# VEGGIE FLYER: A TWO-DIMENSIONAL ANDROID GAME FOR KIDS

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 Information Technology

JEROME A. ABANEL
EDWARD DANZEL A. MORENO
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

: JEROME A. ABANEL and EDWARD DANZEL A. MORENO AUTHORS

: VEGGIE FLYER: A TWO-DIMENSIONAL ANDROID GAME FOR TITLE KIDS

# APPROVED:

Adviser

Date

Technical Critic

Unit Research Coordinator

Date

Department Chairperson

RENATO B CUBILLA

College Research Coordinator

Date

MARILYN M. ESCOBAR

Dean

Date

HOSEA al. MATEL Director for Research

MAY 0 9 2017

Date

#### **ABSTRACT**

ABANEL, JEROME A. and MORENO, EDWARD DANZEL A. Veggie Flyer: A Two-Dimensional Android Game for Kids. Undergraduate Thesis. Bachelor of Science in Information Technology. Cavite State University, Indang, Cavite. May 2017 Adviser: Ms Gladys G. Perey.

This study was conducted from August 2016 to April 2017 at Cavite State University, Indang and Silang, Cavite to develop a two-dimensional (2D) android-based game for kids called Veggie Flyer that will give information and entertainment to the players and provide them satisfaction. Specifically it aimed to: 1. attract the users especially the kids, to play an educational game; 2. design and develop an application that will give children the awareness about the consequences of eating junk foods; 3. design and develop an application that will show the benefits of the vegetables and encourage the users especially the kids to eat it; and 4. evaluate the system through the use of unit testing.

The proponents used the agile methodology in developing system. This methodology has four phases: requirements, design, implementation and testing.

The system was developed through the use of different software tools: Construct2 as the android development platform and Adobe Phonegap for building and converting to Android package kit. In additional, Adobe Photoshop was used for editing the images, textures and for the application, and Microsoft Word 2010 for the documentation. The system has three modules: game setting, information, and game play.

The system was evaluated by 100 participants based on the given criteria: functionality, reliability, usability, efficiency, maintainability, and portability. The system

passed all the given criteria in the evaluation and met all the aimed features and functionality as well as the requirements and its objectives.

## TABLE OF CONTENTS

Page	
APPROVAL SHEETi	
BIOGRAPHICAL DATAiii	
ACKNOWLEDGMENTv	0
ABSTRACTvii	
LIST OF TABLESxi	
LIST OF FIGURESxii	
LIST OF APPENDIX TABLES xiv	
LIST OF APPENDIX FIGURESxv	
LIST OF APPENDICESxvii	
NTRODUCTION	
Statement of the Problem	
Objectives of the Study4	The state of the s
Significance of the Study5	
Time and Place of the Study5	
Scope and Limitation of the Study6	
Definition of Terms	,
Theoretical Framework9	
REVIEW OF RELATED LITERATURE	
METHODOLOGY	
Materials32	

Methods	32
Requirements phase	32
Design phase	33
Implementation phase	33
Testing phase	34
RESULTS AND DISCUSSION	35
Requirements Gathering and Analysis	35
Program Designing and Build Prototype	36
System Evaluation	37
SUMMARY, CONCLUSION, AND RECOMMENDATIONS	60
Summary	60
Conclusion	61
Recommendations	62
REFERENCES	64
APPENDICES	

#### LIST OF TABLES

1:	able	Page
	1	Student's evaluation on the system's functionality
	2	Student's evaluation on the system's reliability
	3	Student's evaluation on the system's usability
	4	Student's evaluation on the system's user-friendliness
	5	IT expert's evaluation on the system's functionality41
	6	IT expert's evaluation on the system's reliability
	7	IT expert's evaluation on the system's usability
	8	IT expert's evaluation on the system's efficiency
	9	IT expert's evaluation on the system's maintainability
	10	IT expert's evaluation on the system's portability
	11	IT expert's evaluation on the system's user-friendliness
	12	Summary results of the student's overall evaluation
	13	Summary results of the IT expert's overall evaluation

# LIST OF FIGURES

Figure	P	age
1	Theoretical Framework of the Veggie Flyer	.10
2	Agile Development Methodology	.33
3	Screen layout of main menu	.49
4	Screen layout of vegetable and junk food tab	50
5	Screen layout of vegetable tab content	50
6	Screen layout of information about vegetables	.51
7	Screen layout of drawbacks in eating junk foods	.51
8	Screen layout of credits and sounds tab	.52
9	Screen layout of credits screen	.52
10	Screen layout of sound settings	.53
11	Screen layout of muted sound	.53
12	Screen layout of avatar selection	.54
13	Screen layout of tutorial of screen	.54
14	Screen layout of vegetables to be collected	.55
15	Screen layout of junk foods and bacteria	. 55
16	Screen layout of the power ups	56
17	Screen layout of game over screen	56
18	Screen layout of start of the game	.57
19	Screen layout of girl avatar in the game	57
20	Screen layout of shield power up activated	. 58

21	Screen layout of shrink power up when activated	58
22	Screen layout of high score and game over screen	59

### LIST OF APPENDIX TABLES

Appendix Table		Page
1	Functionality indicators	68
2	Reliability Indicators	68
3	Usability Indicators	
4	Efficiency Indicators	68
5	Maintainability Indicators	69
6	Portability Indicators	69
7	User Friendliness Indicators	69

# LIST OF APPENDIX FIGURES

Appendix Figure	Page
1	Fishbone diagram for users mostly get entertainment on games but they do not learn
2	Fishbone diagram for unawareness of kids aged 5-10 years old on the side effect caused by junk foods
3	Fishbone diagram for limited availability of games that motivates and encouraged the user to eat vegetables
4	Graphical representation for the age of the students playing mobile games
5	Graphical representation for the types of game that children play73
6	Graphical representation for the hours that student spend playing the game
7	Graphical representation for the student who is addicted to mobile g games
8	Graphical representation for the student who prefer games instead of having fun with friends
9	Graphical representation for the student who skip sleep just to play games
10	Graphical representation for the student who skip meals just to play g games
11	Graphical representation for the student who eat junk foods76
12	Graphical representation for the student who is familiar to the downside effects of junk foods
13	Graphical representation for the student who prefer eating vegetables
14	Graphical representation for the students who is familiar in the nutritional contents of the vegetables

15	Graphical representation for the student who plays a game which is related to vegetables
16	Graphical representation for the reason of the students why they play mobile games
17	Gantt chart of Vegie Flyer79
18	Story board diagram for Vegie Flyer80

#### LIST OF APPENDICES

Appendix		Page
1	Tables	67
2	Figures	70
3	Unit testing	81
4	Integration Testing	84
5	Sample Code	87
6	Letters and forms	92