

Positron – Game Features & Functionalities Documentation

1. Project Overview

Positron is a 1v1 turn-based tactical battle game set in a 3D arena.

2. Player Control & Movement Systems

2.1 3D Arena Movement

- Players can reposition themselves left and right freely on the arena floor
- Movement occurs horizontally within a bounded grid
- Positioning plays a major role in both attacking and defending
- Players can perform jump or reposition themselves to avoid certain attacks
- Use Keyboard 'A' and 'D' to move the attacking or defending player left and right.
- The player can only move horizontally left and right, not vertically.
- The player can jump to dodge an ultimate attack using Keyboard 'Space' while defending.

2.2 Directional Aiming

- Attacks are not auto-targeted
- Players must manually aim toward the opponent's position
- The aim is visibly auto oscillating for a few seconds, then disappears. The player has to time their attack to figure out where it's gonna drop.
- Aiming:
 - The camera will switch according to the player's turn. The player that's in turn will have a crosshair appear on screen on the other side of the divider.
 - The crosshair will keep oscillating from left to right at a constant speed. After 3 seconds, the crosshair will be invisible, but will keep oscillating while invisible.
 - The player has to fire based on their calculation on where the crosshair is going to be during that moment of the oscillation.
 - When the player presses Keyboard 'E', an attack will be launched from the attacking player.

- The crosshair can get bigger or smaller based on the type of attack used.
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3. Turn System with Reactive States

3.1 Action Selection Phase

- The active player selects an ability from three attack types: Basic, Signature and Ultimate abilities.
- Different attacks means different results.
Basic: Non-elemental, aim based, low damage, zero stamina cost, low damage radius.
Signature: Elemental, aim based, low damage, has effects, low stamina cost, medium damage radius.
Ultimate: Elemental, area based, high damage, has effects, high stamina cost, very high damage radius.
- When it's a player's turn, the player by default will have basic attack enabled. The key to manually enable basic attack is Keyboard '1'.
- If the player wants to change their attack type, they can press Keyboard '2' for signature attack and Keyboard '3' for ultimate attack.
- The size of the crosshair changes based on attack type, and the oscillation resets and starts from the beginning.

3.2 Player Health Bar and Meters:

- Each of the two players have one health bar (HP) and one stamina bar (ST). Also a status effect bar for effects like slow, stun.
- Players lose health when they're hit by the opponent's attacks. Different types of attacks deal different damage along with status effects.
- Health Logic (HP)
 - Player starts with 100 HP
 - -10 HP for getting hit by a basic attack
 - -20 HP and status effect for getting hit by a signature attack
 - -40 HP and status effect for getting hit by an ultimate attack.
 - Game over for the player who reaches 0 HP first.
- Stamina Logic (ST)
 - Player starts with 0 ST
 - For each successful hit and successful dodge, the player gains stamina points.
 - Successful hit: +10 ST
 - Successful dodge: +10 ST
 - Successful parry: +30 ST

- Successful jump: +30 ST
- Per round recharge: +5 ST
- Basic attacks: -0 ST
- Signature attacks: -20 ST
- Ultimate attacks: -100 ST
- Status Effect Logic (SP):
 - Status types:
 - **Freeze (FRIZ)**: Caused by **ice (ICE)** type attacks. -40% movement speed each round for 3 rounds.
 - **Burn (BURN)**: Caused by **fire (FIR)** type attacks. -5 HP reduction each round for 3 rounds.
 - **Stun (STUN)**: Caused by **electric (ELC)** type attacks: -10% movement speed each round for 3 rounds, depletes ST bar.
 - **Cripple (CRPL)**: Caused by **earth (ERT)** type attacks: +30% damage received for incoming attacks each round for 3 rounds.
 - **Imbalance (IMBL)**: Caused by **wind (WND)** type attacks. -30% aim accuracy each round for 3 rounds.
 - **Weaken (WEAK)**: Caused by **water (WTR)** type attacks. -30% damage dealt for outgoing attacks each round for 3 rounds.

3.2 Attack Execution Phase

- The chosen attack is launched toward the opponent
- Attacks visibly travel through 3D space
- Steps:
 - The camera will be switched to the attacking player in 3D.
 - The attacking player will then get 20 seconds to attack in their turn.
 - The attacking player will select attack type and proceed to aim and attack.
 - The camera will be switched to the defensive player in 3D.

3.3 Reaction Window (Defensive Phase)

- When an attack approaches, the defending player gains control
- Defensive options include dodging left right, jumping or parrying.
- Steps:
 - The camera will be switched to the defensive player in 3D.
 - The defensive player now will get 2 seconds to dodge or parry the attack.
 - To dodge the attack, the defending player must get out of the way of the attack using Keyboard 'A' or 'D'.
 - To jump the attack (for ultimates), the defending player must jump within 1 second using Keyboard Space Bar.
 - To parry the attack, the defending player must press Keyboard 'Q' within a short parry timeframe to successfully parry. Otherwise damage will be inflicted.

- After a dodge, parry or jump time window, the defending player will have their turn to attack.

3.4 Resolution Phase

- The game determines whether the attack hits, gets parried, or misses.
 - Health values are updated, effects are updated.
 - Control and camera switches to the opposing player.
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4. Advanced Collision & Hit Detection

Combat outcomes depend on where an attack connects.

4.1 Multi-Zone Hit System

- Critical zone: Direct hits causes full damage (direct above head, 100% damage)
- Partial zone: Partial hits causes partial damage (side hit, outside hit circle, 60% damage)
- Miss: No damage is applied

4.2 Arena Boundaries

- Players are restricted to the arena area
 - Movement logic prevents leaving the playable space
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5. Dynamic Camera Mechanics

The camera is an active gameplay element rather than a fixed observer.

Two camera modes:

Static: The camera remains static at 2 different positions, for two players whoever is attacking or defending at the moment.

Free: Free movement of the camera using Arrow Keys.

Players can switch between views during gameplay.

7. Special Modes

- Cheat mode: Allows every shot to connect accurately.
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8. On-Screen Game Information

The interface provides real-time feedback:

- Player HP points (attacking player top left, defending player bottom right, will switch)
- Current turn
- Active status effect
- Player ST points

All information updates dynamically during gameplay.

9. Gameplay Loop Summary

1. Player 1 and 2 chooses player types from menu (fire, water, electric, earth, wind, ice)
2. A player's turn begins
3. Movement and positioning phase
4. Attack selection and execution
5. Camera switches to defending player
6. Defender reaction window
7. Damage calculation and progression update
8. Turn switches
9. Another player's turn begins

This loop repeats until a win condition is met.

