



*eco map*



## ECO MAP

Web application for mapping ecological parameters in real time



The basic advantage off the app is a simple and intelligible overview of all available data on key ecological parameters in one place. In addition to combining existing environmental data, it ensures the collection of data in real time. In this way users get quick and accurate local information that enables effective monitoring, planning and reduction of environmental pollution.



Display of parameters:



AIR



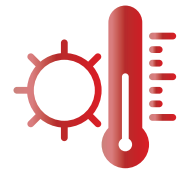
SOIL



WATER



POLLEN



METEOROLOGICAL  
DATA








## Monitoring, displaying, and sharing data

Data can only be shown to the main user, or shared with other institutions. With the use of embedded mechanism it is possible to check and approve the data for sharing with wider public. All users are provided with information in accordance with their access rights. It is possible to create customized user views and share them through social networks.

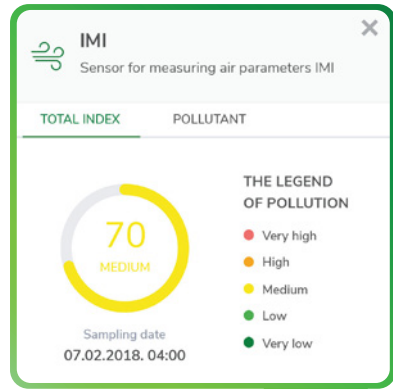
The system supports:

- comparison of parameters at different locations and storage of original metering
- collecting and displaying data from own sensors and external sources
- displaying measured values and indexes
- adaptable data display

Examples of parameters that can be monitored:

AIR		O <sub>3</sub> , NO <sub>2</sub> , NO, PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , CO
WATER		escherichia coli, enterococcus, pseudomonas aeruginosa, nitrates, free residual chlorine, ammonia, color, chlorides, concentration of hydrogen ions, odor, turbidity, taste, temperature, KMnO <sub>4</sub> consumption, conductivity, number of colonies 22° C, 36° C, total coliforms, samples from public water supply network and internal installations of public institutions (schools, kindergartens, etc.)
SOIL		Cd, Cr, Cu, Ni, Pb, Zn, Hg, classification according to the usage of urban soil
POLLEN		pollen level for allergen species (trees, grass, weeds), the predominant species of pollen
METEOROLOGICAL DATA		median temperature, predominant wind direction, median wind speed, median relative humidity, pressure, precipitation

Eco Map displays the collected values in indexes, average values, and highlights them so that users know if the values are within reference frames, i.e. whether the level of pollution is low, medium or high.



## Cartographic display

- display of measurement locations on the map
- an informative overview of the pollution index for a particular location
- detailed display of individual parameters at a particular location
- display in respective colors depending on the pollution index
- map display in different scales (zoom)
- different geographic backgrounds (city map, orthophoto footage, etc.)

## Customizable application

- selection of the most frequently monitored parameters
- searching by location (city district, address), measurement parameter and name of institution
- sharing map display with other users via e-mail, QR code or social networks (Facebook, Twitter)

## Admin interface

Easy to use admin interface enables checking and approving data from the public view sensor:

- automatic data approval if within the default frame of values
- sending alarms if the values are outside default frame
- approval of metric data

Users can receive notifications that can include the interpretation of measured values or warnings.

The option of granting the access rights allows the control of the level of displayed details on the map according to the access rights, as well as the selection of users who will be able to access the original data measured.





The cartographic display and control application are customized for the web, and provide support for all popular web browsers using secure protocols.

The application is implemented on the IGEO GIS platform, a product of IN2 Group, and is based entirely on open source software. IGEO is a comprehensive GIS platform that supports all GIS functionalities, including support for Open Geospatial Consortium (OGC) standards such as WMS, WFS, and WCS.

The entire solution is implemented in Microsoft Azure Cloud and does not require user's infrastructure. Monitoring sensor data real-time is implemented through the IoT Hub service.

As an IoT solution, Eco Map, apart from software, includes the delivery and installation of sensors for measuring ecological parameters. The solution includes support for air quality sensors with the possibility of expansion for other types of sensors.





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