System and Software Architecture Description (SSAD)

Yanomamo Interactive CDROM

Team [06]

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USC-CSSE

Version History

Date	Author	Version	Changes made	Rationale
13/16/10	Shruti	1.0	Auto-generated from VP-UML	Initial SSAD for FC Package
13/23/10	Shruti	2.0	Added Sequence, Hardware, Software Component, Deployment, Requirement Diagrams and Requirements & Use-Case Grids.	SSAD for DC Package
13/1/12	Shruti	3.0	Added Artifacts and Information Diagram, made changes to Deployment, Hardware, & Software Component Diagrams according to new Client Requirement, and added NDI/NCS interoperability section.	SSAD for draft TRR Package

Table of Contents

ntroduction	
4	

Table of Figures

Introduction

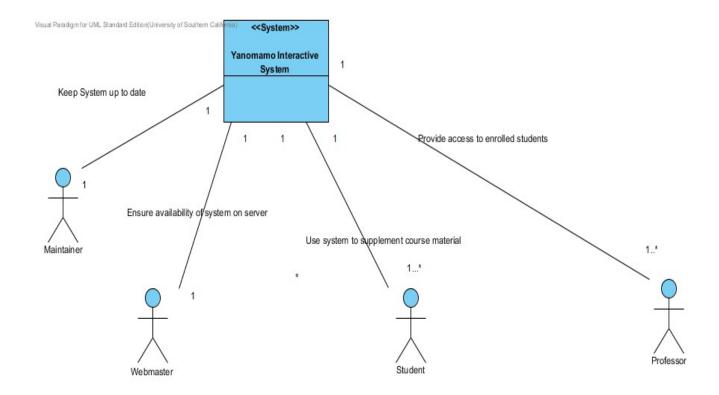
Purpose of the SSAD

The purpose of this document is to analyze and design the architecture of the Yanomamo Interactive web page system and also evaluate the interoperability of the various COTS used as a part of development of the system.

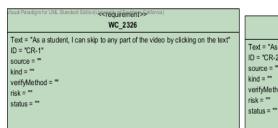
Status of the SSAD

The version no. of this SSAD is 3.0 and it is different from the previous version, due to certain changes such as: addition of Artifacts and Information Diagram after evaluation of DC Package and changes in Deployment, Hardware, & Software Component Diagrams, according to increase in priority of Client Requirement of deployment on DVD, and addition of NDI/NCS interoperability section.

System Context Diagram

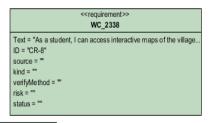


Requirement Diagram



< requirement>> WC_2332 Text = "As a student, I can view vital statistics of people in the video by clicking his/her name on the text and then display an identifying marker on the video " ID = "CR-2" source = " kind = " verifyMethod = " risk = " status = "

<pr



```
Text = "As a student, I can view transcripts of the TBM. Rolling Text."

ID = "CR-7"
source = "
kind = "
verifyMethod = "
risk = "
status = ""

</requirement>>
WC 2327
```

WC_2334

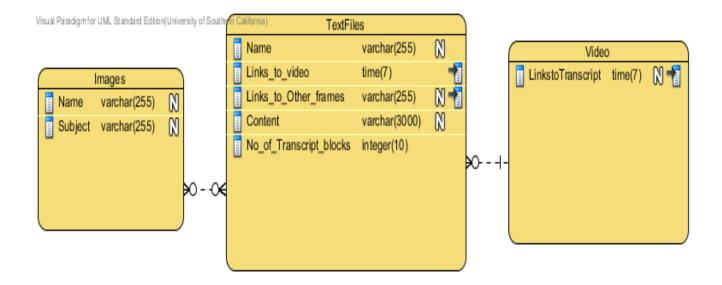
WC_2327
Text = "As a student, I can play/pause/resume of videos ID = "CR-6" source = " kind = "" verifyMethod = "" risk = "" status = ""