10. Win Conditions & Replayability

- The match ends when a player's health reaches zero
 - The game can be restarted at any time
 - Game can be paused using Keyboard 'P' and can be restarted using Keyboard 'L'
 - Randomized starting turns improve replay value
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11. Summary

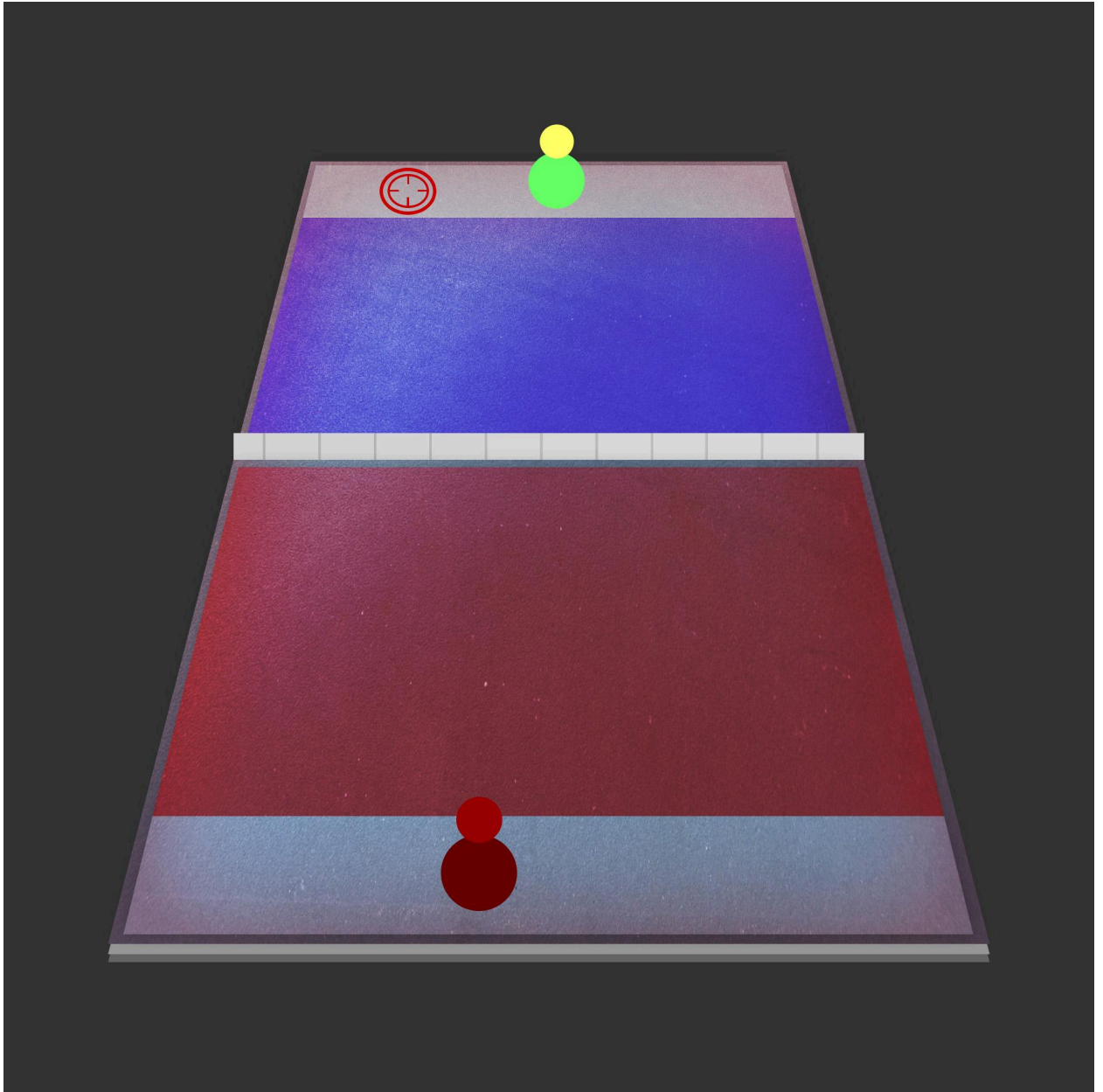
Positron expands the reference assignment by introducing:

- Full 3D spatial combat
- Reactive defensive gameplay
- Multi-phase turn logic
- Dynamic camera behavior

Game summary in human language:

I want to build a game (like Clash Royale and Clair Obscur: Expedition 33 combined), that will have two players. The game will go like this.

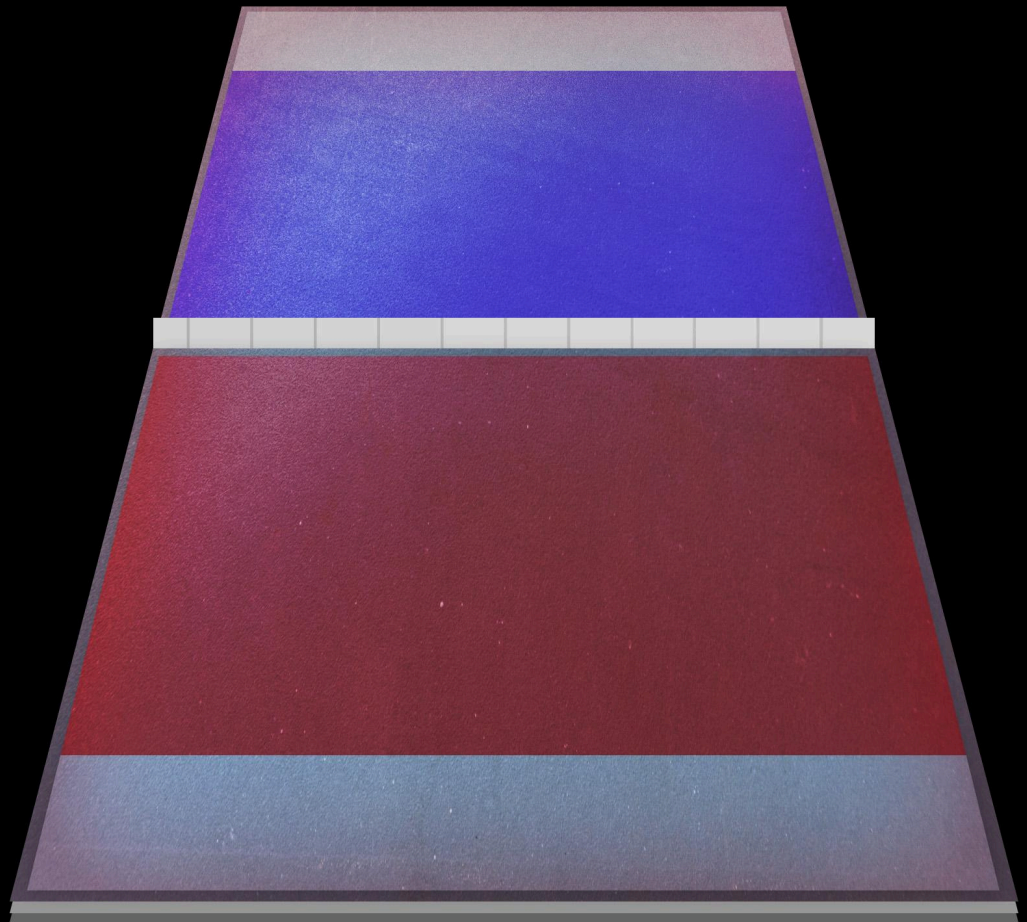
- The game starts. The arena will look like this.

