

Proposal for Master's Degree Project

Title: An Internet of Things (IoT) Solution for Predictive Analysis of Stress and Mood Disorders Based on Contextual and External Behaviors

Supervisor

Doctor Bruno Silva / bsilva@di.ubi.pt

Co-Supervisor

Doctor Nuno Pombo / ngpombo@di.ubi.pt

Summary

The advent of smart environments, smart transportation and smart buildings using wireless sensor technologies and cloud communications services have presented major findings in e-Health. These technologies and "things" interconnected, automated and self-sustained are now named, Internet of Things (IoT) [1].

The main goal of this Master dissertation work is to build and deploy an IoT ecosystem that through context-based data of a person on indoors and outdoors scenarios evaluate the level of stress and related mood disorders. The goal of this solution is to create a true predictive and adapting environment aiming the person health and comfort. Moreover, this work includes a 4 months of real pilot tests. It is expected that a machine learning tool is used for data analysis and performance evaluation.

Expected outputs (mandatory/minimum):

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

Main Goals and timeline

- **Task1:** Review of the state of the art on predictive health and Internet of Things (IoT).
- **Task 2:** Construction of the IoT based ecosystem and its deployment
- **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.

Timeline:

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Task1: Review of the state of the art on predictive health and Internet of Things (IoT)												
Task 2: Construction of the IoT based ecosystem and its deployment												
Task 3.1: Real Pilot test deployment												
Task 3.2: Data analysis of collected data												
Task 4: Writing of the master's dissertation, technical documentation and a journal paper.												

References:

[1] João Santos, Joel JPC Rodrigues, Bruno MC Silva, João Casal, Kashif Saleem, Victor Denisov, “An IoT-based Mobile Gateway for Intelligent Personal Assistants on Mobile Health Environments”, in Journal of Network and Computer Applications Volume 71, August 2016, Pages 194-204.