FINAL YEAR PROJECT REPORT

MANAGE AND MEASURE STRESS (M.M.S)

In fulfillment of the requirement
For degree of
BSE (SOFTWARE ENGINEERING)

By

LAILA NADEEM	**(28275)**
M.FAIZ-UL-HASSAN	**(28308)**
TAHIRA TARIQ	**(28832)**

SUPERVISOR

ENGR. BUSHRA FAZAL

BAHRIA UNIVERSITY (KARACHI CAMPUS)

Submission Performa

Name (1) Laila Nadeem
Email:LailaNadeem420@gmail.com
(2) M.Faiz-Ul-Hassan
Email:faaizulhasan@gmail.com
(3) Tahira Tariq
Email: tahiratariq98@gmail.com

Title of Report: Manage and Measure Stress
Project Supervisor's Name: Engr.Bushra Fazal

This report is submitted as required for the Project in accordance with the rules laid down by the Bahria University as part of the requirements for the award of the degree of Bachelor of Engineering. I declare that the work presented in this report is my own except where due reference or acknowledgement is given to the work of others.

Signatures of students	Date
(1).....	21-5-2018
(2).....	21-5-2018
(3).....	21-5-2018

Signature of Supervisor	Date
.....	21-5-2018

Acknowledgments

This project took the enormous extent of work, dedication, and research. This would not have been possible if we don't have the assistance of many people and we are extremely fortunate to have got this all along the completion of our project work. At first, all thanks to Al-Mighty Allah who gave us the ability and strength to complete the project, and then we would like to thank the crucial role of our parents for their support trust and members of our institute Bahria University, Karachi Campus for their cooperation and encouragement We would like to give a special gratitude to our final year project supervisor, Engr.Bushra Fazal, whose continuous involvement, guidance and encouragement, helped us to build up this project.

Abstract

Stress is common in all our lives today. In our society stress is treated as a mental disorder but it's a temporary feeling. Stress can be in any form of physical, psychological, emotional and cognitive from. Stress is a response in accordance with pressure and threat. Under stress, we may feel tense and nervous. Our application main goal is to manage stress for certain period of time.

Our project will measure and manage physical and psychological stress. Our aim is to manage and measure stress for a particular time, so the user can perform the task with his/her best abilities and feel relaxed. We are measure physical stress on the factor of HRV and to measure psychological stress through Perceive stress techniques. For Psychology stress we are using Perceive Stress scale these questions are hidden in storyboard scenario. Activities appear on the basis of physical stress level. At the time of testing it was notice user with increases level of physical stress level by playing the activities in the application user psychological stress level decrease as time passes.

Keywords: HRV, Measure, smart watch, Story Board, Graph.

