

SIM: SMILE INTENSITY METER

Undergraduate Thesis
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Computer Science

RAP JOSUA M. PEREY
JAMES ARVIN D. ROZUL
May 2017



Republic of the Philippines
CAVITE STATE UNIVERSITY
Don Severino de las Alas Campus
Indang, Cavite
(046) 4150-010 / (046) 4150-013 loc 206
www.cvsu.edu.ph

COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY

Department of Information Technology

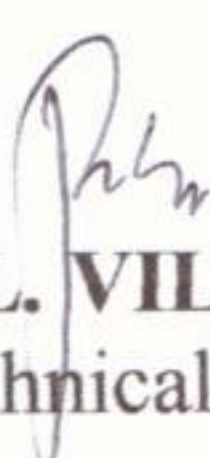
AUTHORS: RAP JOSUA M. PEREY and JAMES ARVIN D. ROZUL

TITLE: SIM : SMILE INTENSITY METER

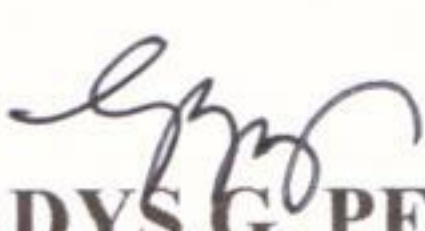
APPROVED:


RIA CLARISSE L. MOJICA
Adviser

3/30/17
Date


RUSSEL L. VILLACARLOS
Technical Critic

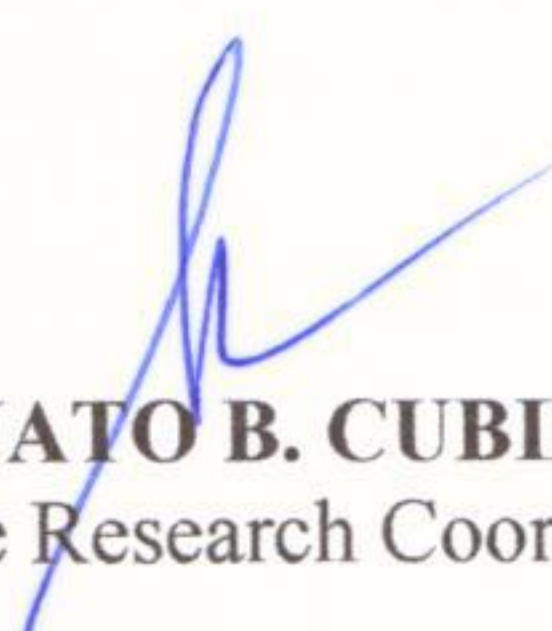
4/6/17
Date


GLADYS G. PEREY
Unit Research Coordinator

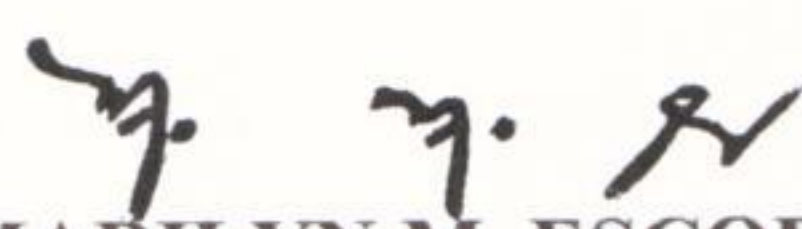
5/2/2017
Date


MARLON R. PEREÑA
Department Chairperson

Date


RENATO B. CUBILLA
College Research Coordinator

Date


MARILYN M. ESCOBAR
Dean

Date

How I made
HOSEA dL. MATEL
Director for Research

Date

OCT 18 2017

ABSTRACT

PEREY, RAP JOSUA M. and ROZUL, JAMES ARVIN D. SIM: SMILE INTENSITY METER. Undergraduate Thesis. Bachelor of Science in Computer Science. Cavite State University, Indang, Cavite. April 2017. Adviser: Ms. Ria Clarisse L. Mojica.