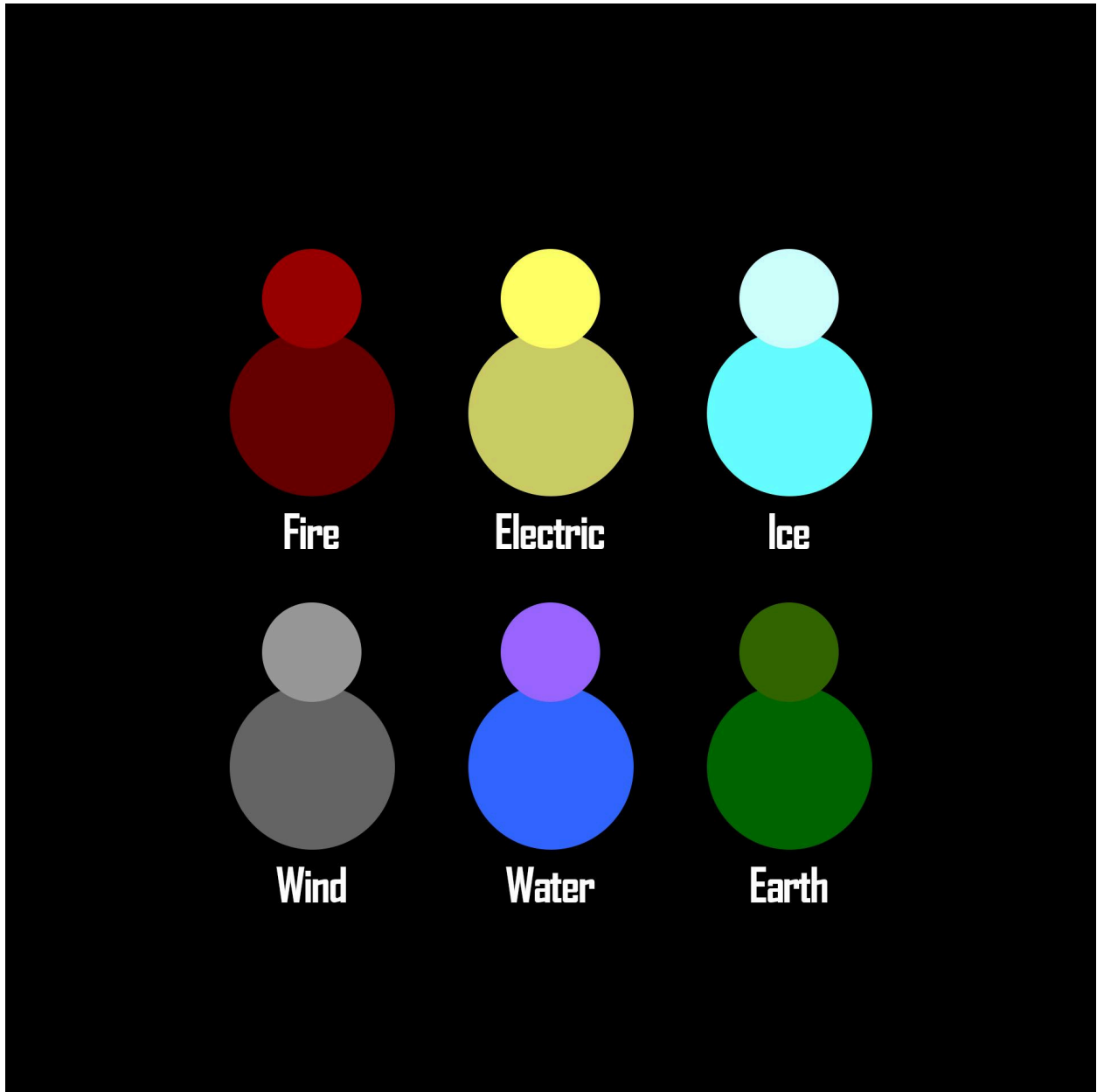


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- Player 1 and 2 chooses their element types from six elements (fire, water, electric, earth, wind and ice). Their attack color will change based on their element type, and attacks will look different based on their attack type.

PLAYER 1: CHOOSE ELEMENT TYPE-

WATER EARTH ◀ FIRE ▶ ELECTRIC ICE





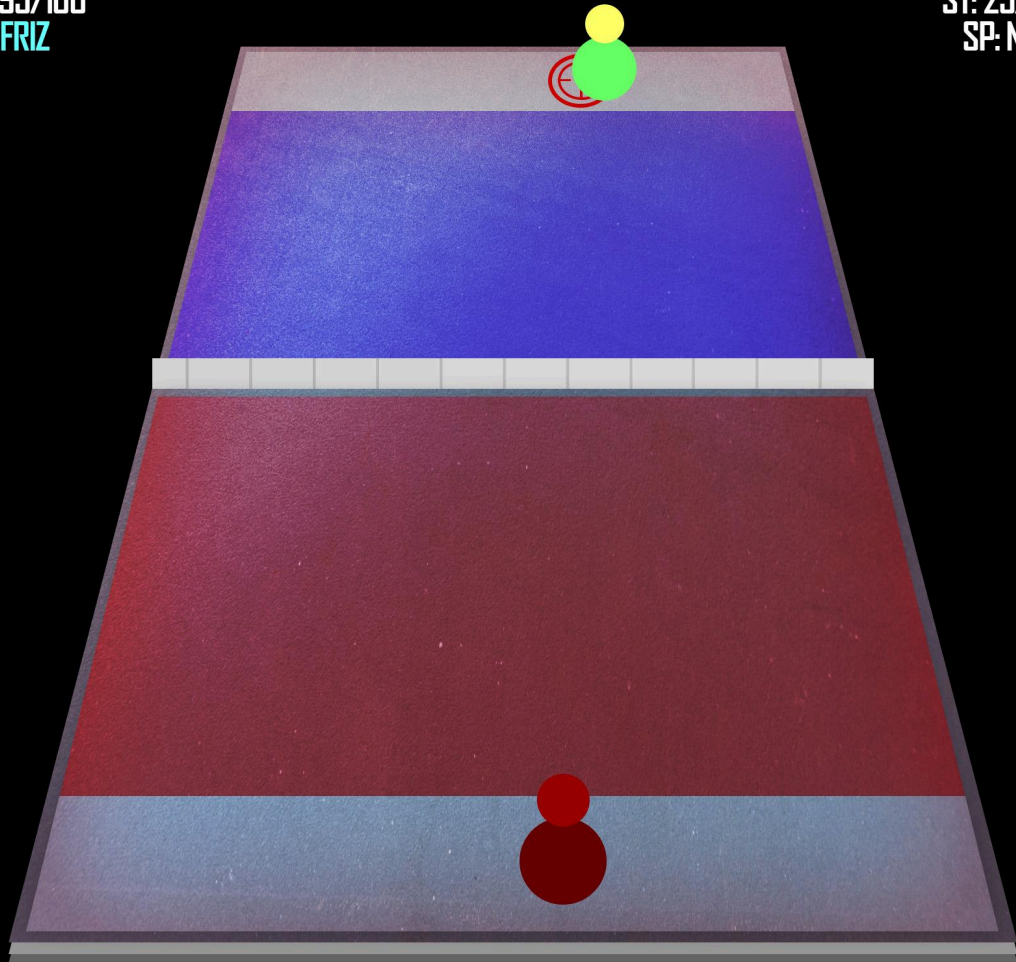
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- Once both players have chosen their element types, the game begins.
- The player's color will vary based on the element type. Also the players will be rendered in 3D using two spheres.
- Each round, the round and the attacking and defending players are announced in the UI.

