Burning Bear™

Prescribed Burn Training Program

Lisa Revelli
Product Designer

Burning Bear Design Concept
2019

Burning Bear™

Prescribed Burn Training Program

What is **Burning Bear**™?

'Burning Bear' is a fire control burn simulation training platform using virtual reality technology. The goal is to immerse a firefighter in a virtual environment in which they can practice his/her knowledge of developing a fire control burn plan, assess its environment & weather conditions, execute the burn plan.

The firefighter trainee must learn the procedures and after feel confident, competent, and experienced with basics of burning.The idea of creating 'Burning Bear' came from several factors that have recently developed within the last 3-4 years.

Wildland fires are becoming more frequent and aggressive, it was reported by the Insurance Information Institute that by December 18, 2020 there were about 57,000 wildfires compared with 50,477 in 2019.

The method of fire prevention or wildland fire mitigation is using fire control burn methods - fighting fire with fire. Prescribed fire burns the fire's fuel before it spreads uncontrollably. Interviews I conducted with CalFire, and other state and local firefighters are stating their needs to have more 'burn' training opportunities for experienced firefighters as well as novice firefighters. Their needs are not being met because of land scarcity, coordination, and ideal weather conditions for safe training. It is dangerous to learn on the job.

A VR simulation training can give affordance to complete tasks as if in a real life environment. Elementary inputs for fire behavior on a certain fuel (grass) model can replicate a real wildlife fire. VR simulation training platforms can be easily accessible to all firefighters at their stations or at a nearby training center. They can burn up an area and do it all over again the next day. 'Burning Bear' is a very cost effective way to prepare firefighters to do their jobs well and to keep them safe.

1

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

Who is the End-User?

William or 'Will' is a 42 year old firefighter who wants to be certified as a wildland burner, and eventually lead a crew as a 'Burn Boss' (BB) in prescribed fire   control burn operations. Besides his career goal of being a BB, he desires to be experienced and confident when he leads a crew to mitigate an out-of-control wildland fire. Will knows live firing can be dangerous for him and his crew especially with the dryer climate and shifting weather conditions.

Name William - 'Will'

Age 30-42 Year old

Occupation Career FireFighter

Location Stationed in suburban and rural areas of California

Rank Fire Captain, Battalion Chief

Skills
- Fire intervention planning and extinguishing
- Vehicle extraction
- Coordinate multiple emergency response teams
- Mitigate wildfires using NWCG procedures
- Medical response
- Manage initial attack response, teams strike team leaders

Tasks
- Develop a burn plan & escape contingency plan
- Implement environment & weather conditions
- Execute burn plan
- Conduct post-event review of plan, operations, and coordination of burners.
-

Attitudes, Beliefs, Values
- Train for varying fire or disaster scenarios
- Learn by mistakes
- Have stamina, commitment, good training, practice of skill sets
- Must be in sync with crew members & chiefs
- Safety first

Past Experiences
- State & local government fire departments
- Structures fires, wildland fire
- Led strike teams & tactical planning

