**Elemental Fox**

# Game Description

Elemental Fox is a 2D platformer and puzzle game where the player needs to resolve puzzles and avoid enemies by using different forms and powers.

The player can change the appearance and the abilities of the character during the gameplay by interacting with an elemental obelisk to complete the level.

The player can access 5 elemental forms (fire, water, earth, air and neutral) each element interacts in a different way with the traps and mechanisms, also every element has an active and a passive ability:

* Passive ability: Will interact with the environment just by being in a given place
* Active ability: Will be used when the player presses **“E”**

The player can also carry one single object to complete the puzzle while he caries an object the player can not use his active skill.

While the majority of the traps and mechanisms will either permit the player to pass, kill him or make him lose some progress, some of them may reveal hidden paths or present different challenges. The traps and mechanisms can also be specific for an element or have different variants for every element.

Enemies will need to be either avoided or used as steeping stones for the player to progress, with the combat being non existent instead the player needs to outsmart or completely avoid the enemies.

# Character

## General

### Description

The general aspect of the character is that of a fox with two tails, with a black patch of fur at the end of each tail.

The character will have 5 forms with every form having different sprites, animations, stats and abilities.

### Animations

All animations will be split between body animation and tail animation, that can be played independent from each-other depending on the inputs from the player and the environment.

### Stats

The world is formed from small cubes and all the measurements will be in rapport with the cubes, for an easier understanding every cube will have the dimensions 1m x 1m.

The character hit box dimensions will be 1,8 m in length and 1,7 m in height, with the hole sprite taking almost a 2m x 2m in diameter.

Red: standard block 1x1

Blue: character sprite 2x2

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Stats:

* Walk – 6m/s
* Jump – 4 m

### Elemental Ability

Elemental ability is activated when the player presses “E”

## Neutral

### Description

In neutral form the sprite will be that of a red fox with two tails, black fur present at the end of each tail, on the lower part of each foot and on the ears.



Animations:

* Walk – a running animation with the tails and ears flowing in the wind
* Jump – an animation where the fox quickly crouches ant then jumps
* Fall – an animation where the fox falls
* Idle – an animation where the fox stays idle
* Interact – (body only) an animation where the fox interacts with the elements of the environment, the fox interacts using her nose.
* Elemental ability – tail grab (tails only) an animation where the tails grab any object in front of the character

### Elemental Ability – Tail grab

The player has the ability to move small objects around the map. The objects will be picked when the player is near them, held behind the player and placed where the character is in the moment of the button press.

## Fire

### Description

In fire form the character colors change to a fiery red, with flames present on the tails and on the ears, with the sprites giving an agile aspect.

Fire fox is agile and powerful, firing a fire ball at the targets

Animations:

* Walk – a running animation with the tails and ears flowing in the wind (25% increase in the animation speed)
* Jump – an animation where the fox quickly crouches and then jumps
* Fall – an animation where the fox falls
* Idle – an animation where the fox stays idle
* Interact – (body only) an animation where the fox interacts with the elements of the environment, the fox interacts using her nose.
* Elemental ability (animation only for tails) – the tails flick towards the front of the character

### Elemental Ability – Fire ball

The player shoots a fire ball from his tails, at the player level. The fire ball moves is the direction that the character is faces and moves at twice of the character (fire form).

A fire ball moves until it hits a wall or a mechanism, if it hits a mechanism then it will activate it.

## Water

### Description

In water form the basis tails are switch with fish tails that end in a fin, with the tails keeping the same length. The color of the body changes to a blue/dark blue, with water droplets permanently falling from the body and droopy ears giving the player the feeling that the character can melt at any time.

Water fox is nimble and can reach places that are impossible to reach to any other form, it can climb vertical walls

Animations:

* Walk – a running animation with the tails and ears flowing in the wind
* Jump – an animation where the fox quickly crouches and then jumps
* Fall – an animation where the fox falls
* Idle – an animation where the fox stays idle
* Interact – (body only) an animation where the fox interacts with the elements of the environment, the fox interacts using her nose.
* Elemental power – (body only) an animation where the character transforms the legs in a snail like foot formed from foam and bobbles.
* Elemental ability – (body only with the tails missing) a blob like sprite with half of the normal height, and with only the face as a distinguishable feature.

### Elemental Ability – Shapeless

At the entrance of any crevasse the player can use elemental ability to transform himself in a liquid like form in witch can easily move through spaces that are inaccessible to the usual form.

