# PINASAYAW: AN ANDROID BASED AUGMENTED REALITY 3D FOR CULTURAL DAMCE IN THE PHILIPPINES

The second second second

THE PARTY OF THE PARTY OF

## THESIS

# MARK CHRISTIAN D. BALINTONG CHRISTIAN RYAN P. BANZALI

College of Engineering and Information Technology

CAVITE STATE UNIVERSITY

Indang, Cavita

Cavite State University (Main Library)

T7178
THESIS/SP 741.5 B19 2017

May 2017

### PINASAYAW: AN ANDROID BASED AUGMENTED REALITY 3D FOR CULTURAL DANCE IN THE PHILIPPINES

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



Pinasayaw : 741.5 B19 201:

MARK CHRISTIAN D. BALINTONG CHRISTIAN RYAN P. BANZALI

May 2017

#### **ABSTRACT**

BALINTONG MARK CHRISTIAN D. and BANZALI CHRISTIAN RYAN P. Pinasayaw: An Android Based Augmented Reality 3D for Cultural Dance in the Philippines. Undergraduate Thesis. Bachelor of Science in Computer Science, Cavite State University, Indang Campus. April 2016. Adviser: Mr. Marlon R. Pereña

The development of Pinasayaw: An android-based augmented reality 3D for cultural dance in the Philippines was developed to acknowledge the different cultural dance in the Philippines. The algorithm used in developing the study was image tracking algorithm. It can be played by a single user only, but can be watched by many. The study was started on February 2016 and finished on May 2017. Data gathering was obtained through different websites and based on the interview conducted from the students.

In developing this software, Waterfall approach was the SDLC Model that was used for the software to be done successfully. Every process were surely tested individually so that the desired software was met. For software development, Windows 7 was used as the operating system, C# for programming language, blender is used for the creation of the animation and the 3D characters, Adobe Photoshop for the creation of the buttons and the other GUI's, Unity for 3D, and the Vuforia that that enables the creation of Augmented Reality application, and Microsoft Word for the documentation.

The overall result of software evaluation with the criteria of functionality, usability, efficiency, and portability shows that the software was excellently done. It means that the proponents met all the expectation and desired output for the developed software.

#### **TABLE OF CONTENTS**

	PAGE
APPROVAL SHEET	ii
BIOGRAPHICAL DATA	iii
ACKNOWLEDGMENT	v
ABSTRACT	vii
LIST OF FIGURES	x
LIST OF TABLES	xi
LIST OF APPENDIX FIGURES	xii
LIST OF APPENDIX TABLES	xiii
LIST OF APPENDICES	xiv
INTRODUCTION	1
Statement of the Problem	2
Objectives of the Study	4
Significance of the Study	4
Time and Place of the Study	5
Scope and Limitations of the Study	5
Definition of Terms	7
Theoretical Framework	9
REVIEW OF RELATED LITERATURE	12
Related Studies	16
METHODOLOGY	20

Materials	20
Methods	20
RESULTS AND DISCUSSION	22
Requirements Gathering and Analysis	22
System Overview	22
Software Testing	27
Software Evaluation	28
Summary Result	33
SUMMARY, CONCLUSION, AND RECOMMENDATIONS	34
Summary	34
Conclusion	35
Recommendations	35
REFERENCES	36
APPENDICES	37

#### LIST OF FIGURES

Figure		Page
1	Theoretical framework of Pinasayaw: AN Android Based Augmented Reality 3D for Cultural Dance in the Philippines	9
2	Waterfall Approach Methodology	21
3	Screenshot of pandanggo sa ilaw marker	23
4	Screenshot of maglalatik marker	24
5	Screenshot of sakuting marker	. 24
6	Screenshot of sayaw sa salakot marker	25
7	Screenshot of tinikling marker	25
8	Screenshot of welcome screen	26
9	Screenshot of main screen	26
10	Screenshot of steps selected	27
11	Screenshot of maximum stack	27

#### LIST OF TABLES

<b>Fable</b>	Pa	ıge
1	Participants' evaluation of the software in terms of its functionality	62
2	Participants' evaluation of the software in terms of its usability	64
3	Participants' evaluation of the software in terms of its efficiency	65
4	Participants' evaluation of the software in terms of its portability	65
5	Summary results of the evaluation	33

#### LIST OF APPENDIX FIGURES

Appendix Figure		Page
1	Fishbone diagram (Limited Knowledge about the basic steps of cultural dance)	39
2	Fishbone diagram (Limited Ways of Presenting Cultural dance)	. 40
3	Fishbone diagram (Difficulty to recall the cultural dance steps)	. 40
4	Gantt chart of the development	. 42

#### LIST OF APPENDIX TABLES

Appendix Fables	<u> </u>	age
1	Frequency distribution of scores of the functionality indicators	29
2	Frequency distribution of scores of the usability indicators	30
3	Frequency distribution of scores of the efficiency indicators	31
4	Frequency distribution of scores of the portability indicators	31

#### LIST OF APPENDICES

Appendix		Page
1	Unit Testing	44
2	Performance Testing	51
3	Usability Testing	55
4	Sample Software Evaluation Sheet	59
5	Sample Accomplished Software Evaluation Sheet	61
6	Letters, Forms, Certificates, etc.	72

# PINASAYAW: AN ANDROID BASED AUGMENTED REALITY 3D FOR CULTURAL DANCE IN THE PHILIPPINES

#### Christian Ryan P. Banzali Mark Christian D. Balintong

An undergraduate thesis submitted to the faculty of the Department of Information Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfilment for the degree of Bachelor of Science in Computer Science with Contribution No. CETT 2016-17-2-MP repared under the supervision of Mr. Marlon R. Pereña.

#### INTRODUCTION

Augmented reality (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data. It is related to a more general concept called mediated reality, in which a view of reality is modified by a computer. This app will merge virtual and real world using technology.

This study is all about the different cultural dance moves where the 3d characters will augment to the real world for them to show us how the different cultural dance in the Philippines looks like. Countries in the world have their own cultures made more colourful, beautiful and vibrant because of Folk Dances that are reflection of who they are. In the east, the Chinese have their symbolic Dragon Dance, the Japanese have the ancestral dance Bon Odori. In the west the Americans have their Square Dance. On the