This study was conducted from June 2016 to March 2017 at Cavite State University - Main Campus. The purpose of the study was to lessen the boredom and frustration of a crowd by displaying their smile intensity using image processing.

Extreme Programming was used as the methodology of the system. To implement the facial feature analysis of the system, the Luxand FaceSDK library was used. Eighty people from the crowd from the Land Transportation Office-Tagaytay and 20 collectively chosen students and faculty members of Department of Information Technology evaluated the system. The results were collected through an evaluation form based on ISO 9126.

According to the overall evaluation results, the system was judged to be excellent in all software quality criteria such as functionality, reliability, usability, efficiency, maintainability, portability, and user-friendliness. Upon the completion of the study, the proponents concluded that this would be a solution for the common problems encountered by people waiting on long lines.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA	iii
ACKNOWLEDGMENT	iv
ABSTRACT	vi
LIST OF FIGURES	ix
LIST OF TABLES	x
LIST OF APPENDIX FIGURES	xi
LIST OF APPENDIX TABLES	xii
LIST OF APPENDICES	xiii
INTRODUCTION	1
Statement of the Problem	2
Theoretical Framework	4
Objectives of the Study	6
Significance of the Study	6
Time and Place of the Study	7
Scope and Limitation of the Study	8
Definition of Terms	11
REVIEW OF RELATED LITERATURE	12
Related Studies	27
METHODOLOGY	32

	Page
Materials	32
Methods	33
RESULTS AND DISCUSSION	36
System Development	36
System Overview	37
Software Testing	41
Software Evaluation	42
SUMMARY, CONCLUSION, AND RECOMMENDATIONS	48
Summary	48
Conclusion	49
Recommendations	50
REFERENCES	51
APPENDICES	53

LIST OF FIGURES

Figure	Page
1 Theoretical framework of SIM: Smile intensity meter	5
2 Real-time plotter	16
3 Open data file definition	18
4 Mood Meter's real-time reports of emotions on different locations	28
5 Extreme Programming methodology	33
6 Screenshot of loading screen	37
7 Screenshot of multiple face detection with neutral, happy, and crowed emoticon	38
8 Screenshot of data file settings	39
9 Screenshot of graph settings	39
10 Screenshot of real-time plotter of graph	40
11 Screenshot of data series settings	41

LIST OF TABLES

Table		Page
1	Rating scale for software evaluation	42
2	Participants' evaluation of the software in terms of its Functionality	43
3	Participants' evaluation of the software in terms of its reliability	43
4	Participants' evaluation of the software in terms of its usability	44
5	Participants' evaluation of the software in terms of its efficiency	45
6	Participants' evaluation of the software in terms of its maintainability	45
7	Participants' evaluation of the software in terms of its portability	46
8	Participants' evaluation of the software in terms of its user-friendliness	46
9	Summary results of the evaluation	47

LIST OF APPENDIX FIGURES

Appendix Figure		Page
1	Fishbone diagram (Boredom or annoyance of audience)	55
2	Fishbone diagram (Sadness being contagious)	56
3	Fishbone diagram (Lack of statistics about the satisfaction of the clients)	57
4	Gantt chart of the development	58
5	Use case diagram of the system	59

LIST OF APPENDIX TABLES

Appendix Table		Page
1	Frequency distribution of scores of the functionality indicators	61
2	Frequency distribution of scores of the reliability indicators	61
3	Frequency distribution of scores of the usability indicators	61
4	Frequency distribution of scores of the efficiency indicators	61
5	Frequency distribution of scores of the maintainability indicators	61
6	Frequency distribution of scores of the portability indicators	61
7	Frequency distribution of scores of the user-friendliness indicators	62

LIST OF APPENDICES

Appendix		Page
1	Sample Software Evaluation Sheet	64
2	Sample Accomplished Software Evaluation Sheet	67
3	Unit Testing	70
4	Integration Testing	77
5	System Testing	81
6	Sample Source Code	84
7	Letters, Forms, and Certificates	89