PLAYER RED: MOJAR
TYPE: FIRE

HP: 55/100
ST: 95/100
SP: FRIZ

PLAYER RED: MAJOR
TYPE: ELECTRIC

HP: 72/100
ST: 25/100
SP: NONE

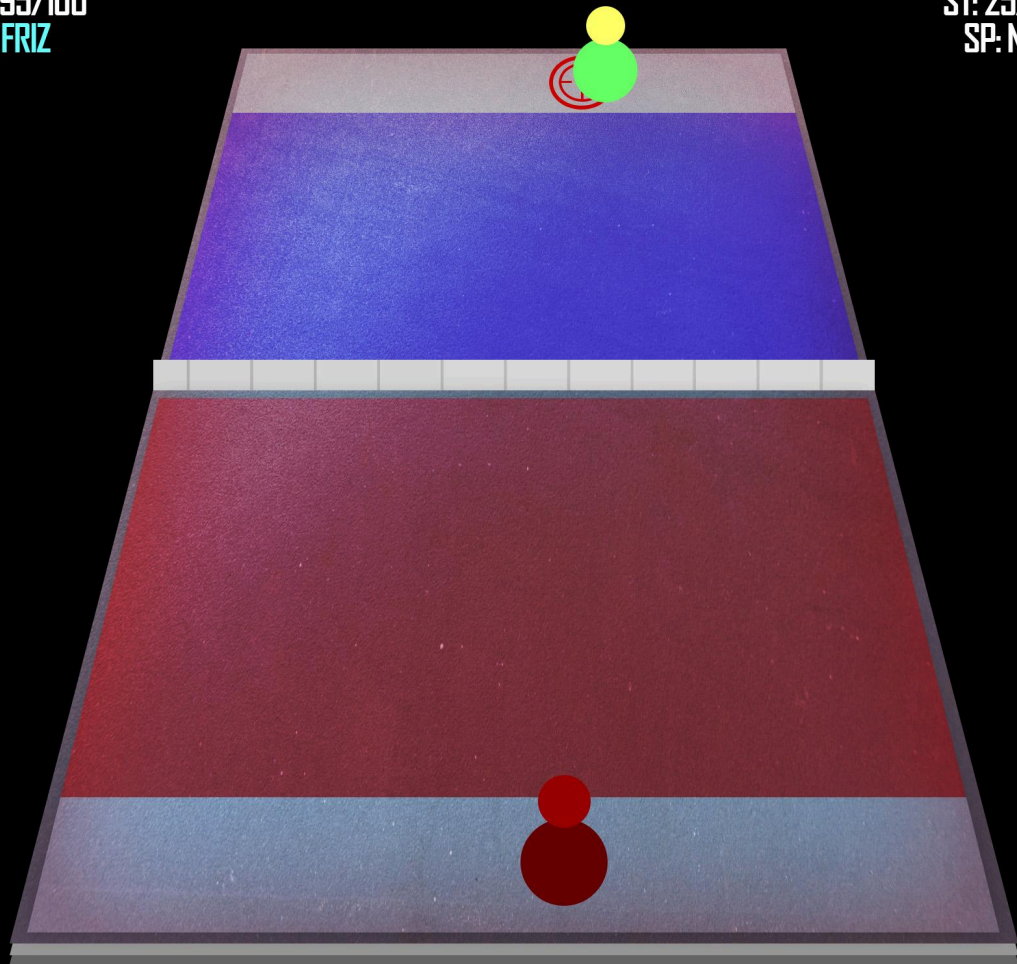


PLAYER RED: MOJAR
TYPE: FIRE

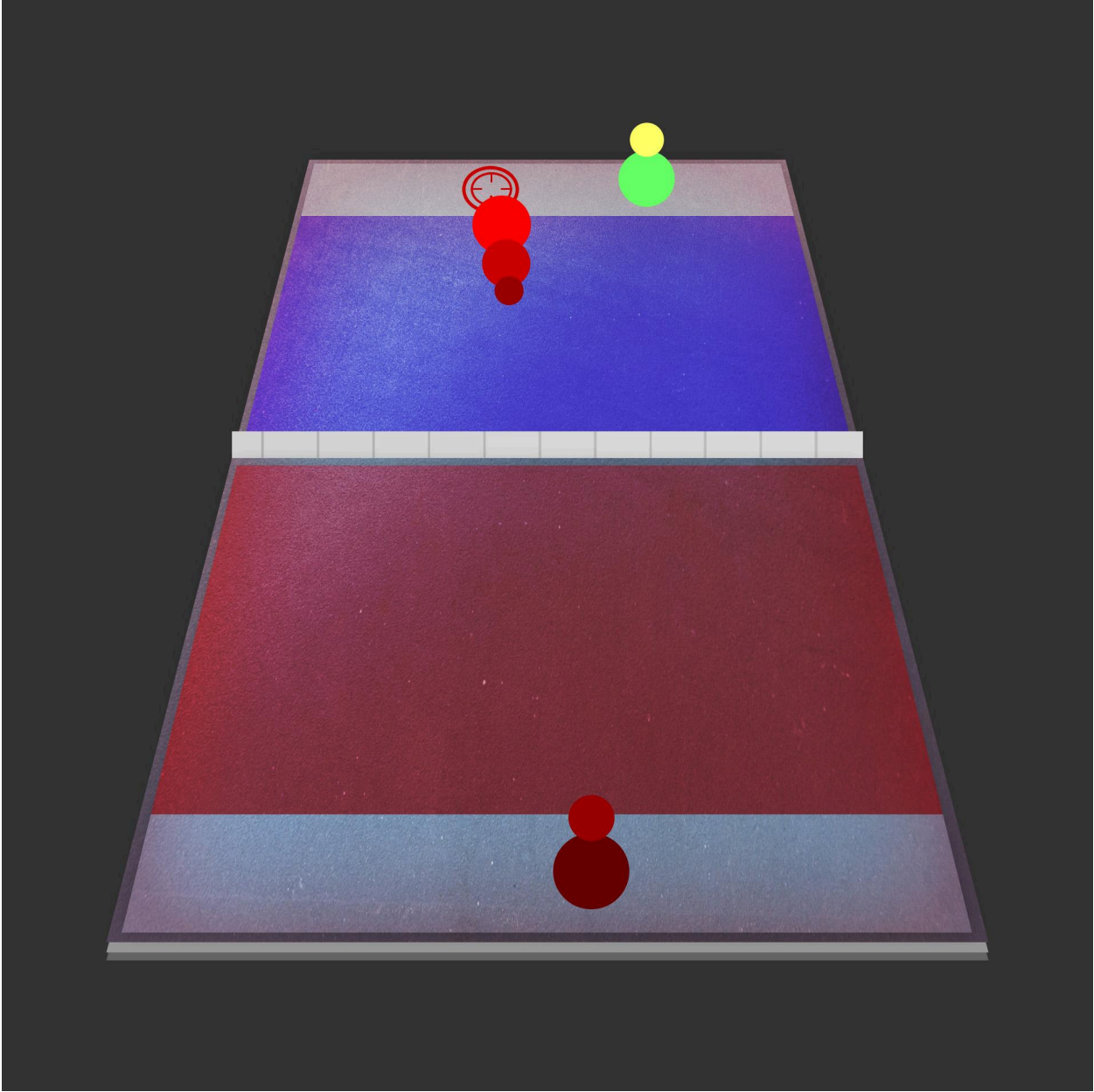
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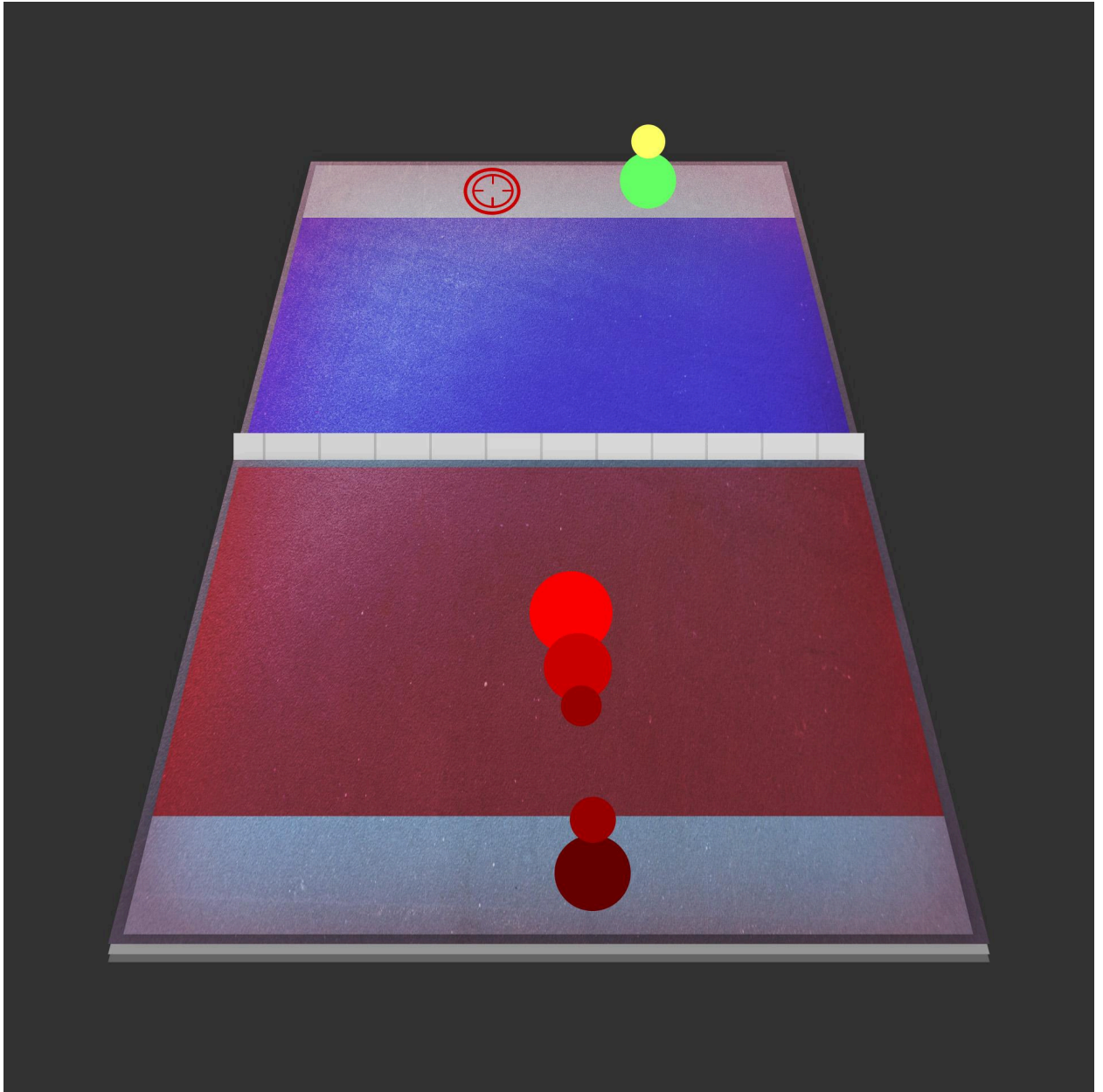
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ROUND 3: RED IS ATTACKING

