Call for application for research scholarships

for post-graduate international candidates

RESEARCH PROJECT N. 47

Title

ICT for Urban Sustainability

Scientific responsible (name, surname, role)

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Short description of the research activity (max 250 words)

The increasing number of the population in urban areas create high demand and cause hard problems, like air pollution, traffic congestion and inadequate infrastructures. Those problems degrade the quality of life in cities, being a threat to the health of the citizens. ICT can be exploited to monitor and control what happens at every specific city area for taking effective countermeasures. The research will investigate a smart city system to help local government and citizens themselves to monitor what currently happens in the city. The system will use sensor networks able to capture city condition like temperature, air quality, humidity, etc. The system will be deployed in a mobile and static network installed on different entities, like the bicycles available in the bike-sharing service, the public transportation vehicles and fixed spots to acquire real-time and diffused information on the urban area. The huge amount of data will be analyzed to help the citizens and the stakeholders in the management of the actions to reduce the air pollution or the traffic congestion, and optimizing the use of the urban resources. The research activity will be focused on some open issues related to the efficient application of mobile wireless sensor networks: e.g., the evaluation of the mobile systems in case of deterministic and stochastic routes, the auto-calibration of data collected by low cost sensors, the energy saving based on optimization of transmission and data collection protocols, the application of machine learning approaches to selectively discard erroneous or not relevant data.

Specific requirements (experiences, skills)

The proposed research preferably involves multidisciplinary knowledge and skills (e.g., computer and mobile network, advanced programming).

Website of the research group (if any)

Keywords (min 3, max 6)

WSN, sensors, pervasive computing, smart cities

Research Area (max 1)

Computer Engineering