End Goals
- Certified as a wildland 'burner'
- Burn Boss

Experience Goals
- Varied, unexpected live fire training incidents
- More hands-on live firing operations
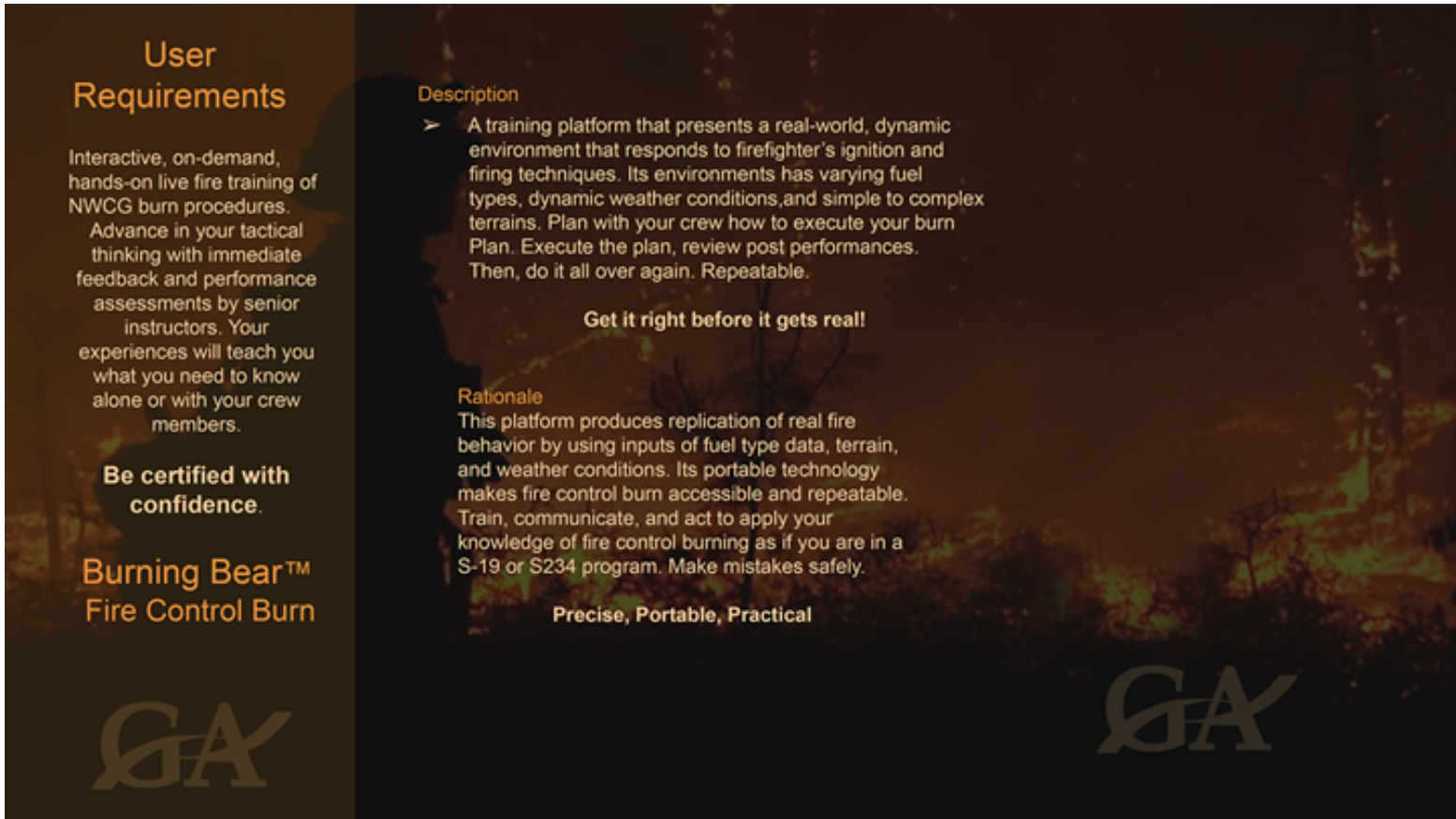- Switching roles
- Heuristic experiences

Successes
- Put academic knowledge to the test - 'being able to lay down a fire line, control it, and let it burn out'
- Feel confident , more knowlegable, and more experienced

Frustrations
- Very infrequent live hands-on training sessions
- Current hands-on training is a limited experience. 24-36 hours.

GA
Guardian Airwaves

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

User Requirements

Interactive, on-demand, hands-on live fire training of NWCG burn procedures. Advance in your tactical thinking with immediate feedback and performance assessments by senior instructors. Your experiences will teach you what you need to know alone or with your crew members.

Be certified with confidence.

Burning Bear™ Fire Control Burn

Description

➤ A training platform that presents a real-world, dynamic environment that responds to firefighter's ignition and firing techniques. Its environments has varying fuel types, dynamic weather conditions, and simple to complex terrains. Plan with your crew how to execute your burn Plan. Execute the plan, review post performances. Then, do it all over again. Repeatable.

Get it right before it gets real!

Rationale

This platform produces replication of real fire behavior by using inputs of fuel type data, terrain, and weather conditions. Its portable technology makes fire control burn accessible and repeatable. Train, communicate, and act to apply your knowledge of fire control burning as if you are in a S-19 or S234 program. Make mistakes safely.

Precise, Portable, Practical

3

Lisa Revelli
Product Designer

Burning Bear Design Concept
2019

Design Ideation - Function & Features

Will is given the opportunity to test his knowledge and skills of fire control burn by applying them to a virtual reality immersive simulated scenario. He knows its part of the certification process and mistakes are allowed. The VR simulation training module, Burning Bear, tasks him with heading up a fire control burn project that is in an area of concern. The area is a 500 acre wildland flat plain that is bordered by heavily wooded hills. Just beyond these hills, a densely populated rural town is threatened with high fire threat conditions.