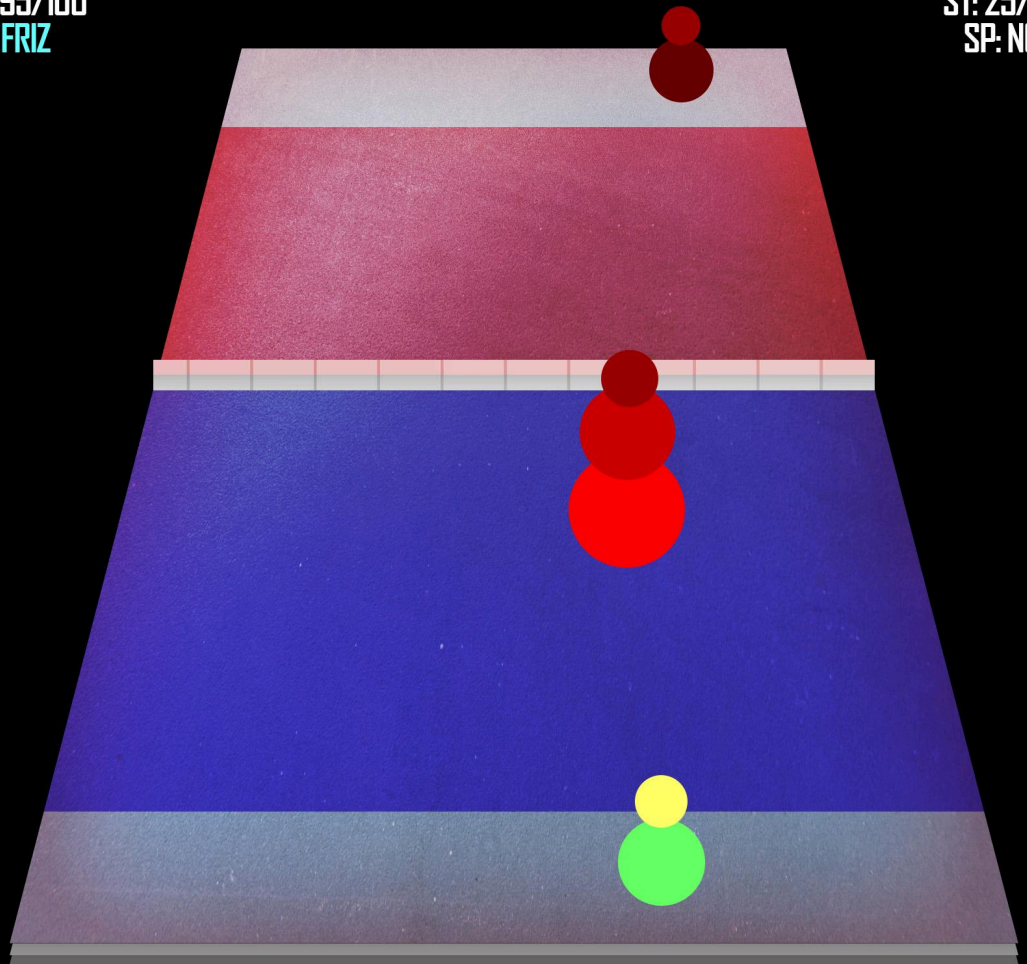




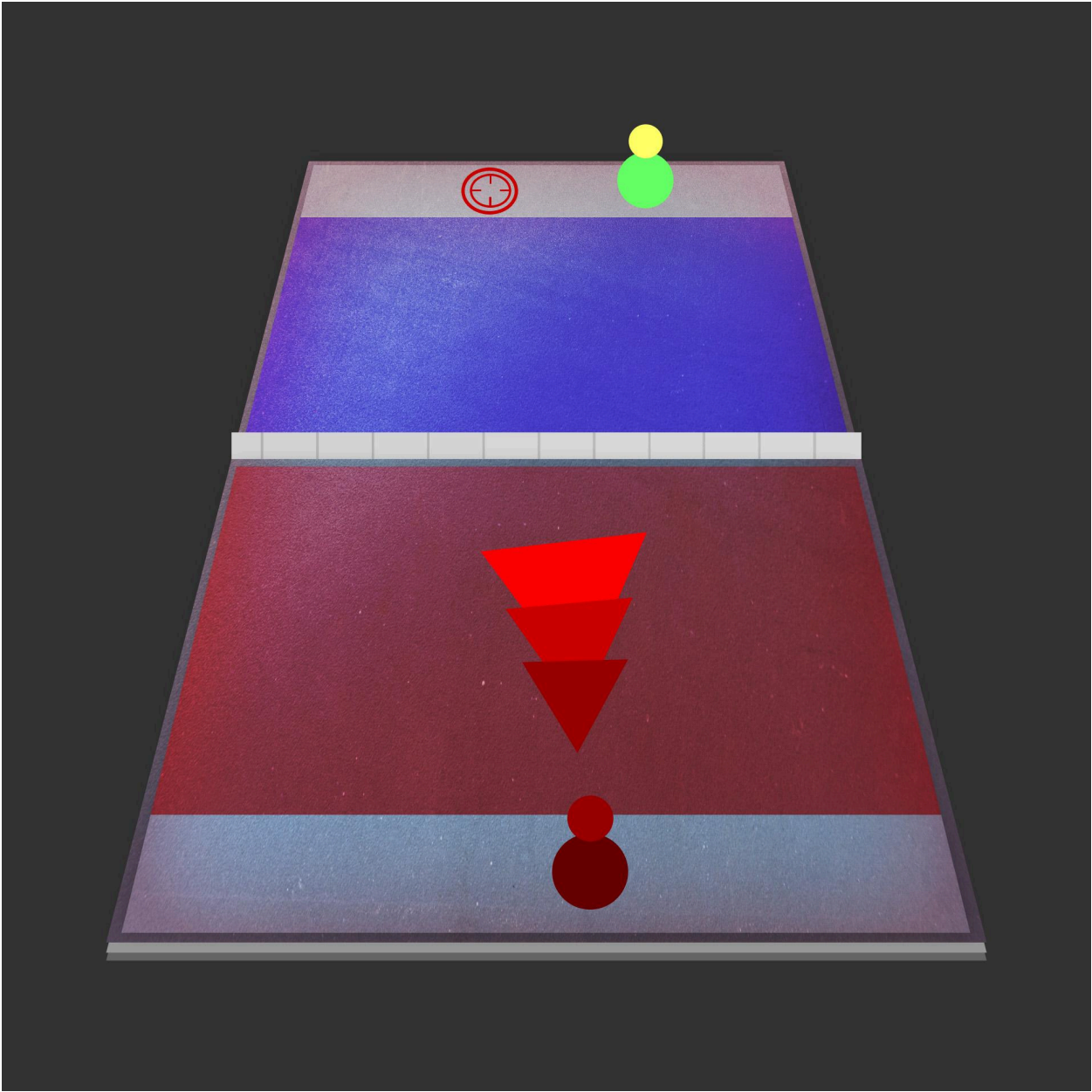
- The basic attack will look like a fireball, thrown from the attacking player's side to the defending player's side. The fireball will travel in 3D space. Fireball color depends on the player element type.
