

Proposal for Master's Degree Project

Title: An Internet of Things (IoT) Network for Predictive, Detection and Removal of radon gas.

Supervisor

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Motivation: “Making data the basis for automation and control means converting the data and analysis collected through the Internet of Things into instructions that feedback through the network to actuators that in turn modify processes[1]” The main goal of this study is to build and to develop an IoT ecosystem for smart home environments. The proposed system aims to integrate several wireless sensors such as radon gas and temperature to detect and/or predict radon gas remotion from indoor spaces. The ultimate purpose of this ecosystem is to create an healthy environment without of the presence of radon gas. The prediction may produde an alarm to the user, , and to activate a fan system which will allow the remotion of the gas. Moreover, this work will include real-word pilot test. In addition, the research roadmap also includes a benchmark regarding different machine learning models for data analysis and performance evaluation.

Summary

Expected outputs (mandatory/minimum):

- 1 article in indexed journal or conference;
- 1 MsC dissertation.

Main Goals and timeline

- **Task1:** Review of the state of the art on radon detection devices and Internet of Things (IoT).
- **Task 2:** Construction of the IoT based ecosystem and its deployment at a real environment.
- **Task 3:** Real Pilot test deployment and data analysis of collected data.
- **Task 4:** Writing of the master's dissertation, technical documentation and a journal or conference paper.

Timeline:

	M1-October	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
Task 1: Review of the state of the art on radon detection devices and Internet of Things (IoT).											
Task 2: Construction of the IoT based ecosystem and its deployment at a real environment.											
Task 3: Real Pilot test deployment and data analysis of collected data.											
Task 4: Writing of the master's dissertation, technical documentation and a journal paper.											

References:

[1] CHUI, Michael; LÖFFLER, Markus; ROBERTS, Roger. The internet of things. *McKinsey Quarterly*, 2010, 2.2010: 1-9.