

Final Year Project Report

Project Name

Interior Design 3D App



Project Advisor:

Asma Naseer

Submitted By:

Komal Naseer	14007065318
Waseem Hassan	14007065217.
Zernain Ali	14007065291

Session

2014-2018

University of Management and Technology

C-II Johar Town Lahore Pakistan

Dedication

This project is dedicated to our beloved parents and our respected advisor Miss Asma Naseer.

Final Approval

Panel of Examiners

- **Head of Department**
Department of Computer Science
UMT Lahore _____

- **Program Director (Final Year Projects)**
Department of Computer Science
UMT Lahore _____

- **Supervisor**
Department of Computer Science
UMT Lahore _____

- **Co-Supervisor** _____

Acknowledgment

In the journey of this project, there were many people after Allah Almighty who deserves a real gratitude because their concern and support made the toughest and hectic journey smooth and enriched with experience and knowledge. We acknowledge the support of our resource advisor **Miss. Asma Naseer** and our co-advisor **Miss. Ayesha Khan**. They helped and guided us in the completion of our tasks, the University of Management and Technology, which provided a platform to perform the project under the supervision of such intellectual and efficient personalities who not only provided a road map to complete the project but also an inspiration for further and future ventures. We want to thank our class fellows and friends who were an actual moral support and provided the required help anytime during the whole adventure. Last but not least, we want to thank our parents who invested their assets on us to see us with a bright and prominent future.

Project Title

Interior Design 3D app

Objective

To help users to décor their space on door step according to their desire.

Undertaken by

Waseem Hassan	14007065217
Zernain Ali	14007065291
Komal Naseer	14007065318

Supervised by

Asma Naseer

Starting Date

01st Oct 2017

Completion Date

10th June 2018

Tools Used

Unity 3D

Operating System

Windows

Documentation

Presented in detail in subsequent chapters.

Plagairism Report

Abstract

In the modern era The android application, developed in this project, provides a doorstep service to the users so that they can décor their given space by placing furniture items, paint or decorate walls with wallpaper or furnish their floor with carpet of his/her choice and can view that image in 3D. For implementation Unity 3D framework and JavaScript as language tool is used.

REVISION CHART

Version	Primary Author(s)	Description of Version	Date Completed
<i>Draft</i>	Zernain, Waseem	Checked and suggestions for improvements. Correction of mistake	20 th Dec 2017
<i>Preliminary</i>	Zernain, Komal	Its pre final draft, checked and resolved mistakes. Suggestions for improvements.	10 th Jan 2018
<i>Final phase 1</i>	Zernain, Waseem	First complete draft of documentation.	15 th Jan 2018
<i>Revision 1</i>	Waseem	Revised according to suggestion.	25 th Jan 2018
<i>Revision 2</i>	Zernain	Revised according to suggestion.	28 th Jan 2018
<i>Revision 3</i>	Komal	Revised according to suggestion.	4 th Feb 2018
<i>Revision 4</i>	Zernain, Waseem	Revised according to suggestion	10 th Feb 2018
<i>Revision 5</i>	Waseem, Komal	Revised according to suggestion	14 th Feb 2018
<i>Revision 6</i>	Zernain	Revised according to suggestion	20 th Feb 2018
<i>Revision 7</i>	Zernain	Revised according to suggestion	2 nd Mar 2018
<i>Revision 8</i>	Zernain	Revised according to suggestion	10 th Mar 2018
<i>Revision 9</i>	Zernain	Revised according to suggestion	18 th Mar 2018
<i>Revision 10</i>	Zernain	Revised according to suggestion	25 th Mar 2018
<i>Revision 11</i>	Zernain	Revised according to suggestion	02 nd April 2018
<i>Revision 12</i>	Zernain, Waseem	Revised according to suggestion	10 th Apr 2018
<i>Revision 13</i>	Zernain, Komal	Revised according to suggestion	25 th Apr 2018
<i>Revision 14</i>	Zernain,	Revised according to suggestion	30 th Apr 2018
<i>Revision 15</i>	Zernain, Komal	Revised according to suggestion	10 th May 2018
<i>Revision 16</i>	Zernain	Revised according to suggestion	20 th May 2018
<i>Revision 17</i>	Komal	Revised according to suggestion	25 th May 2018
<i>Revision 18</i>	Zernain	Revised according to suggestion	04 th Jun 2018
<i>Revision 19</i>	Zernain	Revised according to suggestion	29 th Jun 2018
<i>Revision 20</i>	Zernain, Komal	Revised according to suggestion	05 th Jul 2018
<i>Revision 21</i>	Zernain, Waseem	Revised according to suggestion	10 th Aug, 2018
<i>Revision 22</i>	Zernain, Komal	Revised according to suggestion	20 th Aug, 2018
<i>Revision 23</i>	Zernain, Waseem	Revised according to suggestion	10 th Sep, 2018
<i>Revision 24</i>	Waseem	Revised according to suggestion	20 th Sep, 2018
<i>Revision 25</i>	Zernain	Revised according to suggestion	25 th Sep, 2018

