

What if buildings could autonomously react to climatic changes?

European Consortium implements EMMON, the largest wireless sensor network in Europe

Coimbra, February 28th, 2011 – Intelligent buildings reacting autonomously to temperature variations or precipitation forecasts, car traffic being diverted because ozone concentrations are reaching hazardous levels, or street lighting reacting to the passage of vehicles: these are some of the technological developments that will no longer depend on complex, expensive infrastructures. The EMMON project, led by Critical Software, is developing wireless sensor networks that will enable intelligent and proactive automated responses to data from a wide variety of cheap and reliable sensors.

Last December the EMMON Consortium unveiled the largest wireless sensor network in Europe, demonstrating a functional prototype with no less than 303 tiny sensors in a single room, gathering detailed, real time information on temperature, humidity and ambient light.

"This functional prototype demonstrates the integration of a number of core components, from embedded wireless sensors all the way through to the control station. The prototype, which is the largest single location wireless sensor network in Europe, was integrated and demonstrated at the Instituto Superior de Engenharia do Porto (ISEP), in the CISTER research unit, one of the main scientific partners of the project", said Délio Almeida, the Project Coordinator from Critical Software.

The EMMON technology has very wide potential, including the ability in the near future to monitor not only the ambient conditions in the vicinity of buildings, bridges and tunnels, but also their very structures. Early warning of their degradation has obvious implications for the avoidance of disasters.

One major advantage of EMMON over existing technologies, such as they are, is that it doesn't require expensive modifications to the structures being monitored, nor the installation of cabling. It is naturally much cheaper and quicker to upgrade such systems in the future.

The project's final demonstration is currently being planned, in consultation with a number of organizations whose opinions on the requirements have been valuable. These include CCDR-N (responsible for environmental monitoring in the Northern region of Portugal), Living PlanIT (responsible for Smart City, from Paredes), Living Lab Malta (Malta Smart City), the National Forestry Authority (AFN), Brazil's National Water Agency (ANA) and the National Civil Protection Association (ANPC).

Pedro Braga, the project's Technical Manager, issued this appeal to the wider community: *"The next step will most likely involve the implementation of a wireless network of environmental sensors, spread across a European city. Despite the breadth of the existing consortium, we are*



very interested in talking to other institutions, be they national or international, about the hosting of the final EMMON demonstrator. This hosting could include playing the role of end-users for this technology. One attraction would be the leave-behind potential of the demonstrator".

This 36 month R&D project (www.artemis-emmon.eu) is jointly funded by the 7th Framework Programme of the European Union, the ARTEMIS JU and the Member States. The consortium comprises nine European partners. There are three Universities (Instituto Superior de Engenharia do Porto of the Polytechnic Institute of Porto, Portugal; Trinity College Dublin, Ireland and Aristotle University of Thessaloniki, Greece), a Research & Development Institute (Centro de Estudios e Investigaciones Técnicas de Gipuzkoa, Spain) and five representatives of Industry (Critical Software S.A., Portugal; Intesys Ltd and Critical Software Technologies Ltd, United Kingdom; SESM S.c.a.r.l., Italy and Akting Ingeniaritza S.L., Spain).

