
Testing Document

COM90082 Software Project

Embedding 3D Models in Web Application

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1. Introduction

1.1. Proposal

The purpose of this document is to define and present the test cases for project Embedding 3D Models in Web Application. The test cases cover the user stories that have been implementing by SQ-Wombat only.

1.2. Target Users

The intended audiences of this document are Team 17 SQ-WOMBAT, COMP90082 Software Project teaching team and the client

1.3. Conventions, terms and abbreviations

This section explains the concept of some important terms that will be used throughout this document. These terms are described in the following table, presented in alphabetical order.

Term	Description
IFC	Industry Foundation Classes
glb	binary of .gltf 3D models
UC	Basically maps to User Stories mentioned in the project requirements

2. Covered Requirements

This section lists the system requirements covered in the test cases.

2.1. Functional or Product Requirements

Requirement Identifier	Requirement Name
UC001	Zoom and Rotation Capabilities for the 3D Model
UC002	View 3D model on product detail page
UC003	View 3D model on product listing page
UC004	Utility for IFC file conversion
UC005	Store 3D model

UC006	Store meta-data for model
UC007	View 3D model on the cart page
UC008	View parameterized data for the 3D model
UC009	View multiple models for the product
UC010	Add to cart button in order history page

3. Functional Test Cases

This section describes the test cases that cover the product requirements of the system.

3.1. UC001: Zoom and Rotation Capabilities of 3D Model

3.1.1. TC001: Zoom and Rotation of Model

Test Type: Functional	Execution Type: Manual
Objective: Verify if the model can be zoomed in and out and also rotated on an axis for 360 view	
Setup: <ul style="list-style-type: none"> Website opened and logged in Navigate to product listing page Select the Holyoake category Navigate to the sub category Swirl Diffusers from Holyoake Select a product with available 3D model 	
Expected Outcome: <ul style="list-style-type: none"> The model can be zoomed in and on and different sides and views of the model are visible by rotating 	
Notes: <p>[1]. User clicks on 3D model of product</p> <p>[2]. User zooms in and out using the mouse scroll and arrow keys for panning</p> <p>[3]. User uses left click and drag to rotate the model to see it at different angles</p>	
Test Result: <ul style="list-style-type: none"> Different sizes and angular views of the product visible 	

3.2. UC002: View 3D model on Product Details page

3.2.1. TC001: Model viewed

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models of the product can be accessed on the product details page	
Setup: <ul style="list-style-type: none">• Website opened and logged in• Navigate to product listing page• Select the Holyoake category• Navigate to the sub category Swirl Diffusers from Holyoake• Select a product with available 3D model	
Expected Outcome: <ul style="list-style-type: none">• Product details page containing the 3D model of the product	
Notes: [1]. Once on product details page, user can see 3D Models	
Test Result: <ul style="list-style-type: none">• 3D model of the product visible.	

3.2.2. TC002: Model viewed – Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models of the products cannot be accessed on the product details page	
Setup: <ul style="list-style-type: none">Remove the model from the S3 bucket and/or set Invalid URL of 3D model in database	
Expected Outcome: <ul style="list-style-type: none">A fallback model (gray sphere) is displayed on the pop up	
Notes: [1]. Once on Product details page, user does not see product's 3D model [2]. User tries again Test Result: <ul style="list-style-type: none">Product's 3D model not displayed.	

3.3. UC003: View 3D model on Product Listing Page

3.3.1. TC001: Model viewed

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models of the products can be accessed on the product listing page	
Setup: <ul style="list-style-type: none">• Website opened and logged in• Navigate to product listing page• Select the Holyoake category• Navigate to the sub category Swirl Diffusers from Holyoake• Click on 3D model button of the product	
Expected Outcome: <ul style="list-style-type: none">• A pop up displays showing 3D model of the product	
Notes: [1]. User clicks on 3D model button on the product card	
Test Result: <ul style="list-style-type: none">• 3D model of the product visible.	

3.3.2. TC002: Model viewed – Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models of the products cannot be accessed on the product listing page	
Setup: <ul style="list-style-type: none">Remove the model from the S3 bucket and/or set Invalid URL of 3D model in database	
Expected Outcome: <ul style="list-style-type: none">A fallback model (gray sphere) is displayed on the pop up	
Notes: [1]. User reaches the product listing page and clicks on the 3D model button [2]. User does not see any 3D model of the product [3]. User tries again Test Result: <ul style="list-style-type: none">Product's 3D model not displayed.	

