

# **Deliverable G - Prototype II and Customer Feedback**

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**Group 01**

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## **Abstract**

*This report further improves the project's gameplay based on feedback from all teams at Client Meeting 3, with a greater focus on showcasing multiple natural disaster events over an extended period. The project now incorporates research to establish scientifically accurate timelines and locations, illustrating gradual environmental changes. This report details the development process of Prototype II, testing methods, challenge encountered, the solutions, and plans for Prototype III.*

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## **1.0 Prototype II Design**

### **Client feedback giving during presentation:**

Make our story/main idea more specific to demonstrating how climate change is directly linked to the increase in frequency of forest fires

### **Objective of Prototype II:**

The objective of prototype II is to gain valuable feedback from the clients and to make any changes necessary before finalizing our main idea. This prototype is also important to testing important features we will need to include in the VR, if any problems are encountered, we will have enough time to seek help from TA's or other sources to adequately meet deadlines. Also, because our budget is very limited; \$25, we need to make sure all the key features we will include will be under this budget.

### **How we plan to make changes to improve our current prototype:**

In our second prototype, we made a slight adjustment to the game progression so that it better reflects the feedback given by the clients. Our story now directly relates to three real fires that happened, each one showing how climate change has affected forest fires over time. In addition, we will build a first-person camera, player movement controls, and implement a large forest into this prototype.

## **1.1 Gameplay Section**

### **Changes**

#### **Level 1:**

The user is now a wildland firefighter.

- The user starts the experience in a dense forest
- A small forest fire breaks out
- A prompt instructs them to cut down trees using an interactive axe in order to stop the spreading of the fire  
They must cut a line or section of trees to stop the spread
- This first level will be the least intense fire, lower temperature, and spreads very slowly
- Rough run time limit of 1 minute (subject to adjustment.)

### **Level 2:**

- The user is once again faced with a fire that they must control the spread of to save the forest.
- Very similar to the first level except, the fire they are tasked to contain will reflect a more intense fire, slightly higher temperature and faster traveling.

### **Level 3 (if time permits):**

- The prompts will all be the same as previous ones
- The fire in the final level will be the most intense fire that is depicted in the simulation.
- It will reflect the most recent forest fires that have occurred in California
- This level will have prompts creating some chaos and enhancing the sense of urgency.
- It will be very difficult to contain this fire, almost impossible to pass the level.

### **Informative section:**

- After the completion of the game, there will be a short informative sequence, that will explain that just like progression of the levels, forest fires are evolving because of climate change.
- It will explain

## **1.2 Control Display**

Here is our Prototype II scene:

[https://drive.google.com/file/d/1TsLsJMzKApMteZvszCti\\_x8gPB-UJOXM/view?usp=sharing](https://drive.google.com/file/d/1TsLsJMzKApMteZvszCti_x8gPB-UJOXM/view?usp=sharing)

## **2.0 Analysis and Feedback**

This section will describe the development process of Prototype II, the challenges encountered and solutions when using Unity.

## **2.1 Prototype II Development**

- Player Control: Directional controls that allow the player to move, run and jump.
- Camera Control: Drag the camera into the player object as a sub-item and use C# to program the camera in first person perspective.
- Forest: Building the main background environment.

## **2.2 Challenges and Solutions**

Since none of us had any experience with Unity and programming, the whole project was very challenging for us. In Prototype II, we encountered many problems in programming the camera and player control.

**Overall solution:** To overcome these problems, we plan to meet in person as a team and to contact out TAs for us to be able to meet our deadlines in a timely manner.

### **Camera Control [1]**

The first approach I used was to add a script directly to the main camera to try to make the camera follow the player. However, when I started running the camera did not follow the player object.

Solution:

I dragged the main camera into the player object and made it a child of the player object. Find the transform in the Inspector, right click the transform and reset it, and the camera will return to the player object. After a slight position adjustment, you can write the script.

### **Player Control**

After I wrote the script, many bugs popped up, such as capitalization issues and spelling issues. When I fixed them all and clicked play, the player still couldn't move. Also, some configurable variables programmed in the script do not appear in the Inspector.

Solution:

After I checked the tutorial, I realized it was a scripting issue and that I hadn't drag the player object into the player variable, which was also a reason why the camera wasn't working. In addition, I also added gravity using ground Check.

### **Box Collider**

After the script was written and ran successfully, I found that the player would pass through some objects. I had set all the environments to the ground layer, but it didn't work.

Solution:

I asked my friend and learned that it was a Box Collider problem because some assets did not have a Box Collider added to them. Use Shift and left click to select all assets that need to have a Box Collider added, click "add component", and add "Box Collider".

### **2.3 Time Spent**

Although I never touched the script before, it took much less time to write it than to build the scene. The scene was built intermittently over the past week, while the script took two nights to complete.

### **2.4 Tests**

This prototype is mainly to test the operation of controls of the script:

*Table 1: Prototype II Testing*

	<b>Status</b>	<b>Notes</b>
<b>Player Control</b>	Success	Run successfully, and you can change the values of Move Speed, Jump Speed, Ground Check and Gravity in the Inspector.
<b>Camera Control</b>	Success	Run successfully and can follow the direction of mouse movement.

<b>Box Collider</b>	Failed	The solution has been mastered. Will add box collider when the scene details are complete built.
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### 3.0 Prototype III Test Plan

- Scripts for player actions
- User interface (including thermometer and hygrometer)
- Forest fire scene
- Confirm box collider works

### 4.0 Project Schedule Plan

The improved Project Schedule Plan ensures a structured yet adaptable approach to task management. While our schedule remains flexible, we are committed to completing tasks in a timely manner and avoiding leave it to last minute.

*Table 2: Plan for Tasks that need to be completed*

Tasks	Estimated duration (due date)	Name of the responsible	Notes
<b>Fire Scene</b>	2 weeks (Mar.18)	J.D.	Make a new scene, add the fire to the environment we already build.
<b>User Interface</b>	1 week (Mar.16)	O.O.	User interface, include the gauge system for temperature.
<b>Player Actions</b>	1 week (Mar.16)	T.Z.	The cutting animation when user cutting trees.



<b>Box Collider</b>	1 day (Mar.16)	T.Z.	Prevent users from walking through objects.
<b>Voice Line</b>	3 days (Mar.20)	M.B.	Recorded voice line for character.
<b>Extra Info. Sheet</b>	3 days (Mar.20)	R.K.	A QR code include more information of the effect of global warming and wildfire.

## 5.0 Resources

[1] <https://www.youtube.com/watch?v=f473C43s8nE&t=336s>

[2] <https://www.youtube.com/watch?v=GzLKfbch3oU>

[3] <https://www.youtube.com/watch?v=qQLvcS9FxnY>

[4] <https://www.youtube.com/watch?v=izEpXajRGmw>

## 6.0 Task Separation Table

Sections	Author(s)	Editing
<b>Abstract</b>	T.Z.	-
<b>Prototype II Design</b>	M.B.	T.Z., J.D., R.K
<b>Analysis and Feedback</b>	T.Z.	-
<b>Prototype III Test Plan</b>	T.Z.	-
<b>Project Schedule Plan</b>	T.Z.	-

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