- When player 1's turn is over, it's player 2's defending turn and control will be given to player 2. Player 2 has to dodge the attack.

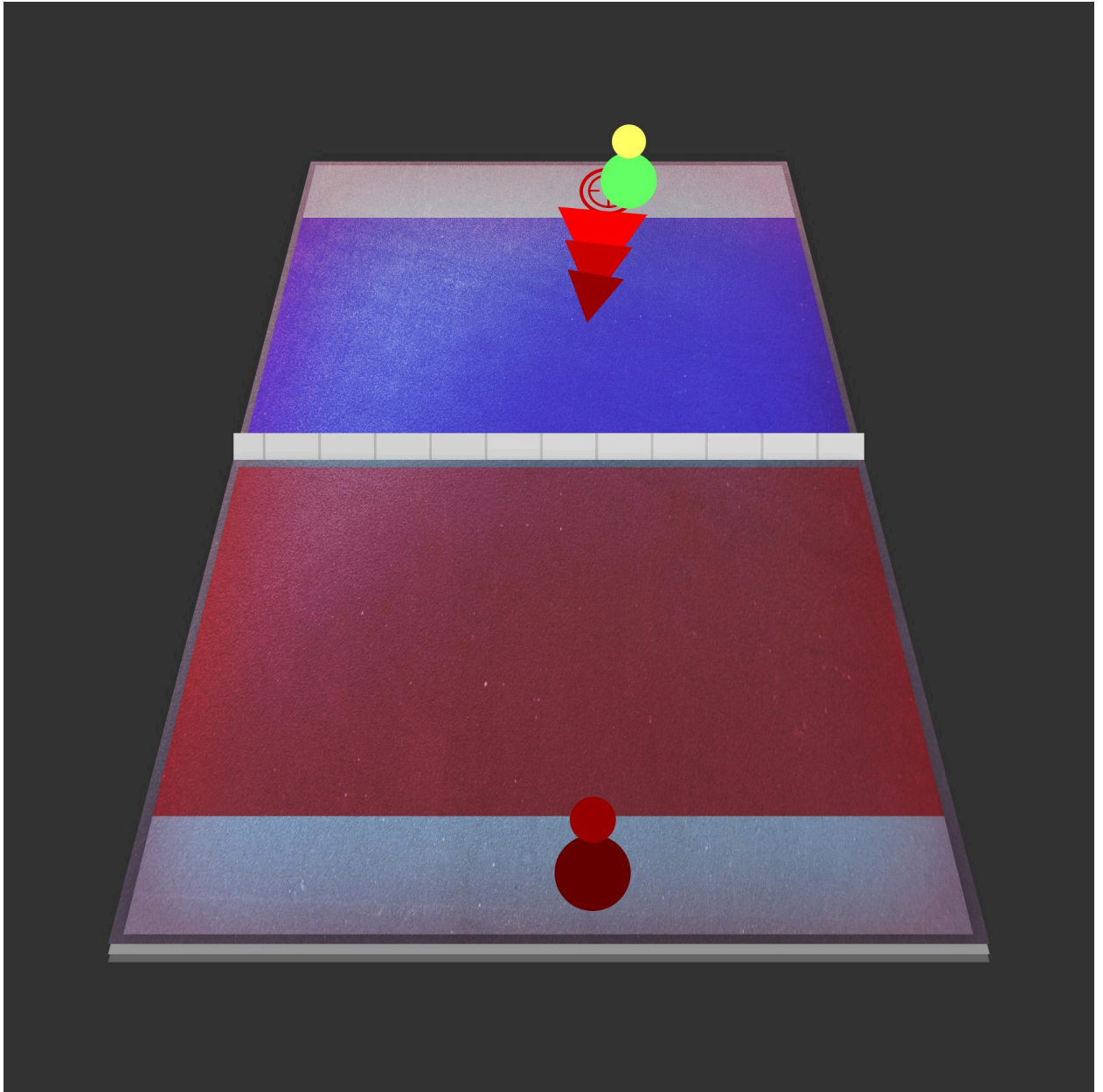
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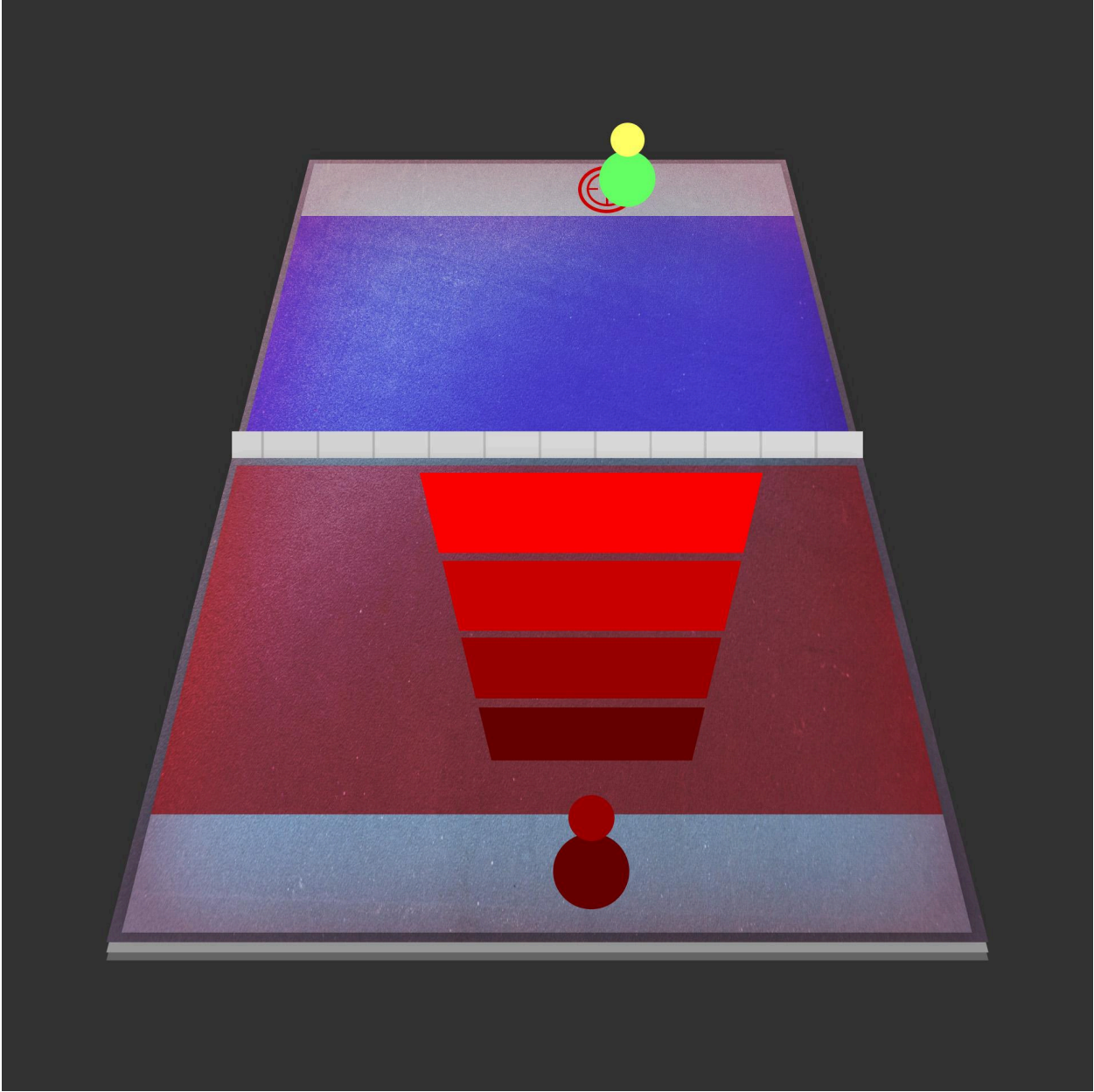