Sketch	What is the idea?	Fulfillment of user requirements with consideration to persona goals/behaviors
	A flat terrain with annual grass and trees to represent a simple fuel model for a novice trainee.	**Requirement 1:** A simple virtual terrain for the trainee to interact with and get used to the VR platform as a training environment. The goals are to acquire basic knowledge, gain skills, and interaction with equipment while observing fire behavior in this simple fuel model. Learning Objectives are: ● Develop a burn plan and escape contingency plan ● Implement environment & Weather conditions ● Execute burn plan ● Conduct post-event review of plan, operations, and coordination of burners. ● The trainee must learn the procedures and afterwards feel confident, competent, and experienced with basics of burning.

4
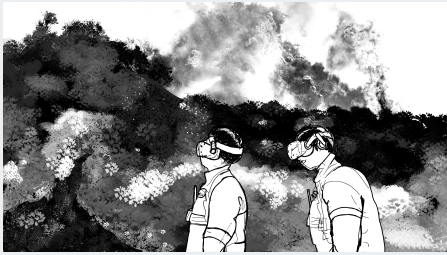
A difficult terrain with slopes and a ridge. It is populated with 3 or 4 types of vegetation which have different burn rates. The vegetation is overgrown and tangled. Visibility is difficult.

Requirement 1 (Contextual Environment) : A difficult terrain would have variations of flat, slopes and far up hills. The winds vary from 6 – 20 miles per hour. The various vegetation have different burn rates and are dry in the summer season.

The goal is to challenge an experience burner or a VR experienced burner to be in more unpredictable and difficult terrain to work with. Visibility is not as clear as in Sketch 1.
The learning objectives are the same as **Requirement 1.**

Dynamic Conditions: For the novice terrain the winds would be 0-6 mph. The wind direction will be coming from the North.

For the difficult terrain, a windy 7-20 mph situation, and wind direction shifts.

Requirement 2 (Contextual Environment): Virtual terrains have season changes of vegetation, humidity, temperature, wind conditions, etc. The dynamic changes in weather would be present in an intermediate to advanced training simulation. The varying weather and environmental conditions will afford the trainee to assess and make the appropriate mitigation planning and tactics. This plan must be communicated and executed well.
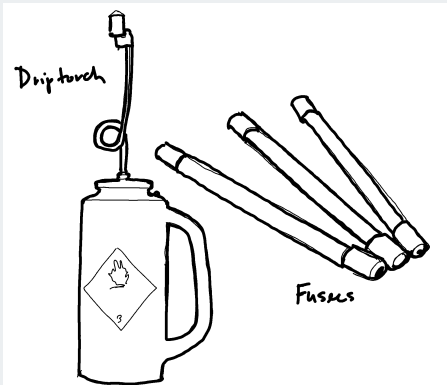
Novice Training Module: Trainees will be offered the igniting tools - drip torch & fusees. These tools can be stored in a cache somewhere on the terrain or on the trainee.

Requirement 3 (Functional Tools & Equipment): The props would have only 2 igniting tools, and 1 communication equipment. The tasks are to properly assess the environment and its weather conditions, use the tools properly to create an effective burn pattern, and observe fire behavior.

5

Pounder

Rake

Shovel

Hotbar

← Igniting   Hand Tools →

Trainees can select from a cache of wildland firefighting tools. Tools that the trainees are already accustomed to and not the state-of-the-art tools that their station could never afford.

Placement of tools can be in a stockpile on the terrain, on the engine.

Or

Heads-up display (HUD) has a
UI with tools to select from or a 'hot bar' on the bottom of the screen that can swipe to search and tap to select. The selection would appear in their hand. This is more game-like in manner to have a category of tools. This would be a lot faster to access but not true-to-life.

Requirement 3a (Functional Tools & Equipment): Intermediate to Advanced Training Module will offer more wildland firefighting tools, an additional firing pistol to the drip torch and fusees. Suppression (water hose) equipment may be available. Placement of where the tools are could be where the crew meets up.
Trainees must be able to interact or operate the tools, equipment, and devices to accomplish their tasks.