CONTENTS

CONTENTS	1
LIST OF FIGURES	3
LIST OF TABLES	4
DEFINITIONS AND ACRONYMS	6
CHAPTER NO 1	7
1. INTRODUCTION	8
1.1 MOTIVATIONS	8
1.2 PROJECT OVERVIEW	ERROR! BOOKMARK NOT DEFINED.
1.3 PROBLEM STATEMENT	ERROR! BOOKMARK NOT DEFINED.
1.4 OBJECTIVES	ERROR! BOOKMARK NOT DEFINED.
2. DOMAIN ANALYSIS	ERROR! BOOKMARK NOT DEFINED.
2.1 CUSTOMER	ERROR! BOOKMARK NOT DEFINED.
END USER'S ARE OUR CUSTOMERS. WE ARE PROVIDING OFFLINE SERVICES TO THE USERS.	ERROR!
BOOKMARK NOT DEFINED.	
2.2 STAKEHOLDERS	ERROR! BOOKMARK NOT DEFINED.
2.3 AFFECTED GROUPS WITH SOCIAL OR ECONOMIC IMPACT	ERROR! BOOKMARK NOT DEFINED.
2.4 DEPENDENCIES/ EXTERNAL SYSTEMS	ERROR! BOOKMARK NOT DEFINED.
2.5 REFERENCE DOCUMENTS	ERROR! BOOKMARK NOT DEFINED.
2.5.1 <i>Related Projects</i>	<i>Error! Bookmark not defined.</i>
2.5.2 <i>Feature Comparison</i>	<i>Error! Bookmark not defined.</i>
3. REQUIREMENTS ANALYSIS	ERROR! BOOKMARK NOT DEFINED.
3.1 REQUIREMENTS	ERROR! BOOKMARK NOT DEFINED.
3.2 LIST OF ACTORS	ERROR! BOOKMARK NOT DEFINED.
3.3 LIST OF USE CASES	ERROR! BOOKMARK NOT DEFINED.
3.4 SYSTEM USE CASE DIAGRAM	ERROR! BOOKMARK NOT DEFINED.
3.5 EXTENDED USE CASES	ERROR! BOOKMARK NOT DEFINED.
3.5.1 <i>UC Create 3D Environment</i>	<i>Error! Bookmark not defined.</i>
3.5.2 <i>UC Taking Pictures</i>	<i>Error! Bookmark not defined.</i>
3.5.3 <i>UC Placing Wallpapers</i>	<i>Error! Bookmark not defined.</i>
3.5.4 <i>UC Paint the Walls</i>	<i>Error! Bookmark not defined.</i>
3.5.5 <i>UC Flooring by Rugs Carpet</i>	<i>Error! Bookmark not defined.</i>
3.5.6 <i>UC Import Pictures from Gallery</i>	<i>Error! Bookmark not defined.</i>
3.5.7 <i>UC View Models</i>	<i>Error! Bookmark not defined.</i>
3.5.8 <i>UC Use Models</i>	<i>Error! Bookmark not defined.</i>
3.5.9 <i>UC Remove</i>	<i>Error! Bookmark not defined.</i>
3.5.10 <i>UC Home</i>	<i>Error! Bookmark not defined.</i>
3.5.11 <i>UC Restart</i>	<i>Error! Bookmark not defined.</i>
3.5.12 <i>UC Recent used Models</i>	<i>Error! Bookmark not defined.</i>
3.5.13 <i>UC Edit Walls</i>	<i>Error! Bookmark not defined.</i>
3.6 USER INTERFACES (MOCK SCREENS)	ERROR! BOOKMARK NOT DEFINED.
4. SYSTEM DESIGN	ERROR! BOOKMARK NOT DEFINED.
4.1 SYSTEM ARCHITECTURE DIAGRAM	ERROR! BOOKMARK NOT DEFINED.
4.2 CLASS DIAGRAM	ERROR! BOOKMARK NOT DEFINED.
4.3 SEQUENCE DIAGRAMS	ERROR! BOOKMARK NOT DEFINED.
4.4 COLLABORATION DIAGRAMS	ERROR! BOOKMARK NOT DEFINED.