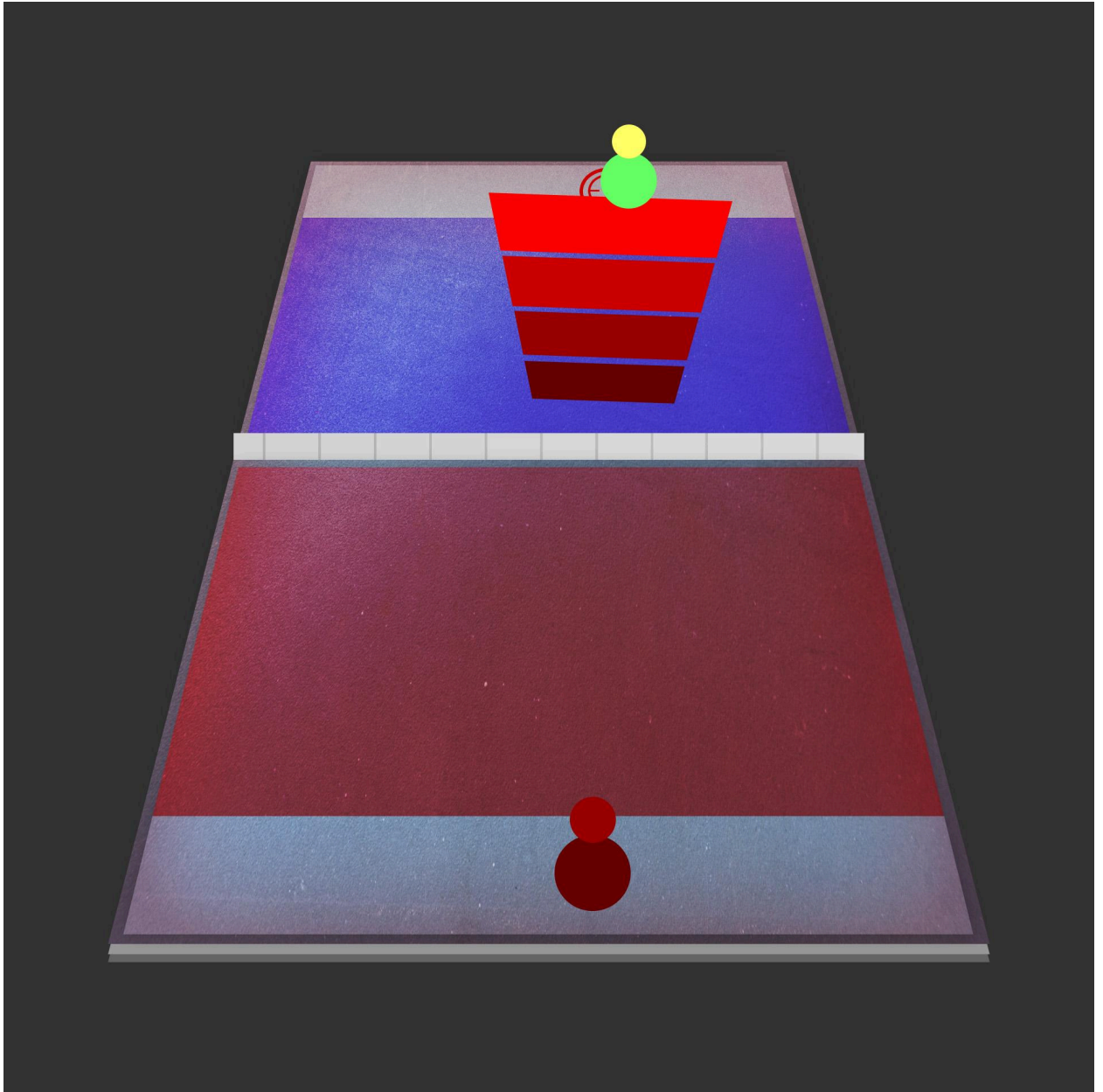
ROUND 3: BLUE IS DEFENDING





- The signature attack looks like 3 triangles. It will also travel in 3D space and will hit the opponent. It has a larger area of effect than regular attack and can inflict Status effect. For example: Fire type attack will inflict Burn status effect on the opponent. Attack color varies for different elements.
- For signature and basic attacks, the players can parry. Ultimate attacks cannot be parried.