6

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019
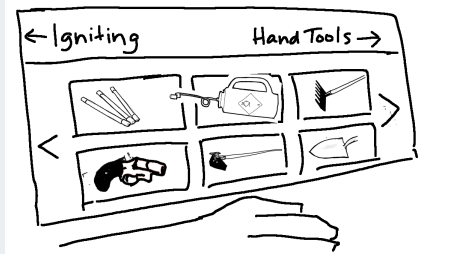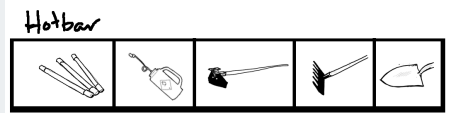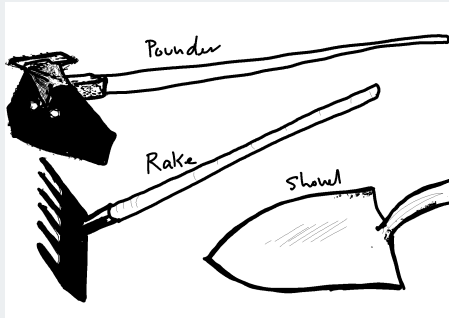
Tools and equipment of burn control operations
It could be on the same or separate menu from the equipment

Trainee will have a handheld radio to afford communication between crew members, burn boss, or incident commander.

Requirement 4 (Functional Radio & Communication Tools):
Virtual affordances must be present to have real-time communication with team members and the Incident Command Center.
The goal: Teamwork and coordination between crew members and chiefs must always be constant and clear.

Option - Communication is done on a HUD instead of a physical radio. This can apply to augmented reality platforms. Technology would be speech to text/text to speech (STTS).

Video review of a trainee's VR performance captured whil training in the VR session.

Requirement 5 (Contextual - Overall Performance in a VR platform)

Description: Post review of plan execution, teamwork, contingency plans, achieved tasks and goals.
Rationale: The value of feedback from peers and instructors is equally important to learned skills.
Implication: Gathering performance and interaction data within software during the training experience. Surveys after the training experience for feedback by the users and instructors and crew members on how they think they did. Peer, instructor, and self-evaluations could be looked at.

How long did it take to get the tasks done? Did they communicate well? Did they use, store or dispose of the equipment properly?

7

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

Other assessments

op view of trainee's executed burn plan outcome, include control lines.

Requirement 5 (Cognitive - Planning Performance in burn plan and execution)

Results of the burn plan and actual burned areas.
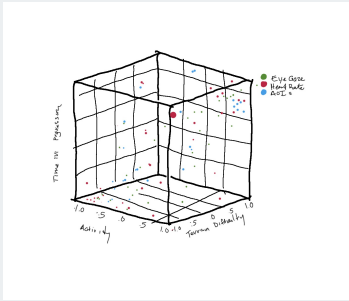
Interface for accessing behavior/cognitive assessments of biometric measurements

Requirement 5 (Physical Performance in a VR platform)
Use analytics on eye tracking for AOIs, biometrics, and stress.

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

Prescribed Fire Control Burn Task Defined

The 'Burn Boss' (BB) trainee must successfully plan and execute a prescribed burn to mitigate any threats to life and property. The 4 main tasks of a prescribed fire control burn operation are done sequentially after all of each task's subtasks are done. He refers to his notes and diagrams taken from his in-classroom lectures the day before.

Task 1	Task 2	Task 3	Task 4
Develop a Burn Plan & Escape Contingency Plan	→ Implement Environment & Weather Conditions	→ Execute Burn Plan	→ Conduct Post-event Review of Plan, Operations, and Coordination of Burners
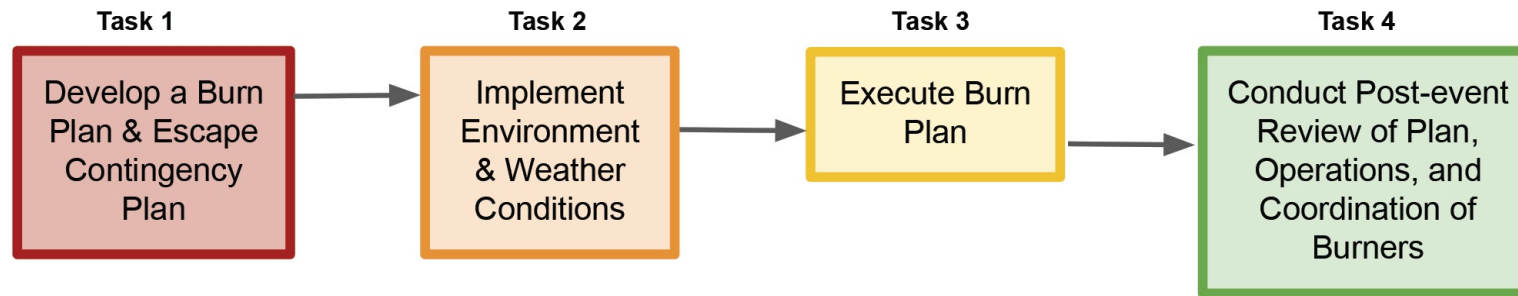
FCB Mission:
500 acre wildland flat plain to be burned, heavily wooded hills. Risks: densely populated rural town, wildlife, extremely dry vegetation.