## Wind

### Description

In wind form the character has a floaty appearance similarly to that of a ghost, with the lower part of the legs being translucent giving the feeling that the character floats above the ground, and the tails missing the base making them float near the character.

Wind fox is very light having the ability to give herself a boost mid jump or on terrain and can be moved around by the objects

Animations:

* Walk – a running animation with the tails and ears flowing in the wind
* Jump – an animation where the fox quickly crouches and then jumps
* Fall – an animation where the fox falls
* Idle – an animation where the fox stays idle
* Interact – (body only) an animation where the fox interacts with the elements of the environment, the fox interacts using her nose.
* Elemental ability (animation only for tails) – the fox spins her tails quickly launching a projectile up.

### Elemental Ability – Up wind

Once activated the character shoots a jet of wind upwards activating or moving every mechanism that it is present.

## Earth

### Description

In earth form the character presents scales across the body, with the majority concentrated around the shoulder, rib cage and on the head forming a helmet, making the character appear hard and sturdy as a rock, but also a slow mover. The tails become covered in stone taking the aspect of a mace.

Earth fox is slow and sturdy, having the ability to ignore damage from specific traps and to move heavy objects around or break walls.

Animations:

* Walk – a running animation with the tails and ears flowing in the wind
* Jump – an animation where the fox quickly crouches and then jumps
* Fall – an animation where the fox falls needs a heavier feel as the character is more heavy
* Idle – an animation where the fox stays idle
* Interact – (body only) an animation where the fox interacts with the elements of the environment, the fox interacts using her nose.
* Elemental ability (animation only for tails)

### Elemental Ability – Boulder push

Once activated the player can push heavy objects around the map.

## State machine

State machine controls both the animation and the behavior of the character.

The character is split in 2 parts the **Tails** and the **Body**, witch can have different states, while some states are applied for both, while other states can be applied separately from each-other.

The character uses 2 concurrent state machines: Elemental State Machine and an Action State Machine.

**Action State Machine** is used to determine what are the actions of the character such as Idle/Walk/Jump.

**Elemental State Machine** is used to determine how the character looks, interacts with the environment and what passive/active is activated at any moment.

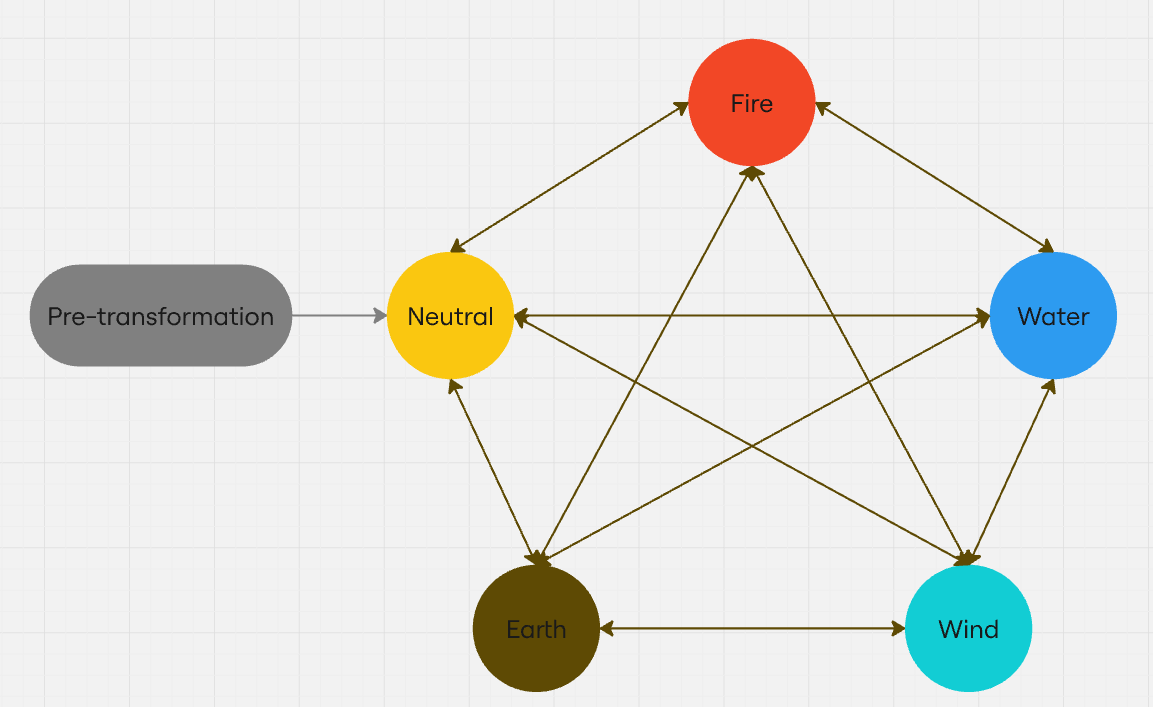
* **Idle state** is applied to both parts unless an Elemental ability state is active
* **Walk state** is applied to both parts unless an Elemental ability state is active
* **Interact state** is applied to both parts unless an Elemental ability state is active
* **Jump state** is applied to both parts unless an Elemental ability state is active
* **Fall state** is applied to both parts unless an Elemental ability state is active
* **Hurt state** is applied to the hole body, is activated when the player gets hurt.
* **Elemental ability – Neutral state** is applied only to the tails and overwrites any other states, ends only when the player selects elemental ability again
* **Elemental ability – Fire state** is applied only to the tails and overwrites any other states, ends after the animation finishes playing.
* **Elemental ability – Water state** is applied to the body and tails and overwrites any other states, ends when the player selects elemental ability again
* **Elemental ability – Wind state** is applied to the tails and body and overwrites any other states, ends after the animation finishes playing.
* **Elemental ability – Earth state** is applied to the tails and overwrites any other states, ends when the player selects elemental ability again or jumps.