Table of contents

1. INTRODUCTION 11

1.1 PROBLEM STATEMENT: 11

1.1.1 Aim of the project 11

1.1.2 Solution Proposed 11

1.2 PURPOSE OF THE DOCUMENT: 12

1.3 OVERVIEW OF THE DOCUMENT/STRUCTURE OF THE DOCUMENT: 12

1.3.1 Introduction 12

1.3.2 Background and literature view 13

1.3.3 Analysis and Design 13

1.3.4 Methodology 13

1.3.5 Implementation 13

1.3.6 Testing: 13

1.3.7 Result: 13

2. BACKGROUND AND LITERATURE REVIEW 15

2.1 LITERATURE REVIEW 15

2.1.1 Physical stress: 15

2.1.1.1 Heart Rate Variability: 16

2.1.1.2 Physical Stress Scale 16

2.1.2 Psychological Stress: 17

2.1.2.1 Perceived Stress Scale 17

2.2 EXISTING SYSTEM 18

2.2.1 Existing System Description 18

2.2.1.1 Existing system: Live Health Online 18

2.2.1.2 Existing System: Better Help 19

2.2.1.3 Existing System: Stop, Breathe & Think 19

2.2.1.4 Existing System: Calm 20

2.2.1.5 Existing System: Happify 20

2.3 RESEARCH PAPER 21

3. ANALYSIS AND DESIGN 23

3.1 ANALYSIS 24

3.1.1 Context Diagram 24

3.1.2 Work Flow Diagram 25

3.1.3 Actor Use case Diagram 26

3.1.4 Case Narrations 27

3.1.4.1 Use case Narration of measure physical stress 27

3.1.4.2 Use case Narration of Identify level of psychological stress 28

3.1.4.3 Use case Narration of View Record 29

3.1.4.4 Use case Narration of Update Video and games 30

3.1.5 Requirement *31*
3.1.5.1 System Requirements 31
3.1.5.1.1 Functional Requirement: 31
3.1.5.1.2 Non-Functional Requirement 31
3.1.5.1.2.1 Usability Requirement 31
3.1.5.1.2.2 Security Requirements 31
3.1.5.1.3 Portability Requirements 31
3.1.5.1.4 2 Performance Requirements 32
3.2 DESIGN CONSTRAINTS 32
3.2.1 Hardware and software Environment *32*
3.2.1.1 Hardware 32
3.2.1.2 Software 32
3.2.2 Architecture Diagram *33*
3.2.3 Component Diagram *34*
3.2.4 Sequence Diagram *35*
3.2.4.1 Physical Stress: 35
3.2.4.2 Psychological Stress: 36
3.2.5 Activity Diagram *37*
3.2.6 ERD *39*
3.2.7 Project Scheduling *40*
3.2.8 Risk Management *40*
3.2.8.1 Risk identification 40
3.2.8.2 Risk assessment 40
3.2.8.3 Risk planning 40
3.2.8.4 Risk monitoring 41
3.3 SYSTEM DESIGN 42
3.3.1 Major Module: *42*
3.3.1.1 SUB MODULE: 42
3.3.1.1.1 User Registration Interface: 43
3.3.1.1.2 Consent Interface: 43
3.3.1.1.3 User Login Interface: 44
3.3.1.1.4 Watch Pairing Interface: 44
3.3.1.1.5 MI Band Data Interface: 45
3.3.1.1.6 Physical stress Interface: 45
3.3.1.1.7 Psychological Stress Interface: 46
3.3.1.1.8 Add Psychologist Interface: 46
3.3.1.1.9 Psychologist Interface: 47
3.3.1.1.10 Admin Panel: 47
4. METHODOLOGY 49

4.1 WORK BREAKDOWN STRUCTURE 51
4.2 DEVELOPMENT MODEL 52
4.2.1 Gather requirement 52
4.2.2 Planning 53
4.2.3 Design 53
4.2.4 Implementation and testing 53
4.2.5 Monitor and Control 53
4.3 PROCESS MODEL 53
4.4 GANTT CHART 54
5. IMPLEMENTATION 56
5.1 IMPLEMENTATION 56
5.1.1 Physical stress: 56
5.1.2 Psychology stress calculation 57
5.2 VALIDATION 58
5.2.1 Registration 58
5.2.2 Psychological stress calculation 59
6. TESTING 61
6.1 WHITE BOX TESTING: 61
6.1.1 Physical Stress: 61
6.1.1.1 CODE: 61
6.1.1.2 Graph Notation: 63
6.1.1.3 Cyclomatic Complexity 63
6.1.1.4 Predicative Paths 64
6.1.2 Psychological Stress: 65
6.1.2.1 CODE: 65
6.1.2.2 Graph Notation: 66
6.1.2.3 Cyclomatic Complexity 66
6.1.2.4 Predicative Paths 67
6.2 BLACK BOX TESTING: 68
7. RESULTS 69
8. DISCUSSION 73
9. CONCLUSIONS 75
10. FUTURE WORK 77
11. APPENDICES 79
11.1 PERCEIVE STRESS SCALE 79
11.2 GRAPHS: 80
11.3 CODE: 82
12. REFERENCES 124