Burning Bear Simulation Training System:
There are 4 step-by-step tasks and their subtasks that must be completed fully and in sequential order.

1. Task 1 can take up to 1 one to complete.
2. Task 2 requires little time but must be done 2 or more times before and on the day of burn operations.
3. Task 3 takes 6-10 hours to complete.
4. Task 4 is necessary for documentation and liability

9

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

Task 1

Develop a Burn Plan & Escape Contingency Plan

Task 2

Implement Environment & Weather Conditions

Task 3

Execute Burn Plan

Task 4

Conduct Post-event Review of Plan, Operations, and Coordination of Burners

Analyze data from various weather sources

Current: Spot Weather Forecasts from Dept. of Water Resource

Predictions: US Fire Weather

Current On-Ground Wind Speed and Wind Direction

Burning Bear - Task Diagram

10

Lisa Revelli
Product Designer

Burning Bear Design Concept
2019

Task 1

Develop a Burn Plan & Escape Contingency Plan

Task 2

Implement Environment & Weather Conditions

Task 3

Execute Burn Plan

Task 4

Conduct Post-event Review of Plan, Operations, and Coordination of Burners

Meet with Crew and discuss plan verbally.

Delegation of ground tasks.

Distribution of Tools & Equipment

Start ignition

Observations:
- Crew safety
- Proper handling of tools & equipment
- Supply and fuel levels of equipment
- Shifting wind conditions
- Insects, snakes
- Spot fires or fire escapes

Burning Bear - Task Diagram

Lisa Revelli
Product Designer

Burning Bear Design Concept
2019

Task 1

Develop a Burn Plan & Escape Contingency Plan

Task 2

Implement Environment & Weather Conditions

Task 3

Execute Burn Plan

Task 4

Conduct Post-event Review of Plan, Operations, and Coordination of Burners

Goals & Objectives Met by Burn Plan

Efficiency of Operations

Coordination & Communication among Burners

Burning Bear - Task Diagram

Lisa Revelli
Product Designer

Burning Bear Design Concept
2019

VR Prototype Scenario

Will fells challenged and excited to experience this new tech of hybrid training which involves a computer application and a VR experience. He had taken 4 days off for this certification and travelled to his county's firefighting training center. The first and second day were all-day in-class room lectures.The simulation training will take 1 day in a 10'x12' room, next door to the lecture classroom.

Scene 1: Will the BB Trainee

Will logs into his BB account at the workstation and begins the BB program, starting at Task 1 - Develop a Burn Plan. Will intently research the needed information to fill out the Site Information portion. He is familiar with finding out owner & property, emergency contacts of the area, and specifies his plans, goals and objectives. His 20 years of experience gives him an advantage at this point. After two hours, Will is relieved that he was done with filling out the contacts and administrative information.

Scene 2: Burn Site Assessment

Now, Will must assess the actual burn site in VR and draw out a burn plan that is determined by his observations of the terrain, the vegetation fuel, surrounding areas, crew members, tools & equipment given the terrain. There are other subtasks he must do as he checks his diagrams. Within this immersive virtual environment, Will must use his knowledge of vegetation, terrain, environmental conditions, and what could go wrong. He feels challenged and a bit apprehensive as he is unfamiliar with this area.

Wills puts on the VR headset and starts the simulation training module. When Will enters the immersive scene, he looks around and is amazed by the virtual terrain that realistically represents the designated area to execute his burn plan. He is shocked by the overgrowth of the annual grass and introduction of invasive vegetation. The topography map, used in his site information research, did not reveal the extra work ahead of him. Just beyond the plain of annual grass is a hill of wooded trees, shrubs dividing the plains and the rural town. He can't worry about that now but has to stay focused on burning out the fuel of the flatter terrain first.