### Action State Machine flow:

* Idle
  + Walk
  + Interact
  + Jump
  + Fall
  + Hurt
  + Elemental ability – Neutral
  + Elemental ability – Fire
  + Elemental ability – Water
  + Elemental ability – Wind
  + Elemental ability – Earth
* Walk
  + Idle
  + Interact
  + Jump
  + Fall
  + Hurt
  + Elemental ability – Neutral
  + Elemental ability – Fire
  + Elemental ability – Water
  + Elemental ability – Wind
  + Elemental ability – Earth
  + Elemental power – Water
* Interact
  + Idle
  + Walk
  + Hurt
* Jump
  + Fall
  + Hurt
  + Elemental ability – Neutral
  + Elemental ability – Fire
  + Elemental ability – Wind
  + Elemental power – Water
* Fall
  + Idle
  + Walk
  + Hurt
  + Elemental ability – Neutral
  + Elemental ability – Fire
  + Elemental ability – Wind
  + Elemental power – Water
* Elemental ability – Neutral
  + Idle
  + Walk
  + Interact
  + Jump
  + Hurt
* Elemental ability – Fire
  + Idle
  + Walk
  + Interact
  + Jump
  + Hurt
* Elemental ability – Water
  + Idle
  + Walk
  + Hurt
* Elemental ability – Wind
  + Idle
  + Walk
  + Interact
  + Hurt
* Elemental ability – Earth
  + Idle
  + Walk
  + Interact
  + Jump
  + Hurt
* Elemental Power – Water
  + Walk
  + Jump
  + Fall
  + Hurt
* Hurt

### Elemental State Machine flow:

* Neutral
  + Fire
  + Water
  + Wind
  + Earth
* Fire
  + Neutral
  + Water
  + Wind
  + Earth
* Water
  + Neutral
  + Fire
  + Wind
  + Earth
* Wind
  + Neutral
  + Fire
  + Water
  + Earth
* Earth
  + Neutral
  + Fire
  + Water
  + Wind



## Controls

### Mouse and Keyboard

A/D – Left/Right

W/S - Up/Down

Space – Jump

E – Interact / Elemental ability

Esc – Menu

### Controller

Left stick left/right – Left/Right

Left stick up/down - Up/Down

A – Jump

Y – Interact / Elemental ability

B – Menu

# Camera

## General

Camera will remains static all the time capturing the hole level at any time.

# Combat

Combat will be non-existent as the enemies present will act as traps/mechanisms that the player needs to avoid or use the enemies as steeping stones to progress through the level.

## Health

The player will have only one life in any form, that can be lost when the character hits any kind of trap. Once the player has lost his life, the level ends and a defeat screen is presented.

# Environment

Every level will have a theme that centers around the elements necessary to complete the level, and a central theme that spans across several levels.

Blocks, traps and mechanisms will have elemental variants that will have different interactions with the player and the environment.

A majority of blocks and traps can be connected to mechanisms to change their properties.

## Blocks

Blocks represents a part of the environment on witch the player can walk and navigate without to many risks.

### Moving block

Moving block will move between two pre-set points on either **X** axis or **Z** axis.

### Activated – Moving Block

This block will be stationary until it receives a signal then it will start moving between the pre-set points.

