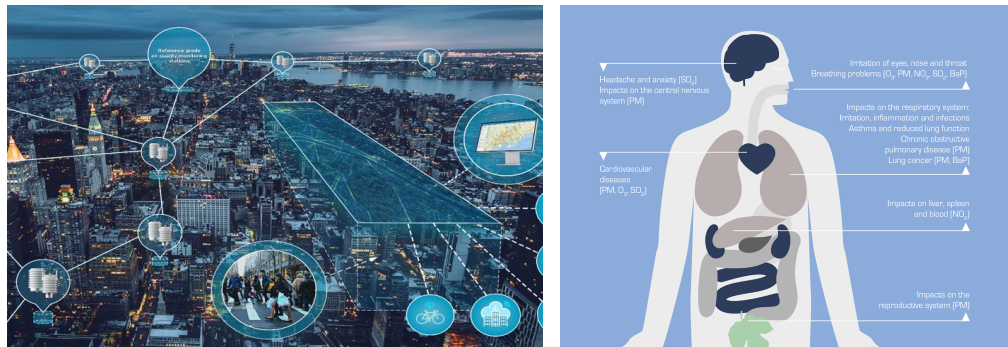


Air Quality based recommendation and warning application for consumers



[European Environment Agency](http://www.eea.europa.eu)

1. Introduction

- Vaisala (<https://www.vaisala.com/en>) is a global leader in weather, environmental, and industrial measurements headquartered in Vantaa, Finland. Vaisala provides the latest technology for air quality monitoring, as well as measuring atmospheric weather conditions relevant to monitoring, estimating, and forecasting air quality. Vaisala Air Quality solution consists of a network of compact air quality sensors and weather stations, complete with data acquisition and visualization software, as well as optional air quality dispersion modeling. Data modelling is done in collaboration with FMI and Vaisala is selling the model. However Vaisala has no air quality products for consumers.
- This project aims to create an air quality application for consumers (including mobile UI). The application will be shown on marketing events, distributed to consumers as a demonstration and given to city customers as a reference of value to demonstrate what the air quality measurements and data modelling can and is providing to the society. The application should support its users in making better decisions based on current and forecasted air quality.

2. Project goals

- Design and implement consumer facing application for air-quality for displaying:
 - a. measurements and forecasts ([PM2.5](#), [PM10](#), [NO2](#), [O3](#) and [Air Quality Index](#) in a scale of 1 to 5, this is example by the FMI)
 - b. warnings of adverse air quality
 - c. recommendations

Recommendations include, but are not limited to, spending little time today outside because the air quality is poor. The application should make the [impact between air quality and health known](#) (WHO) to the users. The application [could have a map view of the selected area \(e.g. Helsinki example by FMI\)](#) to display the overall picture of air quality.

- Most common use cases:
 - a. User gets a notification warning about adverse conditions in his location.
 - b. User checks the application for air quality predictions to decide whether he should go jogging today or tomorrow.
 - c. User gets guidance to select better jogging or cycling route based on air quality
 - d. User uses the application to choose what mode of transport he should use to avoid adverse air quality weather.

3. Technologies

- Open source technologies with no restricting licenses preferred. The licences must allow commercial use and re-distribution.
- Air quality data and prediction for initial implementation can be downloaded from: <https://en.ilmatieteenlaitos.fi/open-data-manual-fmi-wfs-services> from FMI-ENFUSER service (fmi::forecast::enfuser::airquality::helsinki-metropolitan::grid)
- If possible, some multi platform capable tooling should be used. One such example is [Flutter](#).
- The application will have to use GPS for localization for getting the correct position for forecast and should not require a separate backend to work.
- Vaisala can provide support for technologies used.

4. Requirements for the students

- Capability to understand customer use-case, design a modern consumer facing application to answer the need and to perform the implementation.

5. Legal Issues

Intellectual Property Rights (IPR):

1. The client gets all IPRs to the results.

Confidentiality:

1. The client will not share any confidential information with the students.

6. Client

Vaisala is a global leader in weather, environmental, and industrial measurements headquartered in Vantaa, Finland. Building on over 80 years of experience, Vaisala strives towards its mission of *Observations for a better world*. <https://www.vaisala.com/en/vaisala-company/vaisala-brief>

Vaisala has: Measurement devices on two planets, 1800 employees, 22% of staff in R&D, 30 global offices.

From Vaisala's side Vaisala's Digital Business team will support the project as follows.

Product owner:

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Additional support:

- Petri Hienonen (R&D Lead, CV solutions) from technology perspective

Time spent guiding the team will depend on the team and their capabilities. In important phases, such as requirement specification and goal setting, enough time will be spent to give necessary background. The project is designed to be self-contained.

There should be no need for cloud servers, computers, other, but if needed, Android devices can be delivered for testing the solution.