4.5	ERD.....	ERROR! BOOKMARK NOT DEFINED.
4.6	DATA DICTIONARY	ERROR! BOOKMARK NOT DEFINED.
5.	IMPLEMENTATION DETAILS.....	ERROR! BOOKMARK NOT DEFINED.
	DEVELOPMENT SETUP.....	ERROR! BOOKMARK NOT DEFINED.
5.1	DEPLOYMENT SETUP	ERROR! BOOKMARK NOT DEFINED.
5.2	ALGORITHMS	ERROR! BOOKMARK NOT DEFINED.
5.3	CONSTRAINTS	ERROR! BOOKMARK NOT DEFINED.
5.3.1	<i>Assumptions</i>	Error! Bookmark not defined.
5.3.2	<i>System constraints</i>	Error! Bookmark not defined.
5.3.3	<i>Restrictions</i>	Error! Bookmark not defined.
5.3.4	<i>Limitations</i>	Error! Bookmark not defined.
6.	TESTING	ERROR! BOOKMARK NOT DEFINED.
6.1	EXTENDED TEST CASES	ERROR! BOOKMARK NOT DEFINED.
6.1.1	<i>Create 3d environment (UC-3.1)</i>	Error! Bookmark not defined.
6.1.2	<i>Taking Pictures (UC-3.2)</i>	Error! Bookmark not defined.
6.1.3	<i>Wallpapers (UC-3.3)</i>	Error! Bookmark not defined.
6.1.4	<i>Paint (UC-3.4)</i>	Error! Bookmark not defined.
6.1.5	<i>Rugs Carpet (UC-3.5)</i>	Error! Bookmark not defined.
6.1.6	<i>Import Pictures (UC-3.6)</i>	Error! Bookmark not defined.
6.1.7	<i>Use Models (UC-3.8)</i>	Error! Bookmark not defined.
6.1.8	<i>View Models (UC-3.7)</i>	Error! Bookmark not defined.
6.1.9	<i>Restart (UC-3.11)</i>	Error! Bookmark not defined.
6.1.10	<i>Home (UC-3.10)</i>	Error! Bookmark not defined.
6.1.11	<i>Recent Used Models (UC-3.12)</i>	Error! Bookmark not defined.
6.1.12	<i>Edit Walls (UC-3.13)</i>	Error! Bookmark not defined.
6.1.13	<i>Remove (UC-3.9)</i>	Error! Bookmark not defined.
6.2	TRACEABILITY MATRIX	ERROR! BOOKMARK NOT DEFINED.
6.2.1	<i>RID vs UCID (requirement identity vs use cases identity)</i> Error! Bookmark not defined.	
6.2.2	<i>Prototypes (RID vs PID)</i>	Error! Bookmark not defined.
6.2.3	<i>Test Cases (RID vs TID)</i>	Error! Bookmark not defined.
6.2.4	<i>Coverage (UCID vs TID)</i>	Error! Bookmark not defined.
7.	RESULTS/OUTPUT/STATISTICS.....	ERROR! BOOKMARK NOT DEFINED.
7.1	%COMPLETION.....	ERROR! BOOKMARK NOT DEFINED.
7.2	%ACCURACY.....	ERROR! BOOKMARK NOT DEFINED.
7.3	%CORRECTNESS.....	ERROR! BOOKMARK NOT DEFINED.
8.	CONCLUSION	ERROR! BOOKMARK NOT DEFINED.
9.	FUTURE WORK.....	ERROR! BOOKMARK NOT DEFINED.
9.1	OTHER REFERENCES	ERROR! BOOKMARK NOT DEFINED.
10.	APPENDIX.....	ERROR! BOOKMARK NOT DEFINED.
10.1	GLOSSARY OF TERMS	ERROR! BOOKMARK NOT DEFINED.
10.2	PRE-REQUISITES	ERROR! BOOKMARK NOT DEFINED.
10.3	CODE.....	ERROR! BOOKMARK NOT DEFINED.

List of Figures

Figure 1: Use Case Diagram.....	Error! Bookmark not defined.
Figure 2: Interior Design 3D App	Error! Bookmark not defined.
Figure 3: Environment.....	Error! Bookmark not defined.
Figure 4: Categories	Error! Bookmark not defined.
Figure 5: Dimensions	Error! Bookmark not defined.
Figure 6: 3D Environment.....	Error! Bookmark not defined.
Figure 7: Action Buttons	Error! Bookmark not defined.
Figure 8: Textures/Paint	Error! Bookmark not defined.
Figure 9: Carpets	Error! Bookmark not defined.
Figure 10: Models Shown	Error! Bookmark not defined.
Figure 11: Paint Colors.....	Error! Bookmark not defined.
Figure 12: Models	Error! Bookmark not defined.
Figure 13: System Architecture.....	Error! Bookmark not defined.
Figure 14: Class Diagram.....	Error! Bookmark not defined.
Figure 15: Create Sequence Diagram.....	Error! Bookmark not defined.
Figure 16: Edit Walls Sequence Diagram	Error! Bookmark not defined.
Figure 17: Taking Pictures Sequence Diagram	Error! Bookmark not defined.
Figure 18: Import From gallery	Error! Bookmark not defined.
Figure 19: Paint Sequence Diagram	Error! Bookmark not defined.
Figure 20: Remove Sequence Diagram.....	Error! Bookmark not defined.
Figure 21: Use Models Sequence Diagram	Error! Bookmark not defined.
Figure 22: Wallpaper Sequence Diagram.....	Error! Bookmark not defined.
Figure 23: Rugs Carpet Sequence Diagram	Error! Bookmark not defined.
Figure 24: Recent Used Models SD	Error! Bookmark not defined.
Figure 25: Back to Home Page SD.....	Error! Bookmark not defined.
Figure 26: Restart Sequence Diagram.....	Error! Bookmark not defined.
Figure 27: View Models Sequence Diagram.....	Error! Bookmark not defined.
Figure 28: Collaboration Diagram.....	Error! Bookmark not defined.
Figure 29: ERD	Error! Bookmark not defined.