State machine:

* Stopped – Is the part in witch the block does not move.
* Activated – After the block receives a signal it will start moving between the pre-set points.

### Crumbling block

This block will allow the player to stay on it only for a short duration after that the block will disappear making the player fall, the block will appear again after a time

State machine:

* + Idle – waiting for the player to walk on the block
  + Crumbling countdown – after the player touches the block for the first time a countdown starts.
  + Crumbling – the countdown has finish, the block becomes invisible and the player falls through it.
  + Re-spawn countdown – a countdown that starts after the block disappears.
  + Re-spawn – after the countdown has finish, the block reapers and the block becomes tangible again.

### Crate

The crate is a block that can be easily moved by the player in Earth state, can also be moved by other objects in the world.

## Traps

Traps will hurt the player on contact, and the player needs to deactivate ( if possible) or avoid all together.

### Spike

Spikes are a fixed trap that will hurt the player

### Retracting spikes

Retracting spikes are a variant of spikes that have two states an active state that has the spikes raised and will hurt the player and an off state that will not hurt the player.

### Saw

The saw is a moving trap between 2 points that will hurt the player on contact.

### Kill zone

Kill zone is an invisible object that will kill the player on contact, will be used when the player falls out of the map.

## Mechanisms

Mechanisms are all the objects with which the player can interact and change the environment.

### Spawn point

Spawn point is the place where the game will spawn the character at the beginning of the level, will try to spawn Neutral type if it is not specified otherwise

### End point

Marks the level as being completed successfully once the player reaches it.

### Elemental Obelisk

Elemental obelisk is an intractable non tangible block from witch the player can change his form, all elemental obelisks will have a preset element.

Elemental obelisks can have 5 different forms one for each element, once activated it will send a signal towards the player that will change the element of the player.

State machine:

* Idle
* Interacted
* Sending signal (sends a different signal towards the player based on the elemental form)

### Lever

Lever is a mechanism that has 2 states ON/OFF in ON state sends a signal that will switch the state of the intended objects to active, in OFF state sends a signal that switches the state of the intended object to inactive.

### Target

The target acts like a lever, but it can be activated by a fireball from fire form, once activated sends a signal to the desired target.

### Button

The button is a mechanism that sends a signal to an intended object, once pressed the button becomes inactive. If the level asks then the button could become active again to permit the player a retry of the puzzle.

### Pressure plate

Pressure plate is a mechanism that sends a signal once an entity is above it, and another signal once the entity has moved. All pressure plates are split in 5 variants (neutral, fire, water, wind, earth), with every variant responding only to the corespondent element.

### Fan

Fan is a mechanism that sends a signal once an entity interacts with it.

### Pedestal

The pedestal is a mechanism that sends a signal once a crystal has been placed inside it, the pedestals come in 5 variants (neutral, fire, water, wind, earth) with every variant responding only to the same elemental crystal.

### Crystal

The crystal is an item that can be moved bu the Neutral form upon interaction, upon a second press of the interact button the crystal will be dropped in place or if the player is near a pedestal the crystal will be automatically placed inside and the pedestal activated.

The player can pick up crystals placed inside pedestals.

### Pressure plate

The pressure plate is a mechanism that sends a signal once an object is above itself and a signal when an object moves from the block.

### Door

Once the player touches the door the game will end and the end screen appears.

### Crevasse

Will transport the player to the other end once he interacts with it.

### Valve switch

Valve switch will switch the location where the player will go.

# Levels

Every level will have a start position and a finish position, the level will have a fix position with a finite space, with a puzzle that needs to be completed before finishing the level

First 5 levels will focus only on one element with the next levels focusing on combining 2 or more elements.

## Level 1

Level 1 focuses on neutral form, starting form – Neutral

Level 1 presents a classic challenge, bringing a key to a door, with the key and the door on the opposite sides of the map, with one or two obstacles in between.

Level contains:

1. Spawn point
2. End point
3. Key
4. Door
5. Spikes
6. Kill zone

Connections:

* 3 – 4

## Level 2

Level 2 focuses on fire form, starting form – Fire

Level 2 the player needs to shoot a fire ball from one side on the map to the other to activate a moving platform that will travel between the sides

Level contains:

1. Spawn point
2. End point
3. Button
4. Target
5. Activated Moving Platform

Connections:

* 3 – 5.1
* 4 – 5.2

## Level 3

Level 3 focuses on water form, starting form – Water

Level 3 the player needs to use the pipes to reach the end point.

