

# SOFTWARE DESIGN DOCUMENT

**GROUP-8** 

CS-243

# **LANDSLIDE SIMULATION APP**

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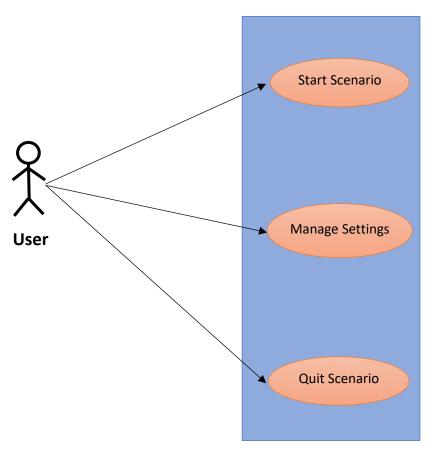
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# **INDEX**

1)USE case diagram	2
2)Dataflow diagrams i)Level 0 DFD	5 5
ii)Level 1 DFD	6
iii)Level 2 DFDs	7
3)Data dictionary	10
4)Process Decomposition Diagram	12
5)Entity Diagram	13

### **USE CASE DIAGRAM**



## **U1: Start Scenario:**

Using this use case, the player starts experiencing the scenario

#### **Scenario 1: Mainline Sequence**

1. User : select "Start Scenario" option

2. System : displays options to select terrain

3. User : selects the "Terrains" from the options

4. System : displays options to select initial position

5. User : selects the "Initial position" from the options

6. System : displays Start button

7. User : Press "Start" button when ready to start the scenario

8. System : Starts the scenario by generating the video and audio using the

terrain and initial position selected by the user

9. User : moves his head in different directions

10. System : display of video and amplifies audio of objects present in the direction in

which the user moves his head and displays virtual menu once the video is

finished and also produces vibrations

11. User : Selects "Back to Main Menu" option

12. System : Ends the current scenario and returns to the Main Menu.

#### Scenario 2: at step 9 of mainline sequence

1. User : Selects "Pause" option

2. System : displays "Virtual menu"

#### Scenario 3:at step 9 of mainline sequence

1.User : Selects "Run" option

2.System : displays a message "Run mode is on "

3.User : moves his head in the direction in which he wants to run

4.System : moves the user in the direction in which he moves his head and also

displays pop up messages like "You are in danger zone", audio and

vibrations are also produced whose degree depends on based on user

position.

#### Scenario 4:at step 11 of mainline sequence

1.User : Selects "Resume" option.

2.System : Resumes the scenario from where it is paused.

#### Scenario 5:at step 11 of mainline sequence

1. User : Selects "Restart" option.

2. System : Restarts the scenario from beginning.

### **U2: Manage Settings:**

Using this use case, the user can manage the scenario environmental variables like sounds and see an Instruction manual.

#### **Scenario 1: Mainline Sequence**

1. User : "selects Settings" option

2. System : Displays a sub-menu containing the following

1. "Sound": to allow the user to adjust the volume.

2. "Instructional manual": to lead the user to interactive session to teach how the movements can be done in the virtual world.

3. "Rainfall": allows the user to enable or disable rainfall in the scenarios.

4. "Main Menu": returns the user to main menu

3. User : Selects one of the four options.

4. System : if the player selects

1. "Sound": displays a side bar to increase/decrease the volume

2. "Instructional manual": open an interactive session where the player is asked to make moves upon instructions

3. "Rainfall": displaying an on/off button deciding whether there should be rainfall or not

4. "Main menu": returns user to main menu

#### U3: Exit Game:

Using this case, the user can exit from the game

#### **Scenario1: Mainline Sequence**

1. User : Selects "Exit" option

2. System : Asks the user if he/her is sure to exit the application

3. User : select "Yes" option

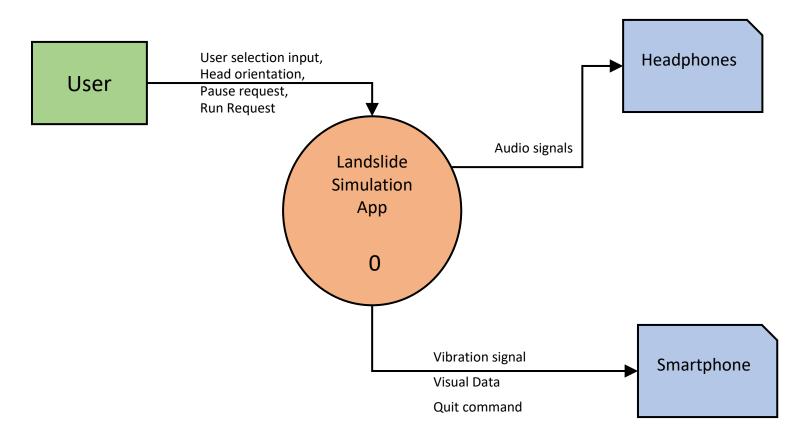
4. System : Moves the user out of application