Will calls up a VR tablet and scrolls to check if his inputted information from the desktop app is transferred to his VR tablet. Will notates his observations and conditions of the environment. The air is dry and arid.

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

Scene 3: Mapping

BB finishes his burn plan and marks up a map of the 500 acre wildland to be burned and where to start the burn. Within the VR HMD, he calls up an area view of the map, and starts the Burn Site preparation. This is done within 30 minutes as he indicates the natural firebreaks in the terrain and draws out the constructed firebreaks. He notates the number of crews, equipment and tools on his tablet. Will is anxious to finish his Prescription, and Ignition and Holding Plan. Luckily this training module is a simulation and Will does not have to have verified permission from involved parties. After reviewing all of his necessary inputs into this VR tablet and looks around the VR environment. He sees the firebreaks he indicated and drew in the newly updated terrain.

Scene 4: Weather Conditions

Will has to consider all environmental and weather conditions on the day of the scheduled burn. The training simulation may just present him with a

cancellation experience. He checks his VR tablet for weather conditions and brings up his Kestral to record the wind speed and direction. Will checks all boxes of the ' Go' column on the Go or No-Go checklist is marked. It's time to execute the Burn Plan.

Scene 4: Crew Interaction

 Will starts the simulation mode Burn. Three other trainees, who are remotely located, join in. BB must have clear instructions to his crews when executing his burn plans.Will introduces himself and goes over his Burn and contingency plans, delegates subtasks, distributes tools and equipment. They start the ignition

of fuel.

Scene 5: The Burn Simulation

Will is on his toes, scanning the terrain with the following objectives in mind:

- Crew safety
- Proper handling of tools & equipment
- Supply and fuel levels of equipment
- Shifting wind conditions
- Insects, snakes
- Spot fires or fire escapes

14

Scene 6: Will's Supervisory Skills

Grass is burning and the smoke kicks up as more areas burn. The crew works to suppress the fire into the desired direction while the others create a break

line by using shovels. BB keeps an eye on everyone and the spreading fire. He notices there is a little smoke tornado.

He also remembers to take current wind and weather conditions knowing that it will change during the day. Unknowns can cause fires to 'jump the lines, or 'escape' and be life-threatening to his crew or the rural town. Everyone in the area has been contacted to be aware of the controlled burn and risks.

Crew Safety: BB observes one burner was igniting beyond the designated burn area and close to the wooded hills. The burner is far and obscured by smoke. BB must communicate with his radio to stop the burner from going further. The wind suddenly shifts and he must direct that burner to adjust his position.

Inconsistent Execution: The burn plan is 60 % done. BB checks everyone's line but it's hard to see with the smoke. He must communicate with them. He uses an aerial view camera within the headset. He notices a pair of crew members skipping a segment of the break line they cleared away. He must communicate that to correct it.

Fuel Consideration: The burn plan is 85% complete. Besides a few adjustments, the burn plan is proceeding. But he realized he miscalculated the fuel in the drip torch and he is running out. BB communicates to switch igniting tools. He must complete this burn.

Scene 10 & 11: Burn Plan Assessment

The burn plan is complete and he looks at his aerial view and the burned out terrain. The burned area has decreased the chances of fire spreading towards

the town.

As a BB, he must review whether his burn plan was effective, and if operations met the plan's goals and objectives.BB reviews his checklist on his Burn Plan tablet to see if its goals and objects were made. He feels he has.

Scene 12: Burn Plan Thoughts

BB takes off his VR HMD and is excited to execute his first flat terrain burn in real-life. He has practiced using the VR simulation. He feels confident because

he has experienced it virtually. Just before he takes off his VR HMD, he gets a glimpse of the wooded hill area beyond the VR prescribed burn area. Winds

on hills can pick up and throw spot fires at the town below easily. A prescribed burn is definitely needed in that area. It would require more planning with more precarious weather conditions. Mistakes can not be made. Will is excited to see what the BB can offer in this more difficult terrain. How can he and his virtual crew experience a live firing in a wooded area in the hills? Will the wind shift on this hilly area? Would wildlife cause danger to his crew or even worse there

is a fire escape or spot fire in the direction of the rural town?