Level contains:

1. Spawn point
2. End point
3. Pipe
4. Lever
5. Valve switch

Connections:

* Button – Valve switch

## Level 4

Level 4 focuses on earth form, starting from – earth form

Level 4 the player needs to push a few crates on a pressure plate to unlock the exit.

Level contains:

1. Spawn point
2. End point
3. Elemental obelisk
4. Crate
5. Pressure plate
6. Activated – Moving block

Connections:

* 5.1 – 6.1 – pressure plate to activated moving block
* 5.2 – 6.2 – pressure plate to activated moving block

## Level 5

Level 5 focuses on wind form

Level 5 the player needs to activate a series of fans to unlock the exit

Level contains:

1. Spawn point
2. End point
3. Elemental obelisk
4. Button
5. Fan
6. Activated – Moving block
7. Crumbling block

Connections:

* 4 – 6 – button to activated – moving block
* 5 – 6 – fan to activated – moving block

## Level 6

Level 6 is where the player needs to use a combination of neutral and earth to resolve the puzzle

Level contains:

1. Spawn point
2. End point
3. Elemental obelisk - earth
4. Crystal
5. Pedestal
6. Activated - Moving block
7. Button
8. Crate
9. Pressure plate
10. Moving saw
11. Moving block

Connections:

* 7.1 – 6.1 – button to activated – moving block
* 4.1 – 5.1 – 6.2 – crystal to pedestal to activated – moving block
* 4.2 – 5.2 – 6.3 – crystal to pedestal to activated – moving block
* 4.2 – 5.3 – 6.4 – crystal to pedestal to activated – moving block
* 8.1 – 9.1 – 6.8 – crate to pressure plate to activated – moving block
* 8.2 – 9.2 – 6.7 – crate to pressure plate to activated – moving block

## Level 7

In level 7 the player needs to use a combination of water and earth to reach the end.

Level contains:

1. Spawn point
2. End point
3. Elemental obelisk
4. Pipe
5. Valve switch
6. Level
7. Button
8. Target
9. Activated – Moving block

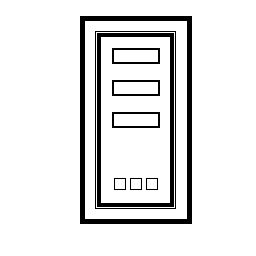
Connections:

* 3.1 – Obelisk fire form
* 3.2 – Obelisk water form
* 3.3 – Obelisk fire form
* 3.4 – Obelisk water form
* 8.1,8.2 – 5.1,5.2,5.3,5.4 – Target to valve switch
* 6.1 – 9.2 – Lever to activated – moving block
* 7.1 – 9.1 – Button to activated – moving block
* 6.2 – 9.3 – Lever to activated – moving block
* 6.3 – 5.5 – Lever to valve switch
* 8.3 – 9.5 – Target to activated – moving block
* 8.4 – 9.6 – Target to activated – moving block
* 8.5 – 9.7 – Target to activated – moving block
* 8.6 – 9.8 – Target to activated – moving block
* 8.7 – 9.9 – Target to activated – moving block
* 8.8 – 9.10 – Target to activated – moving block
* 6.4 – 9.4 – Lever to valve switch

# Interface

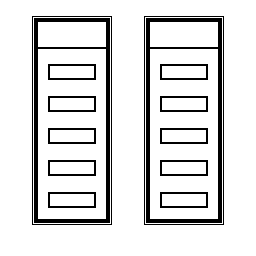
## Main Menu

Start menu is formed from main buttons such as play, levels, options, etc and secondary buttons such as music mute, audio mute, etc for a quick action.



## Levels

Levels will be displayed on lists, with every list having a main theme that can be found in the levels.



## UI

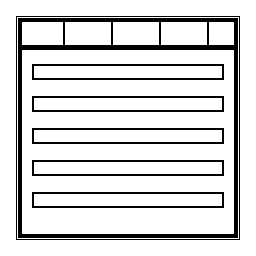
The only UI present in levels will be the UI informing the player that he can interact with different objects.

## Pause Menu

The pause menu will be similar with the main menu with the added option to reset the level.

## Settings

In settings menu the player can modify different options, with the settings arranged in specific tabs, with the tab at the top and the individual setting shown at the bottom.



# Graphics and sound

## Graphics

The game uses pixel art for his graphics with a 32x32 pixel per block.

## Sound

Audio will also be based on 32 bit. With 5 different music types with one for every form.

And audio effects for walk, interact, jump, landing, elemental ability(different sound for every form) and effects for different block actions.