#### Scenario 2:at step 3 of mainline sequence

1. User : Selects "No" Option

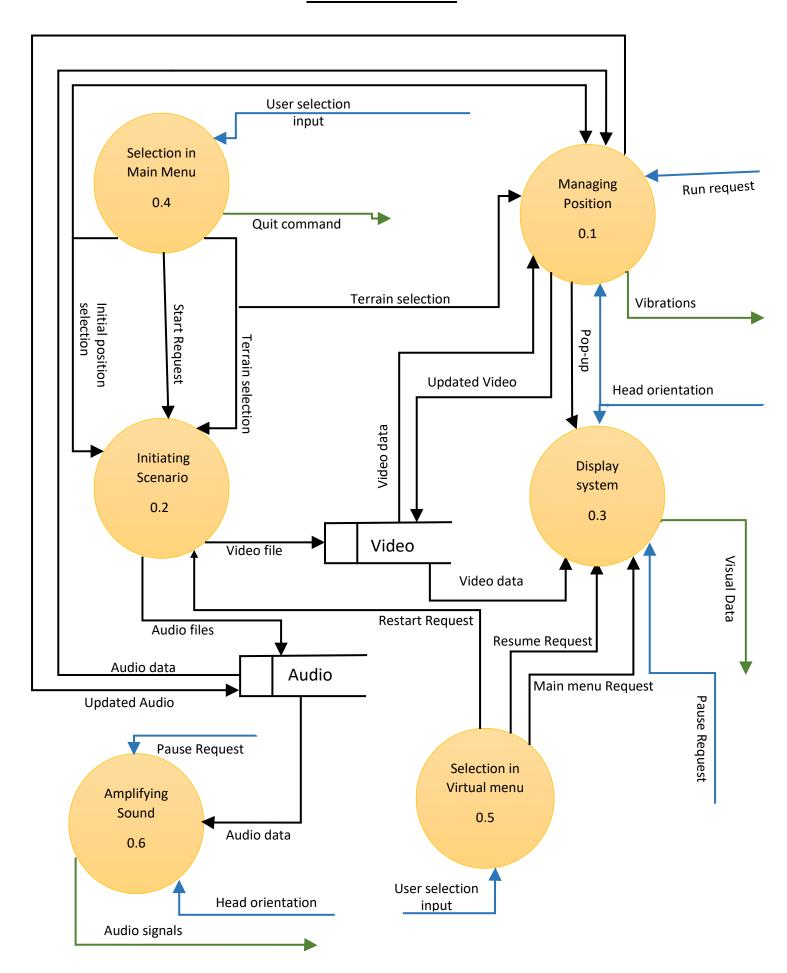
2. System : Stay in the "Main Menu"

