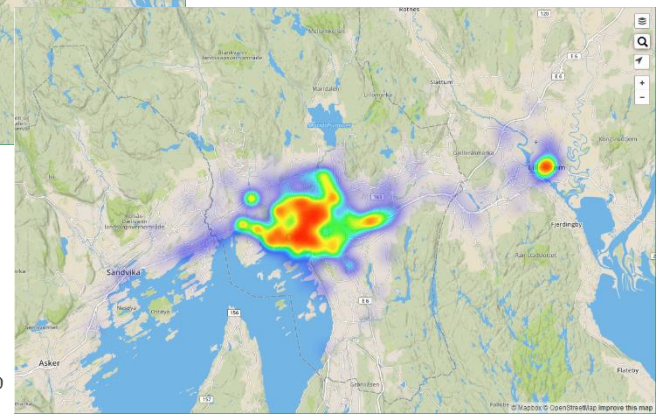
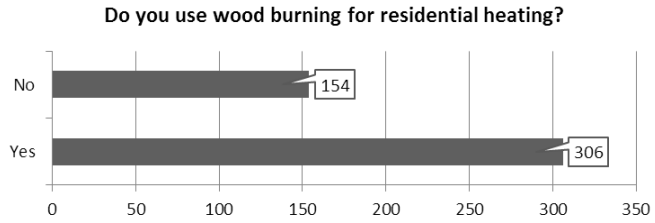


Lopez-Aparicio et al. (in prep)

Wood Consumption







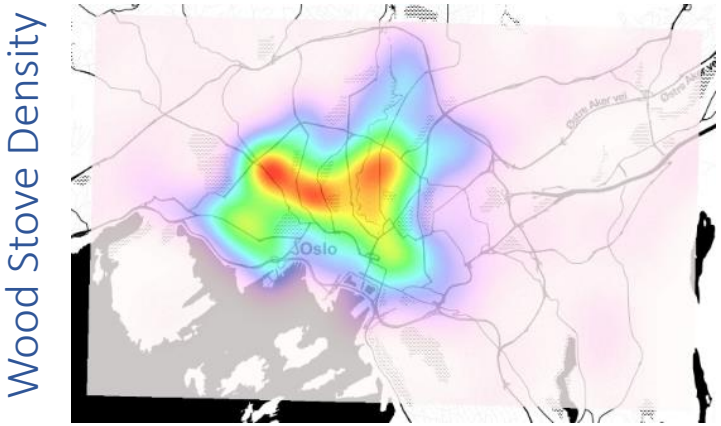
Air Quality – Wood burning

METHOD: CROWDSOURCING THE WEB (Web crawling);

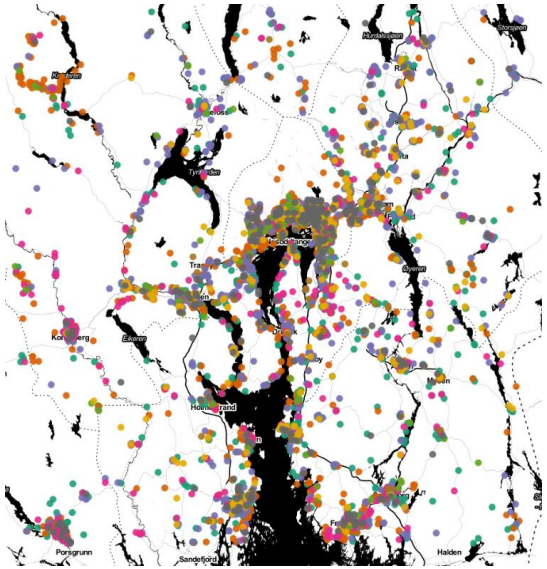
Where are the wood stoves?

