Proposal for Master's Degree Project

Title: Performance Evaluation of a Mobile Health Predictive System to Empower Healthcare in Rural and Remote Locations

Supervisor

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Summary

Nowadays, the privation of healthcare services in rural or remote regions remains a major issue in both developing and developed countries. The shortage of access roads, transportation, and communication remains a problem for healthcare professionals postponing suitable healthcare services. The advent of mobile health (m-Health) services and technologies are becoming a major improvement for patients' lives, especially for disabled, elderly, and chronically ill people. M-Health proposes to deliver healthcare services, anywhere, anytime and anyhow, surpassing geographical, temporal and even organizational barriers [1].

This Master dissertation work main goal is to construct and evaluate the performance of an m-Health predictive system for health professionals to empower care services delivering (treatment, medication, monitoring, etc.) in remote and rural areas. This predictive m- health system allows healthcare professionals to be more efficient in the field by performing a fast and affordable patient medical attendance. The solution creates an electronic record of all patient attendances to follow the patient health evolution and recommend treatment, medication or even assists with a preventive diagnosis remotely. Moreover, it allows and considers the integration of wireless body sensors to detect cardiac arrhythmias. This work will be deployed, experimented, and demonstrated in a real pilot in collaboration with Associação Mutualista Covilhanense, a local healthcare institution that delivers healthcare services to 23 remote locations through a medical vehicle.

Expected outputs (mandatory/minimum):
-   1 article in indexed journals;
-   1 MsC dissertation.

Main Tasks / Objectives

-   **Task 1:** Review of the state of the art on predictive health and m-Health solutions in rural and remote areas.
-   **Task 2:** Construction and implementation of the predictive m-Health solution and respective algorithms.
-   **Task 3:** Real Pilot test deployment and data analysis of collected data.
-   **Task 4:** Master dissertation writing, technical documentation and a journal paper.

Timeline

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Task 1: Review of the state of the art on predictive health and m-Health solutions in rural and remote areas.	█	█	█									
Task 2: Construction and implementation of the predictive m-Health solution and respective algorithms.			█	█	█	█	█	█				
Task 3: Real Pilot test deployment and data analysis of collected data.									█	█	█	
Task 4: Master dissertation writing, technical documentation and a journal paper.							█	█	█	█	█	█

References:

[1] Bruno M. C. Silva, Joel J. P. C. Rodrigues, Isabel de la Torre Díez, Miguel López- Coronado, and Kashif Saleem, "Mobile-health: A review of current state in 2015", in Journal of Biomedical Informatics, Vol. 56, pp. 265-272, 2015.