# **DATAFLOW DIAGRAMS**



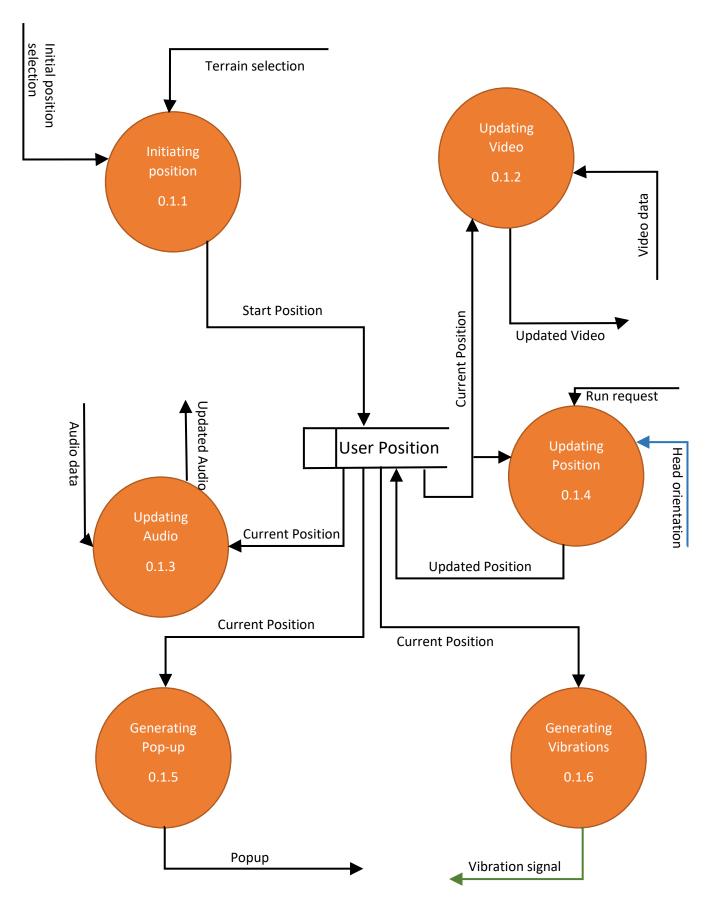
LEVEL - 0 DFD

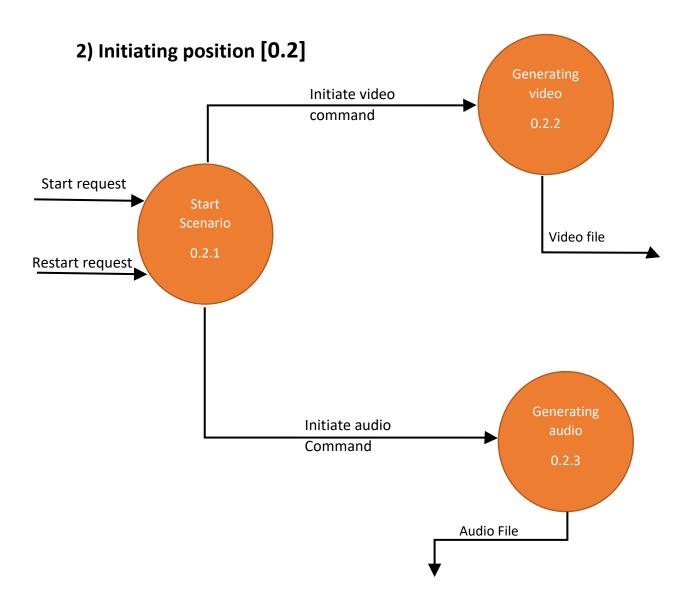
### LEVEL - 1 DFD



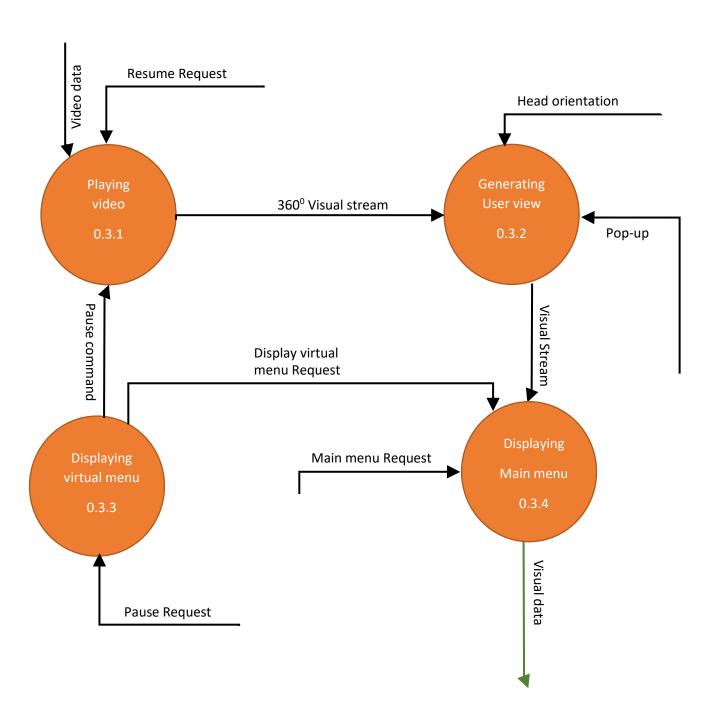
## LEVEL - 2 DFDs

# 1) Managing position [0.1]





# 3)Display system [0.3]



# **Data Dictionary:**

**USER SELECTION INPUT** : angle with X-axis + angle with Y-axis +

angle with Z-axis + select request

**TERRAIN SELECTION** : integer /\*1 if user selects terrain-1, 2 when user

selects terrain-2 and 0 when user has not selected\*/

**INITIAL POSITION SELECTION**: integer /\*1 if user selects position-1, 2 when user

selects position-2 and 0 when user has not selected\*/

**START REQUEST** : Boolean /\*1 on start request otherwise 0.\*/

**RESTART REQUEST** : Boolean /\*1 on restart request otherwise 0.\*/

PAUSE REQUEST : Boolean /\*1 on pause request otherwise 0.\*/

**HEAD ORIENTATION** : angle with X-axis + angle with Y-axis +

angle with Z-axis

**RESUME REQUEST** : Boolean /\*1 on resume request otherwise 0.\*/

**AUDIO DATA** : mp3 format file + start time + end time + Left-volume

+ Right-volume /\* Multiple files of audio each

associated with start time and end time and their

volume in left and right earpiece are transferred\*/

VIDEO DATA : Video file mp4 format

**UPDATED AUDIO** : mp3 format file + start time + end time + Left-volume

+ Right-volume/\* Multiple files of audio each