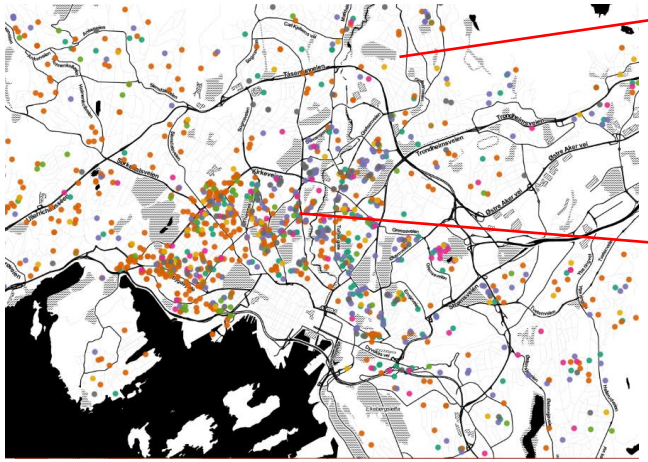
Method: Web Crawling on www.finn.no (Real Estate Market in Norway)

Results: 78 523 stoves in Norway after 10 weeks crawling



Approx. 15 000 stoves is Oslo domain after 8 weeks crawling





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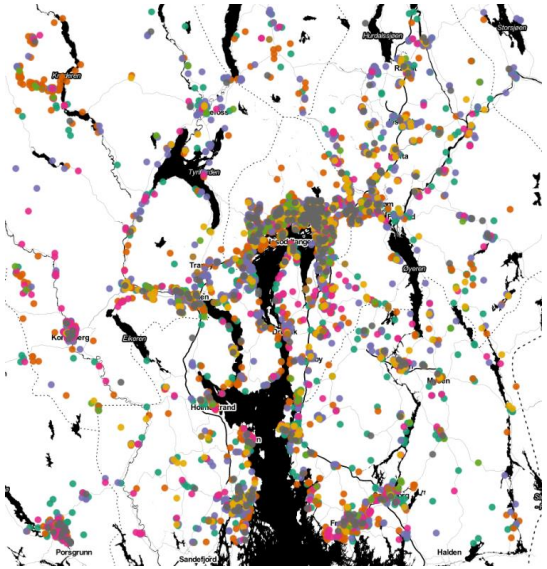

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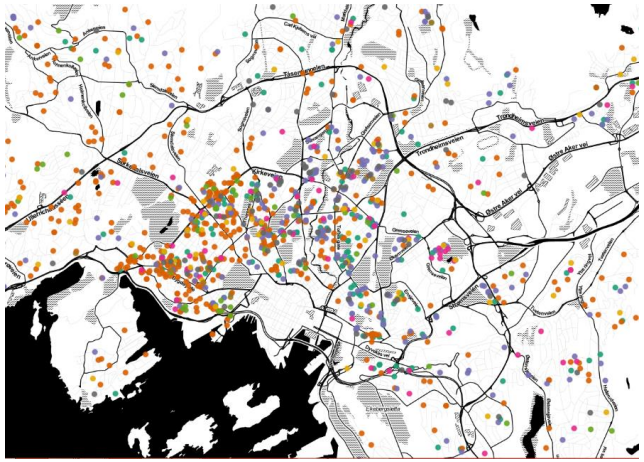
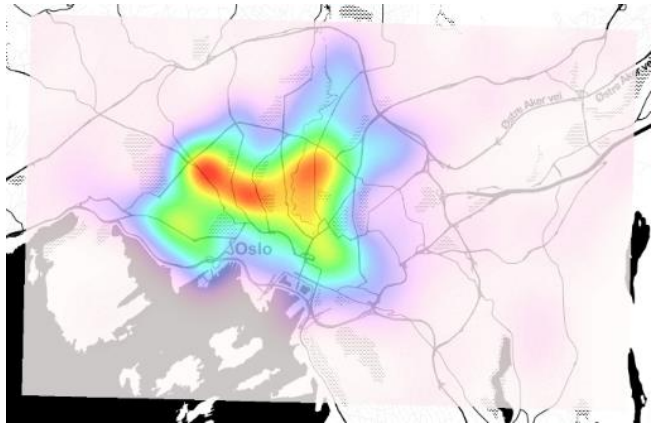
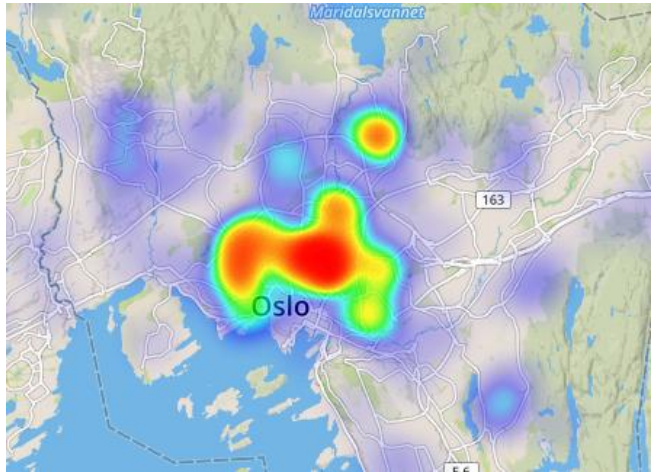