He hopes BB gets grant money to further this fantastic VR simulation training!

The BB trainee puts on his HMD and he picks up his virtual hands when he physically touches the two left and right controllers. He a menu button on the right controller. On the virtual tablet, he   reviews his contacts and notes. He begins marking out his firelines or b on his virtual touch screen tablet with his finger. He chooses the number of crews and tools and equipment that they must use on his conditions for that day. Everything is a go!

Burn Day: BB trainee shows his burn plan to the crew and verbally assigns subtasks to each crew member. He can see them in the V even though they are not in the same location. The control burn proceeds. The BB trainee is constantly observing the terrain and his (moving within the VR space) within the virtual environment using his thumbpad. He can pick up any equipment by pulling the contro just by tilting his VR drip torch or touching the grass with the fusee. He hears crackling as the fire ignites the grass and smoke starts

He can visually assess the burn operation and communicate with his VR radio by pressing the Grip button on the left controller. He c the small Menu button on either the left or right controller. He checks his plan.

The fire control burn is complete!

William - 'Will'
42 Year old Firefighter
who aspires to be a Burn Boss

NOTES:

Storyboard
Frames

This frame indicates
VR HMD view as
seen by Will.
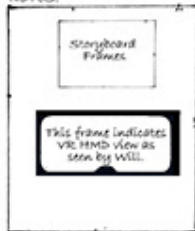
Task 1 - Develop Burn Plan

Burn Plan

Will logs into his Burning Bear training simulation program to begin Task 1.

Will assesses the actual burn site in VR. He sees a current replicated grass model of the burn area

The VR headset enables Will to enter the virtual immersive environment.

The area is a 500 acre wildland f... by heavily wooded hills. Just bey... populated rural town is threatened...

Will calls up a VR tablet and is pleased to see his inputted information from the desktop app is transferred to his VR tablet.

Will calls up an area view of the map of the 500 acre wildland to be prescribed a burn within the VR HMD. Will marks up the map for the Burn Site preparation.

Will notates the needed equipme...

Will determines the needed number of crew workers and chooses the candidates to execute his burn plan.

MAY 2

Will selects a date for his p... that 'burn day' will have id...

Task 2 - Factor in Fire weather predictions & On-site wind speeds

Kestral 3.69 MPH

Burn
Go - or
GO

Will observes spot weather conditions at the

Will brings up his kestral to check the current

All boxes of the ' G...

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019

Task 3
Execute the Burn Plan

Multi-Trainee Interaction

Will starts the simulation mode.
Two other trainees, who are remotely located join in.
BB must have clear instructions to his crews when
executing his burn plans.

As a 'Burn Boss'. Will delegates subtasks,
distributes tools and equipments consider all
environmental and weather condition on the day
of the scheduled burn.

Will is supervising the Burn Execution. He is on
his tees, scanning the terrain with the following
objectives in mind:
- Proper handling of tools & equipment.
- Shifting Wind Conditions
The wind suddenly shifts and he must direct that
burner to adjust his position.

Crew Safety: BB observes one burner was igniting
beyond the designated burn area and close to the
wooded hills. The burner is far and obscured by smoke.
Will must communicate with his radio to stop the burner
from going further.

18

Lisa Revelli | Burning Bear Design Concept
Product Designer | 2019
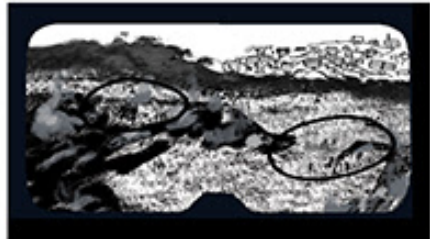
Inconsistent Execution: The burn plan is 60 % done. Will notices a pair of crew members skipped a segment of the break line they cleared away. He must communicate that to correct it.

Will spots a nest a snakes withering from the on-coming smoke.. He warns the burner.

Shifting Wind Conditions: & Spot fires or fire escapes The wind suddenly shifts and he must direct that burner to adjust his position. Will also sees a spot fire that escaped.
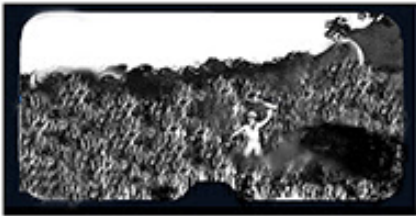
Supply and fuel levels of equipment. The burn plan is 85% complete. But, a burner a burn radios that he is out of drip torch fuel. Will realizes he miscalculated the fuels in the drip torch and tells everyone to use the fusees.