associated with start time and end time and their

volume in left and right earpiece are transferred\*/

**UPDATED VIDEO** : Video file mp4 format

**360° VISUAL STREAM** : images /\*series of images\*/

VISUAL DATA : images /\*series of images\*/

**AUDIO SIGNAL** :/\*audio signals to headphones\*/

**VIBRATION SIGNAL**: integer /\*0 for no vibration, 1 and 2 for light and

severe vibrations respectively. \*/

**INITIATE AUDIO COMMAND**: Boolean

/\*on command value becomes 1, otherwise is 0\*/

**INITIATE VIDEO COMMAND**: Boolean

/\*on command value becomes 1, otherwise is 0\*/

**CURRENT POSITION** : X-coordinate + Y-coordinate + Z-coordinate

**RUN REQUEST** : Boolean /\*becomes 1 when user requests to run and

otherwise is 0. \*/

**POP-UP** : String of data that need to be displayed\*/

ANGLE WITH X-AXIS : float /\* float between 0 and 360\*/

ANGLE WITH Y-AXIS : float /\* float between 0 and 360\*/

ANGLE WITH Z-AXIS : float /\* float between 0 and 360\*/

X-COORDINATE : float

Y-COORDINATE : float

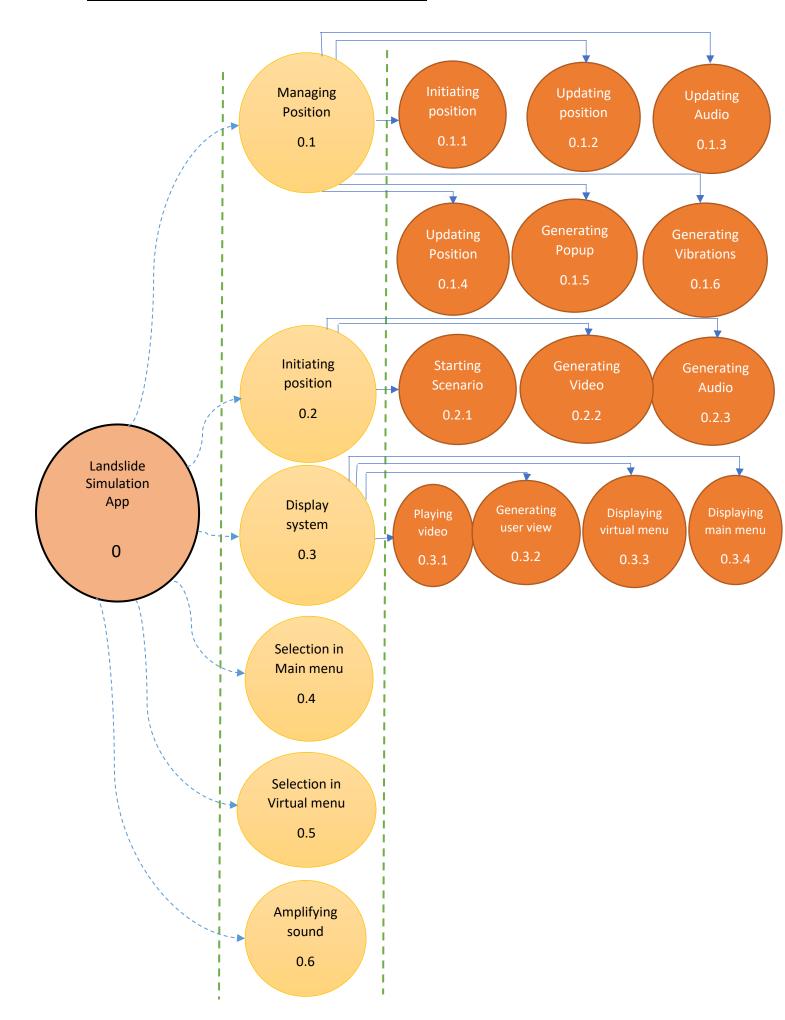
**Z-COORDINATE** : float

**IMAGE** : integer 2-D matrix

**SELECT REQUEST** : Boolean /\* becomes 1 when user requests to select

and otherwise is 0. \*/

# **Function Decomposition Diagram:**



# **Entity Relationship Diagram:**