Requirements Grid

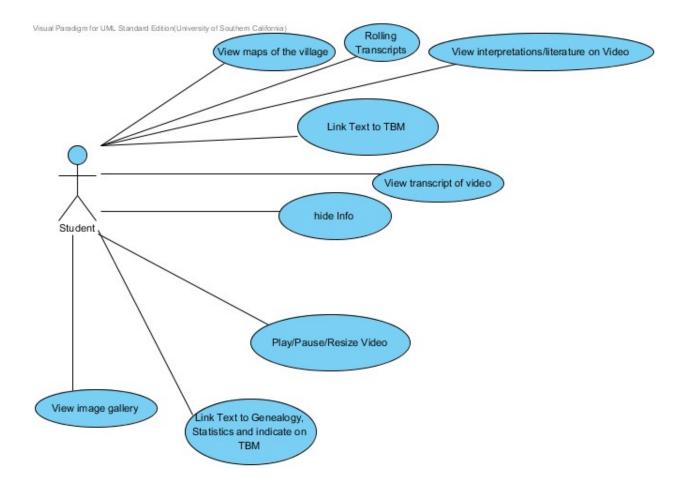
ID	Name	Documentation
CR-1	WC_2326	As a student, I can skip to any part of the video by clicking on the text
CR-2	WC_2332	As a student, I can view vital statistics of people in the video by clicking his/her name on the text and then display an identifying marker on the video
CR-3	WC_2324	As a professor, I can index genealogies to improve students' recognition of kinship ties. Link to names
CR-4	WC_2779	As a student, I can hide the genealogy and statistical information frames.
CR-5	WC_2328	As a student, I can resize the video to full screen
CR-6	WC_2327	As a student, I can play/pause/resume of videos to improve the learning environment. Optionally, I can control the speed of the video
CR-7	WC_2334	As a student, I can view transcripts of the TBM. Rolling Text.
CR-8	WC_2338	As a student, I can access interactive maps of the village in the video so that I know where people are in relation to others and geographically in relation to the rest of the world
CR- 09	WC_2335	As a student, I can view alternative interpretations by anthropologists (Chagnon) of the TBM/texts/literature/research papers

Artifacts & Information Diagram

The artifacts & information, in this system are the various kinds of text files like transcripts, statistics, etc. and video, and image files. Each of these data files, have certain properties associated with them such as name, subject, links, etc. and hence, can be considered as artifacts. They are linked to each other with hyperlinks.



Behaviour



Use-Case Descriptions

Link Text to TBM

Main				
Use Case	UC01:Link Text to TBM			
Requirements	_	2326: As a student, I can skoart of the video by clicking o	•	
Purpose		To allow students to easily view, understand and analyze the events described in the text by loading the specific portion of the video, that the text is referring to.		
Preconditions		Video and Transcripts are loaded in the homepage.		
Post-conditions	Student can view portion of video, referred to by text.		Ο,	
Flow of Events		Actor Input	System F	
	1	Student clicks on any word in any paragraph in the transcript		
	2		Jump to frame in	

Link Text to Genealogy, Statistics and indicate on TBM

Main				
Use Case		UC02:Link Text to Genealogy, Statistics and indicate on TBM		
Requirement	WC_2332 As a student, I can view vital statistics of people in the video by clicking his/her name on the text and then display an identifying marker on the video WC_2324 As a professor, I can index genealogies to improve students' recognition of kinship ties. Link to names			
Purpose		To allow students to understand relationships between tribe members, recognize key individuals in the video, and their demographic information.		
Preconditions	Homepage, video and interactive transcript load			
Post-conditions	and	Genealogy, statistics frames displayed and tribe member highlighted in video. Hide info button option is made available.		
Flow of Events		Actor Input	System R	
	1	Student clicks on tribe member name in the transcript.		
	2		Display (Statistics tribe mer display a identifyin video.	