The burn plan is complete and he looks at his aerial view and the burned out terrain. Mission Complete!

As Will zooms out on his VR tablet to look at the burned area. He sees a "NEW" flashing icon indicating a new assignment. This one would not be easy. Constant wind shifts, woody vegetation, and possible escape fires to towards the rural town below.
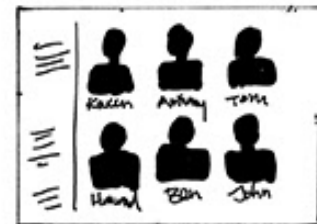
Task 4- Review of Post Operations with Training Supervisor
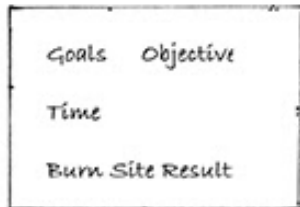
Goals   Objective

Time

Burn Site Result

Goals & Objectives Met by Burn Plan

Efficiency of Operations

Coordination & Communication among Burners and Burn Boss.

Lisa Revelli
Product Designer

Burning Bear Design Concept
2019

Burning Bear Design Requirements

The project goal is to create a training platform for firefighters who want a state training certifications in fire control burn and more experiences in fire control burning. To achieve this goal, I would like to propose a simulation training platform using immersive technology - virtual reality. The shortcomings of the existing fire control burn training design to be addressed are:

- Infrequent (maybe 1x a year if conditions are right)
- Short-lived experiences to apply academically learned principles - Programs are 1 day, if they are lucky 2 days
- Scenarios are not challenging - 'live' fire training is only done when environmental conditions are perfectly calm and simple
- Experiences are limited to one typical environment - Designated areas to train in are scarce and small
- Hard to coordinate - Firefighters have varied schedules, come from all different counties, a whole crew can't be released to train together

Requirement 1 (Contextual)

- Category name: Environment
- Title: Real World Terrains
- Description: These environments should represent varying terrain in different parts of California where wildland fire is a considerable threat. Environments have different characteristics such as fuel variation (various trees, shrubs), wildlife, water sources.
- Rationale: The best training challenges are to perform in actual and various environments. Fires will start in flat terrain, steep ravines, residential hills, etc.
- Implication: VR Environments have to replicate existing terrain using photogrammetry or existing EIM (Environmental Information Models) along with its characteristics.

Requirement 2 (Contextual)

- Category name: Dynamic Conditions
- Title: Season Changes
- Description: Wind, Humidity, Temperature, time of day are all dynamic inputs to a fire behavior which call for different mitigation planning and tactics
- Rationale: Fire incidents can have unpredictable and unusual threats – fire tornados, rapid wind shifts.
- Implication: National weather sources have inputs of current and past weather conditions. System must incorporate its inputs. Testing of algorithms generating accurate visual representations of weather conditions and its effects on the environment would be needed.

Requirement 3 (Functional)

- Category name: Tools and Equipment
- Title: What to put in their hands
- Description: The props would include firing and igniting tools, PPEs, equipment, monitors, communication devices.
- Rationale: Trainee must be able to interact or operate the tools, equipment, and devices as in real life to get their tasks accomplished.
- Implication: Use tools that trainees are already accustomed to and not state of the art tools that their station could never afford. For example, a rural fire station may not have iPad like a city fire station.

Requirement 4 (Functional)

- Category name: Communication
- Title: Persistent Communication: Can you Hear me Now?
- Description: Radio or communication tools must be present to have real-time communication with team members and Incident Commander.
- Rationale: Teamwork and coordination between crew members and chiefs must always be constant and clear
- Implication: VR system must have a multi-user communication feature for individual, other crew members, instructor to train/practice communication protocols

Requirement 5 (Contextual)

- Category name: Assessments
- Title: Performance Assessment
- Description: Post review of plan execution, teamwork, contingency plans, achieved tasks and goals.
- Rationale: The value of feedback from peers and instructors is equally important to learned skills.
- Implication: Gathering performance and interaction data within software during the training experience. Surveys after the training experience for feedback by the users and instructors and crew members on how they think they did. Peer, instructor, and self-evaluations could be looked at.