# Smart Sense: Open Environmental Data in Support of Integrated, Personalized Care

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## ABSTRACT

Every year a large number of hospitalizations and deaths are associated with exposure to high temperatures. Studies have shown that for every 1°C rise in temperatures above 28°C the probability of mortality for vulnerable groups of the population increases. Interior relative humidity fluctuations can also cause health issues [1]. Relative humidity below 30% causes dryness of the mucous membranes of the throat, vision problems and more. Most types of fungi develop when relative humidity exceeds 60% [2].

Environmental sensors have been increasingly used to monitor temperature and humidity within buildings. However, the generated data are not linked to citizen health profiles. Citizens do not know how to assess the impact of data on their health nor how temperature and humidity levels are affecting them based on their individual profile. Citizens from vulnerable groups such as children and the elderly have a greater difficulty recognizing the conditions that affect them [3]. Hence, there is a need for personalized information on environmental changes that could combine data to provide appropriate personalized suggestions according to citizen's health.

Safe, comfortable and healthy living for citizens can be greatly facilitated with digital tools and services that combine open data with personal health data. The Smart Sense platform as part of the Citizens' Personal Electronic Health Record links temperature and humidity data from sensors in buildings, open data from weather forecasts and geospatial data with the personal health profile of citizens to provide real time alerts about upcoming changes in the internal or external environment. The personal health record is enhanced to cover the needs for access to alternative sources of information related to health and wellbeing. Smart Sense associates data from humidity and temperature sensors from building sites, open weather and map data with the citizen's personal profile as recorded in the personal health record and provides:

• Information on temperature and humidity fluctuations

• Personalized alerts about possible effects on the user's health

• Proposed actions for safe, comfortable and healthy living

The Smart Sense platform can be exploited as part of integrated care solutions, smart home apps, civil protection services, as well as public administration. It can be integrated into electronic health record systems, through stable interfaces, to support integrated, personalized care, and applied as a product or service.

## REFERENCES

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