List of Tables

Table 1: Definition and Acronyms	6
Table 2: list of Stakeholders	Error! Bookmark not defined.
Table 3: Feature Comparison	Error! Bookmark not defined.
Table 4: Function Categories.....	Error! Bookmark not defined.
Table 5: Requirements.....	Error! Bookmark not defined.
Table 6: UC Create 3D Environment	Error! Bookmark not defined.
Table 7: UC Taking Pictures	Error! Bookmark not defined.
Table 8: UC Placing Wallpapers	Error! Bookmark not defined.
Table 9: UC Paint the Walls	Error! Bookmark not defined.
Table 10: UC Flooring by Rugs Carpet.....	Error! Bookmark not defined.
Table 11: UC Import Pictures from Gallery	Error! Bookmark not defined.
Table 12: UC View Models.....	Error! Bookmark not defined.
Table 13: UC Use Models	Error! Bookmark not defined.
Table 14: UC Remove	Error! Bookmark not defined.
Table 15: UC Home	Error! Bookmark not defined.
Table 16: UC Restart.....	Error! Bookmark not defined.
Table 17: UC Recent used Models	Error! Bookmark not defined.
Table 18: UC Edit Walls	Error! Bookmark not defined.
Table 19: Categories.....	Error! Bookmark not defined.
Table 20: 3d Environment.....	Error! Bookmark not defined.
Table 21: Rotate	Error! Bookmark not defined.
Table 22: 3d Models.....	Error! Bookmark not defined.
Table 23: Dimension	Error! Bookmark not defined.
Table 24: CameraGallery	Error! Bookmark not defined.
Table 25: Test Case 1	Error! Bookmark not defined.
Table 26: Test Case 2	Error! Bookmark not defined.
Table 27: Test Case 3	Error! Bookmark not defined.
Table 28: Test Case 4	Error! Bookmark not defined.
Table 29: Test Case 5	Error! Bookmark not defined.
Table 30: Test Case 6	Error! Bookmark not defined.
Table 31: Test Case 7	Error! Bookmark not defined.
Table 32: Test Case 8	Error! Bookmark not defined.
Table 33: Test Case 9	Error! Bookmark not defined.

Table 34: Test Case 10 **Error! Bookmark not defined.**
Table 35: Test Case 11 **Error! Bookmark not defined.**
Table 36: Test Case 12 **Error! Bookmark not defined.**
Table 37: Test Case 13 **Error! Bookmark not defined.**
Table 38: RID vs UCID..... **Error! Bookmark not defined.**
Table 39: RID vs PID **Error! Bookmark not defined.**
Table 40: RID vs TID **Error! Bookmark not defined.**
Table 41: UCID vs TID **Error! Bookmark not defined.**

Definitions and Acronyms

Table 1 shows all the main acronyms and their abbreviations to understand it with more ease.

Table 1: Definition and Acronyms

Acronym	Definition
ID3A	Interior Design 3D App
DFD	Data Flow Diagram
SAD	System Architecture Design
UCID	Use Case Identity
ERD	Entity Relationship Diagram
RID	Requirement Identity
P5D	Planner 5D
S3D	SCANN3D

Chapter No 1

1. INTRODUCTION

1.1 Motivations

The need to make such an android application aroused because freelancers applications charge around \$50 for the decoration of the space. Some 3d apps are available on play store with the drawbacks of static environment and static objects.

As from the research, it is clear that some of the applications like planner 5d has a functionality of creating a house from scratch in 3D visualization, but it doesn't create 3D environment in real time. It also doesn't create 3D models whereas they are imbedded in them, so our application creates 3D environment and use 3D models.

In planner 5d, users have to create their room or home from scratch and decorate them whereas this application creates user's environment at instance by taking pictures and decorate them.