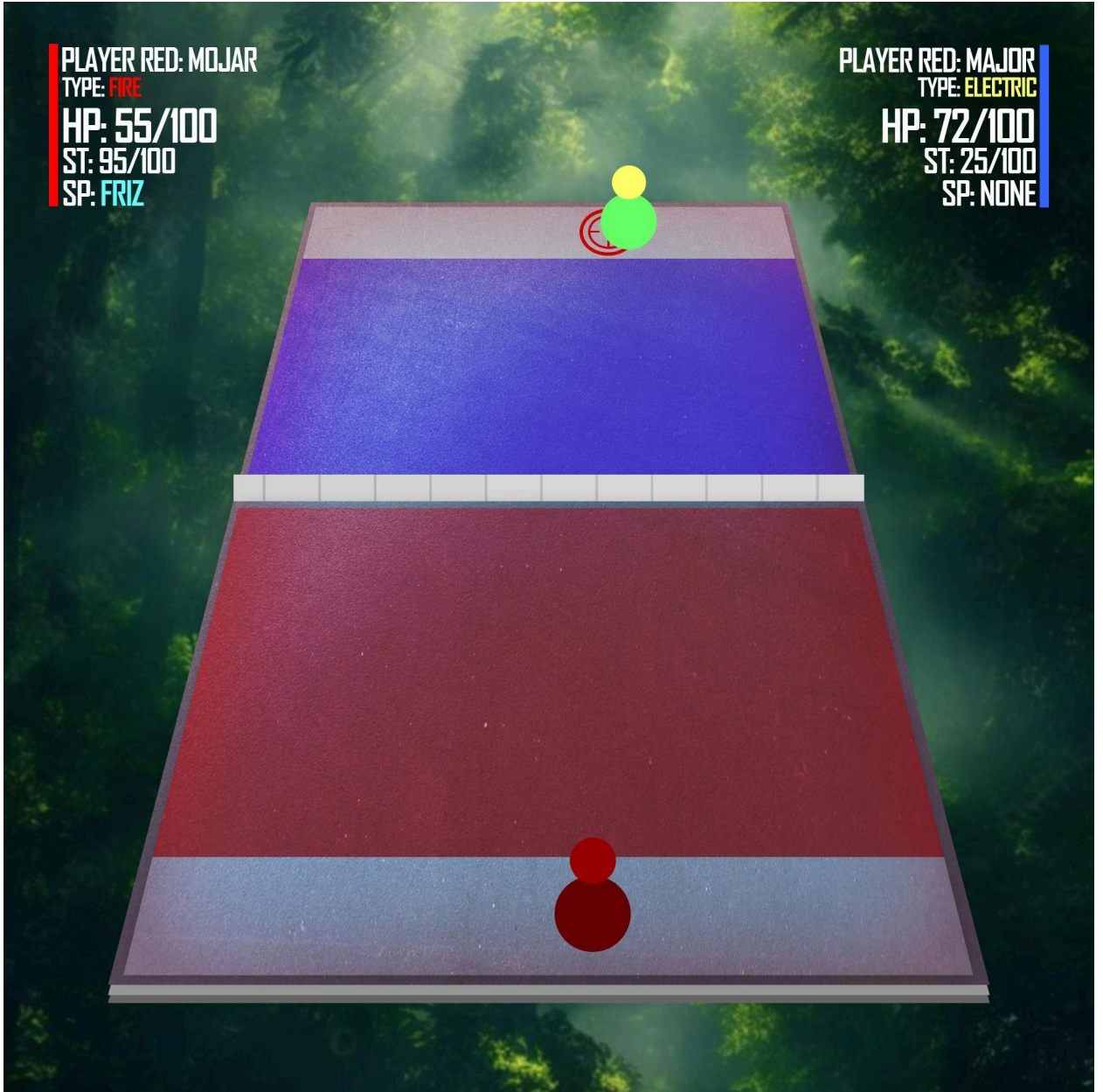
- The ultimate attack travels in 2D space on the floor. The player has 2 ways to dodge it. Either the player can move out of its way, which is hard because of the area effect; or the player can jump to dodge the attack (preferred). The player needs to time the jump to perfectly dodge the attack.
- Ultimate attacks can trigger status effect. Also, attack color depends on the element type.

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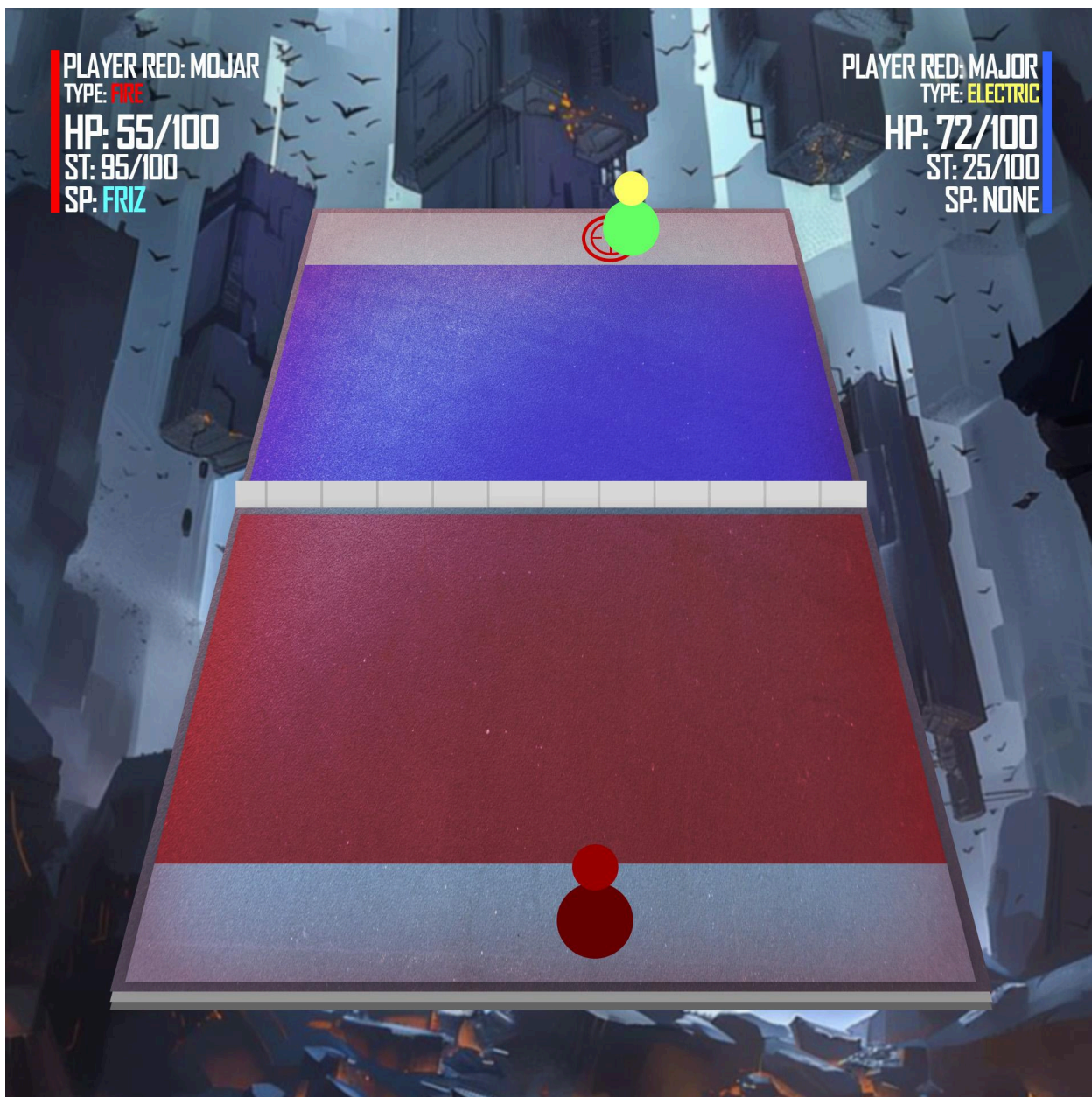
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