Exceptional Course of Action				
Flow of Events		Actor Input	System F	
	1	Student clicks on tribe member name in the transcript.		
	2		images f	the files or or genealogy , do not load, rror message

hide Info

Main	
Use Case	UC03: Hide Info
Requirements	WC_2779 : As a student, I can hide the genealogy and statistical information frames.
Purpose	To provide an option to the student to hide the genealogy and statistical information, if he/she wants to concentrate only on the video and the transcripts, at the moment.
Preconditions	The genealogy and statisctical frames are displayed on the home page.
Post-conditions	Genealogy and statistical information is hidden from the student.

Flow of Events		Actor Input	System F	
	1	Student clicks on hide info button.		
	2		Hides the statistics	e genealogy a frames.

Play/Pause/Resize Video

Main	
Use Case	UC04: Play/Pause/Resize Video
Requirement	WC_2328 As a student, I can resize the video to full screen WC_2327 As a student, I can play/pause/resume of videos to improve the learning environment. Optionally, I can control the speed of the video
Purpose	To allow students to control the video as they are watching it, according to their needs.
Preconditions	Homepage and video loads
Post-conditions	Video is either playing or paused, or resized to full screen.

Flow of I	Events		Actor Input	System F	
		1	Student clicks on play, or pause, or resize buttons of video player.		
		2		paused,	olayed, or is or is made to I screen mode

View transcript of video

Main	
Use Case	UC05: View transcript of video
Requirement	WC_2334 As a student, I can view transcripts of the TBM.
Purpose	To widen student's understanding of events in the video
Preconditions	Homepage and Video loads
Post-conditions	Trancript loads

Flow of Events		Actor Input	System F	
	1	Student opens Yanomamo Home page		
	2		Transcrip loads	t for Video
		•	•	

View interpretations/literature on Video

Main				
Use Case		UC06: View interpretations/literature on video		
Requirements		WC_2335 As a student, I can view alternative interpretations by anthropologists (Chagnon) of the TBM/texts/literature/research papers		
Purpose	cont	To widen students' understanding of the context of events by reading different analyses, and interpretations.		
Preconditions	Hom	Homepage, video, transcript loads.		
Post-conditions	Inter	Interpretations/ Literature page loads.		
Flow of Events		Actor Input	System F	
	1	Student clicks on the Interpretations/Literature link in home page		
	2		Displays interpreta /Literatu	
			1	

View maps of the village

Use Case Descriptions

Main				
Use Case	UC0	UC07 : View Maps of the village		
Requirements	video so	WC_2338 As a student, I can access interactive maps of the village in the video so that I know where people are in relation to others and geographically in relation to the rest of the world		
Purpose	from	To allow students to gain perspective from the geography/location of the Yanomamo tribe.		
Preconditions	Hom	Homepage loads.		
Post-conditions	Stati	Static Map of the tribal village loads.		
Flow of Events		Actor Input	System F	
	1	Student clicks on the link for the map of the village		
	2		Display s tribe's vil	
	2	for the map of the village		

View image gallery

Main	
Use Case	UC08: View image gallery
Requirements	WC_2331 As a student, I can view just the image gallery of stills (people, maps, chart, tables)
Purpose	To allow students to understand the tribe better with additional information in the form of images and to provide separate and easy access to only the stills.
Preconditions	Homepage loads

Post-conditions	The load	page containing the image g s.		
Flow of Events		Actor Input	System F	
	1	Student clicks on the image gallery link on the home page		
	2		Display i page.	mage gallery

Rolling Transcripts

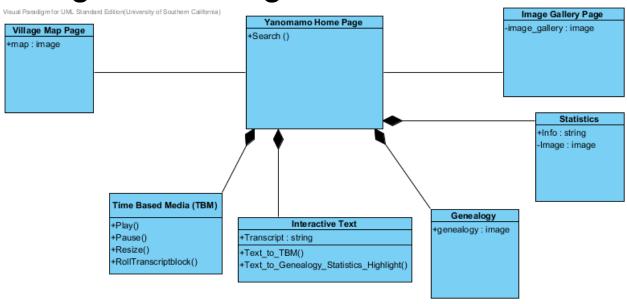
Main	
Use Case	UC09: Rolling Transcripts
Requirements	WC_2334: As a student, I can view transcripts of the TBM. Rolling Text.
Purpose	The student can click on any point in the video, and be able to see the corresponding transcript block, narrating that portion of video, so as to make the application more user friendly.
Preconditions	Video frame of homepage has loaded and video is playing.
Post-conditions	Corresponding transcript block displayed in interactive transcript frame of home page.