Wood Stove Density



Wood Smell Perception



Air Quality – Wood burning

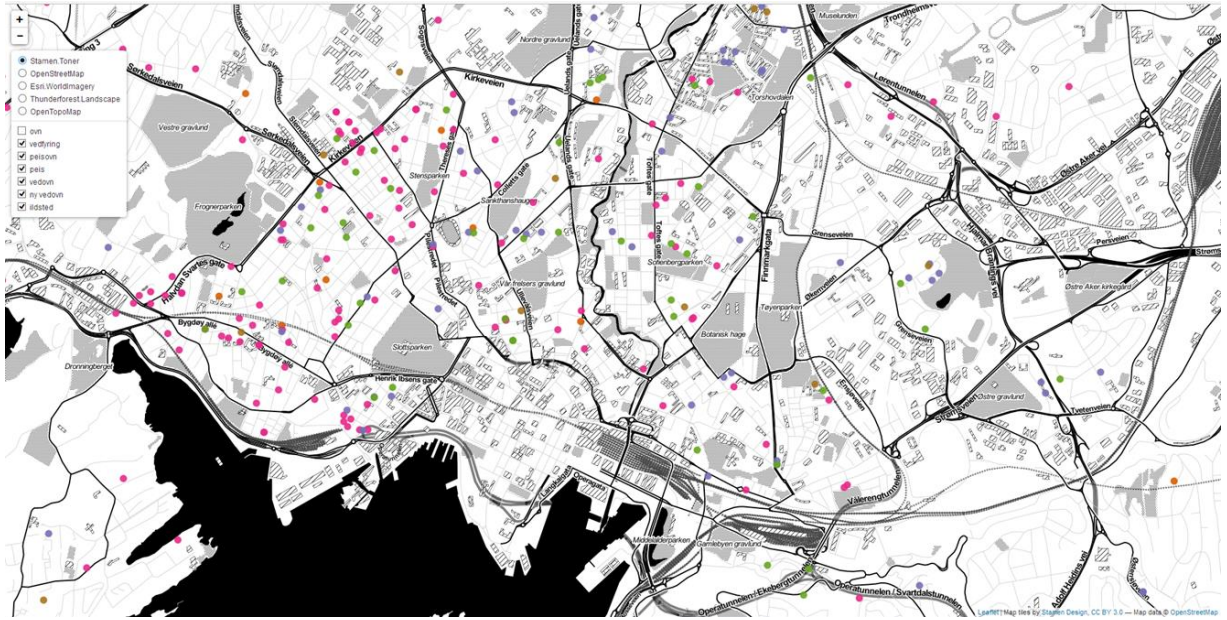
METHOD: CROWDSOURCING THE WEB (Web crawling) + IMAGE RECOGNITION (Neural Network);

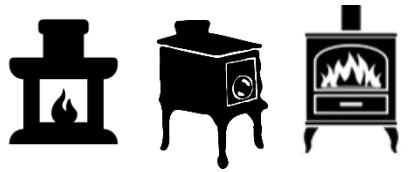
Which type of stove are?

Method: Web Crawling on www.finn.no (Real Estate Market in Norway)

Results: 78 523 stoves in Norway after 10 weeks crawling

«vedfyring, peis, vedovn, ildsted; Oslo»





Thank you for your attention

Crowdsourcing methods to determine wood burning emissions

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NILU – Norwegian Institute for Air Research

Questions

For more information

http://iresponse-rri.com/

@iResponse_RRI

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Forskningsrådet