3.4. UC004: Utility for IFC file Conversion

3.4.1. TC001: Convert

Test Type: Functional	Execution Type: Manual
Objective: <ul style="list-style-type: none"> Verify the automatic conversion of IFC files to 3D model 	
Setup: <ul style="list-style-type: none"> IFC files available The Utility built and open Source of IFC files specified Select Destination type as local Destination of 3D models specified 	
Expected Outcome: <ul style="list-style-type: none"> Destination folder has the respective 3D models of file type .glb 	
Notes: <p>[1]. User places IFC files in to a folder(1)</p> <p>[2]. User starts Utility</p> <p>[3]. User specifies that folder(1) as source</p> <p>[4]. User chooses the destination folder</p> <p>[5]. User sets destination type as local</p> <p>[6]. User clicks on convert</p>	
Test Result: <ul style="list-style-type: none"> Files are converted successfully Destination folder has the 3D models of file type .glb 	

3.4.2. TC002: Convert - Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify that the files are not converted successfully	
Setup: <ul style="list-style-type: none">There are no files in the source folder or the selected folder does not have any IFC files	
Expected Outcome: <ul style="list-style-type: none">Error message stating, "The source folder does not contain IFC files. Please reset and try again".No models in destination folder	
Notes: [1]. User Starts the Utility [2]. User chooses a folder which does not contain the IFC files [3]. User chooses a destination folder [4]. User sets the destination type as local [5]. User clicks Convert [6]. User gets an Error message [7]. User repeats the process Test Result: <ul style="list-style-type: none">Utility shows the error messageDestination folder has no 3d Models	

3.5. UC005: Store 3D Model

3.5.1. TC001: Stored

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models are stored at the specified destination	
Setup: <ul style="list-style-type: none">• Utility opened• Source of IFC files specified• Destination marked as both	
Expected Outcome: <ul style="list-style-type: none">• Converted 3D models present in the S3 bucket	
Notes: [1]. User Starts the Utility [2]. User specifies the source of IFC files [3]. User specifies destination as both [4]. User clicks on convert Test Result: <ul style="list-style-type: none">• The destination (S3 bucket) has the 3D models	

3.5.2. TC002: Stored - Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify the 3D models are not present in the specified destination	
Setup: <ul style="list-style-type: none">• S3 bucket credentials are invalid• Destination (S3 bucket) has no space	
Expected Outcome: <ul style="list-style-type: none">• Error message stating “There was an exception while uploading the files to S3 bucket” followed by the reason for error• No files present in the S3 bucket	
Notes: [1]. User Starts the Utility [2]. User specifies the source of IFC files [3]. User specifies destination folder [4]. User clicks on convert [5]. User gets an Error message [6]. User repeats the process Test Result: <ul style="list-style-type: none">• Utility shows error• No 3D models stored on the S3 bucket	

3.6. Store Meta Data for Model

3.6.1. TC001: Stored

Test Type: Functional	Execution Type: Manual
Objective: Verify if the meta data is stored successfully	
Setup: <ul style="list-style-type: none">• Select source folder containing meta data txt files• Destination type selected as either local, server or both• Database specified if destination type server or both• Destination folder specified if destination type local or both	
Expected Outcome: <ul style="list-style-type: none">• text files converted to Json files and stored locally or on server or both• The parameterized data of 3D models is available	
Notes: [1]. User reaches the product details page for a product that has 3D model [2]. User clicks on parameters tab Test Result: <ul style="list-style-type: none">• The Product details page has the parameters tab containing the meta data	

3.6.2. TC002: Stored – Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify that the meta data of 3D models is not stored.	
Setup: <ul style="list-style-type: none">No text files containing meta data in the source folder	
Expected Outcome: <ul style="list-style-type: none">No parameter tab present on the product details page for a product that has 3D model	
Notes: [1]. User reaches the product details page for a product that has 3D model [2]. No parameter tab available Test Result: <ul style="list-style-type: none">No parameterized data available	

3.7. UC007: View 3D Model on Cart page

3.7.1. TC001: Models viewed

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models of the product can be accessed on the cart page	
Setup: <ul style="list-style-type: none">• Website opened and logged in• Navigate to cart page• Search for a Holyoake product using product code	
Expected Outcome: <ul style="list-style-type: none">• Pop up containing the 3D model of the product should appear	
Notes: [1]. User clicks on 3D model button	
Test Result: <ul style="list-style-type: none">• Product's 3D model visible.	