Flow of Events		Actor Input	System F	
	1	Student clicks on a point in the video on the control bar.		
	2		correspo time of v	ranscript bloc nding to that deo, in t frame of hon

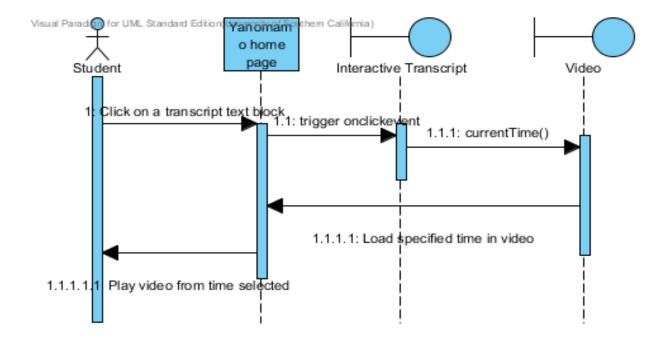
Use Cases Grid

ID	Name	Primary Actors	Supporting Actors
UC01	Link Text to TBM	Student	
UC02	Link Text to Genealogy, Statistics and indicate on TBM	Student	
UC03	hide Info	Student	
UC04	Play/Pause/ Resize Video	Student	
UC05	View transcript of video	Student	
UC06	View interpretatio ns/literature on Video	Student	
UC07	View maps of the village	Student	
UC08	View image gallery	Student	
UC09	Rolling Transcripts	Student	

Design Class Diagram

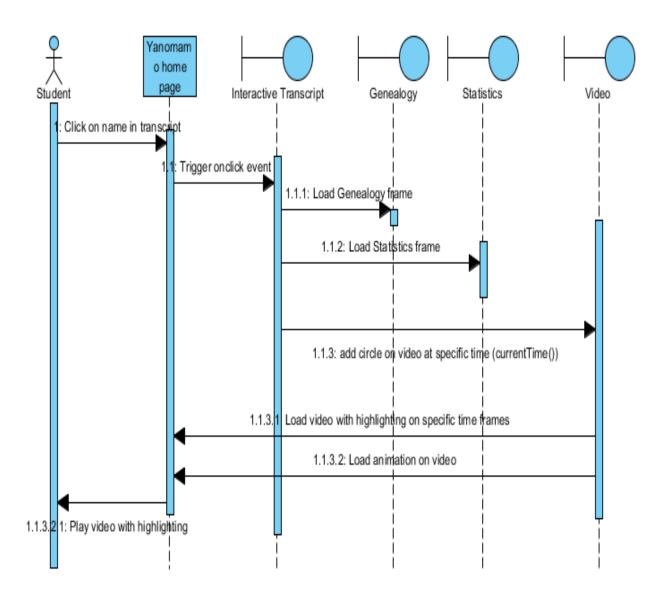


Link Text to TBM Sequence Diagram

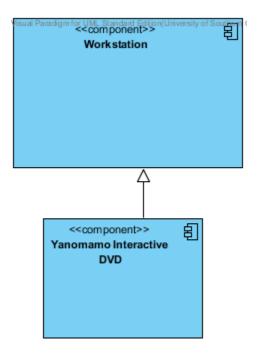


Link Text to Genealogy Statistics, and Highlight on TBM Sequence Diagram

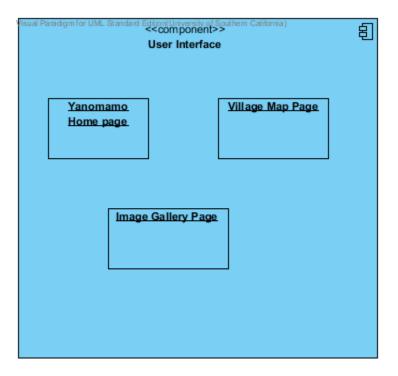
Jual Paradigm for UML Standard Edition(University of Southern California)



