

Stress Prediction System

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ABSTRACT

The proposed paper describes a system for measuring level of stress of a user. Stress is a kind of body's reaction to a change that entails an adjustment/response. It is the body's way of responding to any kind of demand or threat. The proposed system describes about to measure level of stress on the basis of stress level evaluating test.

KEYWORDS: Stress, Computation, Gender, Questionnaire

INTRODUCTION

The term "stress" describes mental or physical reactions due to events taking place in day to day life and/or clinical associated conditions including chronic disease conditions and/or not limited to what people feel when they are under mental, physical, social or emotional pressure[1]. Based on the conditions of creation of stress, it is mainly categorized as psychological or physiological stress[2]. Therefore, to overcome the aforementioned shortcomings, there exists a need to develop a system for determining stress of a person on the basis of results obtained from combination of tests such as PSS (Perceived Stress Scale) test, AWT (Ardell Wellness Test) and Symptom measurement test[3]. The system consists of; plurality of sensor (GSR and Heart Beat sensor) for measuring health condition of the user. A test selection module comprising a list of test such as; PSS (Perceived Stress Scale) test, Ardell Wellness and symptoms test for prediction level of stress[4]. A first database for storing a data related to the user, wherein data refers to a condition without inducing stress and a second database for storing a data, wherein data refers to a condition with inducing stress[5]. A data comparison module for generating results by comparing data stored in the first and second database[6]. A feature selection module (Multi collinearity checking protocol, and PCA {Principal Component

Analysis} protocol) for filtering out dependent features of the data from the generated results[7]. A stress prediction module (Random Forest and SVM {Support Vector Machine}) is used for predicting level of stress of the user by training the system on the basis of the results.

For measuring the level of stress depends upon the computation of (Perceived Stress Scale), AWT (Ardell Wellness Test) and Symptom score. The perceived stress scale, Ardell Wellness Test and symptom score is computed on the basis of questionnaire provided to a user through a graphical user interface[8]. For combined stress score, firstly compute the PSS, then AWT and then Symptom score. Further, we quantified Stress into three levels – Low, Medium and High and computation of stress level is out of three[9]. When stress score is calculated then system predicts the stress level on the basis of three cases. In first case if the score of the stress is in between 0 and 1 then stress level of a person shows low stress. In second case if the score of the stress is in between 1 and 2 then stress level of a person shows medium stress. In third case if stress level is in between 2 and 3 then stress level of a person shows high stress.

CONCLUSION

This paper presents a system for measuring level of stress of the user. The process for measuring level of stress based upon the stress level evaluating test and this process will provide accurate results. These results indicate that a multimodality stress management program could best assist managers with a high level of stress. Our results should be replicated in bigger research and confirmed with potential clinical studies.

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