3.7.2. TC002: Models viewed - Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify if the 3D models of the products cannot be accessed on the cart page	
Setup: <ul style="list-style-type: none">Remove the model from the S3 bucket and/or set Invalid URL of 3D model in database	
Expected Outcome: <ul style="list-style-type: none">A fallback model (gray sphere) is displayed on the pop up	
Notes: [1]. User reaches the cart page, add Holyoake product and click the icon [2]. User does not see any 3D model of the product [3]. User tries again Test Result: <ul style="list-style-type: none">Product's 3D model not displayed.	

3.8. UC008: View parameterized data of the 3D Model

3.8.1. TC001: Parameterized Data Viewed

Test Type: Functional	Execution Type: Manual
Objective: Verify if the parameterized information of the model can be displayed	
Setup: <ul style="list-style-type: none">• Website opened and logged in• Navigate to product listing page• Select the Holyoake category• Navigate to the sub category Swirl Diffusers from Holyoake• Select a product with available 3D model	
Expected Outcome: <ul style="list-style-type: none">• Parameters tab contains the parameterized data	
Notes: [1]. User clicks on product [2]. User clicks on parameters or specifications	
Test Result: <ul style="list-style-type: none">• Parameters of the product are displayed	

3.8.2. TC002: Parameterized Data Viewed - Unsuccessful

Test Type: Functional	Execution Type: Manual
Objective: Verify that the parameterized data isn't visible or available	
Setup: <ul style="list-style-type: none">No meta data present in the database	
Expected Outcome: <ul style="list-style-type: none">Parameters tab not available	
Notes: [1]. User clicks on product that has 3D model [2]. User does not find parameters tab on the product details page for that product	
Test Result: <ul style="list-style-type: none">No parameterized data available	

3.9. UC009: View Multiple Models for the product

3.9.1. TC001: Multiple models viewed

Test Type: Functional	Execution Type: Manual
Objective: Verify if multiple models of a product can be viewed	
Setup: <ul style="list-style-type: none">• Website opened and logged in• Navigate to product listing page• Select the Holyoake category• Navigate to the sub category Swirl Diffusers from Holyoake• Select a product with available 3D model	
Expected Outcome: <ul style="list-style-type: none">• Multiple models of a product available on Image Viewer	
Notes: [1]. User clicks on various 3D model icons on the on the Image Viewer	
Test Result: <ul style="list-style-type: none">• Multiple models displayed successfully.	

3.10. UC010: Add to cart button in order history page

3.10.1. TC001: product added to cart

Test Type: Functional	Execution Type: Manual
Objective: Verify if the product on order history page be added to cart	
Setup: <ul style="list-style-type: none">• Website opened• Navigate to order history• Select an order from the list	
Expected Outcome: <ul style="list-style-type: none">• Product added to cart• Notification stating “Product was successfully re-added to the cart” displayed	
Notes: [1]. User clicks on add to cart button	
Test Result: <ul style="list-style-type: none">• Product added to the cart	

4. Entry Data

4.1. Login Data

Description: This data represents the login details required to access the website	
Field	Value
Username	user1
Password	squizz

4.1. Product Barcode Data

Description: This data is to be used on the Order page when searching for products using a product barcode(s)	
Field	Value
Barcode	933044000895
Barcode	3086123291348

4.2. Product Code Data

Description: This data is to be used on the Order page when searching for products using a product Code(s).	
Field	Value
Product Code	CFP-600-12-LPP-150
Product Code	CFP-600-20-P-150

4.3. IFC File Data

Description: This dataset is used by the IFC Convert Utility to convert the IFC files to 3D models	
Data	Value
IFC files	.ifc format files

4.4. 3D Model Parameter Text File

Description: This dataset is used by the IFC Convert Utility to convert the Text files that has parameterized information into JSON files	
Data	Value
Parameter Text Files	.json files

5. Traceability Matrix

	Reqs Tested	UC 1	UC 2	UC 3	UC 4	UC 5	UC 6	UC 7	UC 8	UC 9	UC 10
Test Cases	31	4	4	4	2	3	2	4	3	4	1
3.1.1	1	X									
3.2.1	3	X	X							X	
3.2.2	1		X								
3.3.1	1			X							
3.3.2	1			X							
3.4.1	7	X	X	X	X	X		X		X	
3.4.2	1				X						
3.5.1	6	X	X	X		X		X		X	
3.5.2	1					X					
3.6.1	2						X		X		
3.6.2	1						X				
3.7.1	1							X			
3.7.2	1							X			
3.8.1	1								X		
3.8.2	1								X		
3.9.1	1									X	
3.10.1	1										X