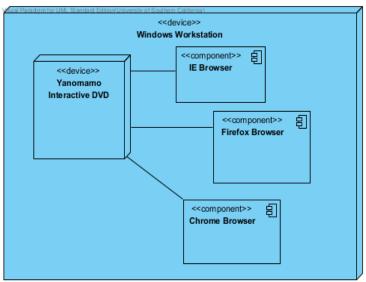
Hardware Component Diagram

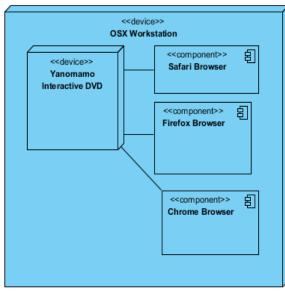


Software Component Diagram



Deployment Diagram





NDI/NCS Interoperability Analysis

Introduction

The libraries we are using, are needed for separate, independent features and hence, do not interact with each other.

COTS / GOTS / ROTS / Open Source / NCS

<< Identify all candidate commercial off-the-shelf, government-off-the-shelf, research-off-the-shelf, open source software, libraries, and net-centric services component that you are using/ plan to use. Also identify the purpose of each component. >>

Table: NDI Products Listing

NDI/NCS Products (COTS)	Purposes
Popcorn.js	Link text to video and video to text, to jump to a specific portion of video on clicking the text or jump to specific transcript block on clicking on a specific time point on the control bar in video.
Kinetic.js	Link text to specific individual in video i.e. (video overlay animation)
Kinetic-viewport.js	Zooming and Panning of images and maps.
menucool js-image-slider	Image gallery functionality

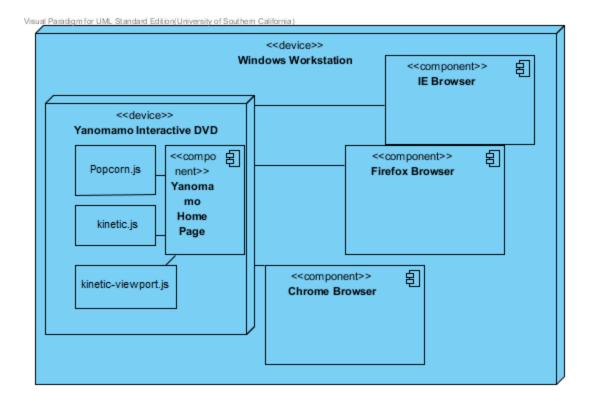
Connectors

There are no connectors, since there is no interaction between the COTS used.

Legacy System

The client uses an apple workstation, and hence the libraries used, have to be compatible with Safari browser.

System Structure



The system structure is similar for a mac osx workstation with the exception an in-built safari browser, instead of an IE browser.

Evaluation Summary

Table: NDI Evaluation

NDI Usages Comments

Popcorn.js	Provides the currentTime() method which is a useful function to link the vieo with text and vice-versa.	Positive Points - Ease of usage - Helps to develop one of the major or critical feature required by client and which comprises of 50% of the entire system functionality. Negative Points - Does not have functionalities to implement all features of system
Kinetic.js	Allows to create animation on video to pinpoint an individual, after clicking on his/her name in the transcripts, using the layer shape functions.	Positive Points - Ease of development of feature. - Important feature for client can be realized. Negative Points - No negative points.
Kinetic-viewport.js	Allows zooming and panning of genealogy tree image	Positive points - Ease of use - Helps make the system more, user friendly. Negative Points - None
menucool js-image- slider	Allows user to slide through images on the image page.	Positive points - Ease of use - Helps make the system more, user friendly. Negative Points - Image size has to be consistent for the functionality to work.