

**Statement of Originality:**

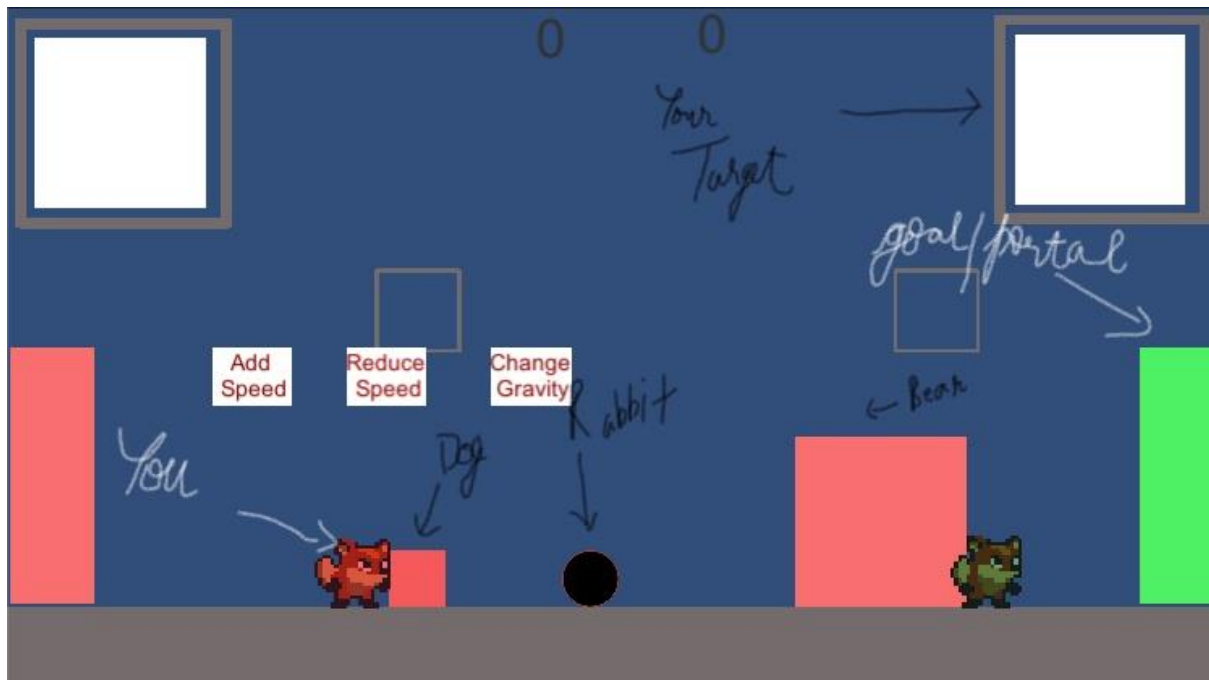
I certify that the following used in the creation of this prototype are my own original work:

- Code found in all scripts except for ArduinoController.cs & CharacterController.cs are my own.

References for all external sources can be found on page 9 of this document.

**The Concept:**

The concept is a player vs player (PVP) game where you can summon animals and use them to score goals. The game works similar to football, where your goal is to send animals (the ball) through the goal (the portal). Each animal you spawn/summon has its own attributes, specialties and interactions on the field. The backstory of game is that you and your opponent are wizards competing in between dimensions to save your world's dying environment. Since environment is dying due to destruction of natural habitat, your task is to simply send animals your world needs (target) through the portal to your world. The player who sends most animals to their world wins the game. Every animal you summon has a lifetime so, you have to be mindful of when you summon an animal. Additionally, there are also power ups which you can use to get momentary advantages on your opponent.



Physical interactions for the game include performing gestures. To move towards right, you continuously tap your right thumb on your index finger and similarly tapping left thumb, you can move left. Moreover, you can summon animals at your will by performing special summoning rituals (i.e. special gestures). These gestures are basic and easy to use. An in-depth about summoning gestures in game is explored in the blog entry below along with different animals classification –

<https://ixd-deco2300.uqcloud.net/blogs/physical-interactions-5db64fd3dc962>

### **Recap:**

Previously, the game was basic with only fundamental mechanics and elements present. As such the game didn't offer much in the way of fun. To make the game more engaging experience, several abilities/ features have been added to the game. This idea was discovered in testing session of Interactive Prototype 1, where the tester suggested the inclusion of some form of power ups. The idea was further advocated after research into similar PVP game. Almost every PVP game has abilities that allows more strategies and that's the rationale for adding these features to the game.

The first new feature added to the game is a dash/boost. This boost works similarly to boost in racing games. The boost makes the character sprint for a split second and then can be reused after every four seconds at the will of the player.

In addition to boost, power ups have also been added. These power ups are in the form of altering movements of opposition. Since movement is a core mechanic of the game, manipulating it seems logical. Currently, there exists three movement altering power ups – add speed, reduce speed, change gravity. Add speed increases the speed of the opponent. This makes it harder for opponent to control their character. And reduce speed reduces speed. Reduction in opponent speed might give the player to time and space to summon their desired animal or simply go past them towards goal. Add speed and reduce speed in addition to their abilities also reverses opponent's movement keys. So, if opponent presses key to go right, they will go left and vice versa. Lastly, change gravity reduces gravity, making the jumping and falling down really long and slow. While change gravity is applied, opponent has to pay attention to when and when not to jump because one jump can easily be their doom. These abilities last for 5 seconds and are not stackable, that is applying them again and again doesn't intensify their affects but just resets the timer for ability activation.

### **The Purpose of this testing round:**

The game right now has its core elements with all the basic necessities completed to satisfaction of the players. This was done in previous testing session – Interactive Prototype 1 to tune digital interface and Interactive Prototype 2 to tune physical interaction.

What the game lacks is another standpoint. As explained in recap, it was suggested by one of the testers that game can become more interesting by adding more interactions and power-ups. As can be seen in similar player vs player games, it is common to have things such as power-ups to create a decorum of "fun" in the game. I aim to make game more fun using this testing round. To further understand fun, further research into RIOT games 8 types of fun was undertaken and below link provides further info about the topic –

<https://www.riotgames.com/en/urf-academy/fun-and-feeling>

From here onward, the two "fun" types most relevant to the game idea are – Challenge and Expression. So, the testing agenda for this prototype is to test out how much fun these newly added features provide in context with these types.

When it comes to testing these features/abilities, there are two key aspects I want to explore. The first aspect to test is the form of delivery. What "form" means is how a player can access these abilities. An example of this is – player can have power-ups they can use as a basic set of their

controls i.e. using keys. Another example of form is – players may have to fight for these “features” to use against each other. The former example gives players “expression” fun because they have easy access to the ability, and they can use it to gain upper hand on their opponents at the right moment through the use of creativity. The later example falls under “challenge” fun. When you have to fight to get an ability, which in turn makes it rewarding and gives them a sense of joy.

Another aspect to consider when it comes to the power ups is their power. It can easily be overpowering, which can disinterest the second player. I want to see how it can be for players on the other side of spectrum, with no ability and much options, how do they try to fight against it, how long do they try and what as an overall was their reaction to this unfairness. In simple words, I want to see if they are still willing to play the game even though they are being dominated and does this give them a form of delight. My goal is to find balance between power ups so that even though player may not use them or have to fight against them, they do not get disinterested.

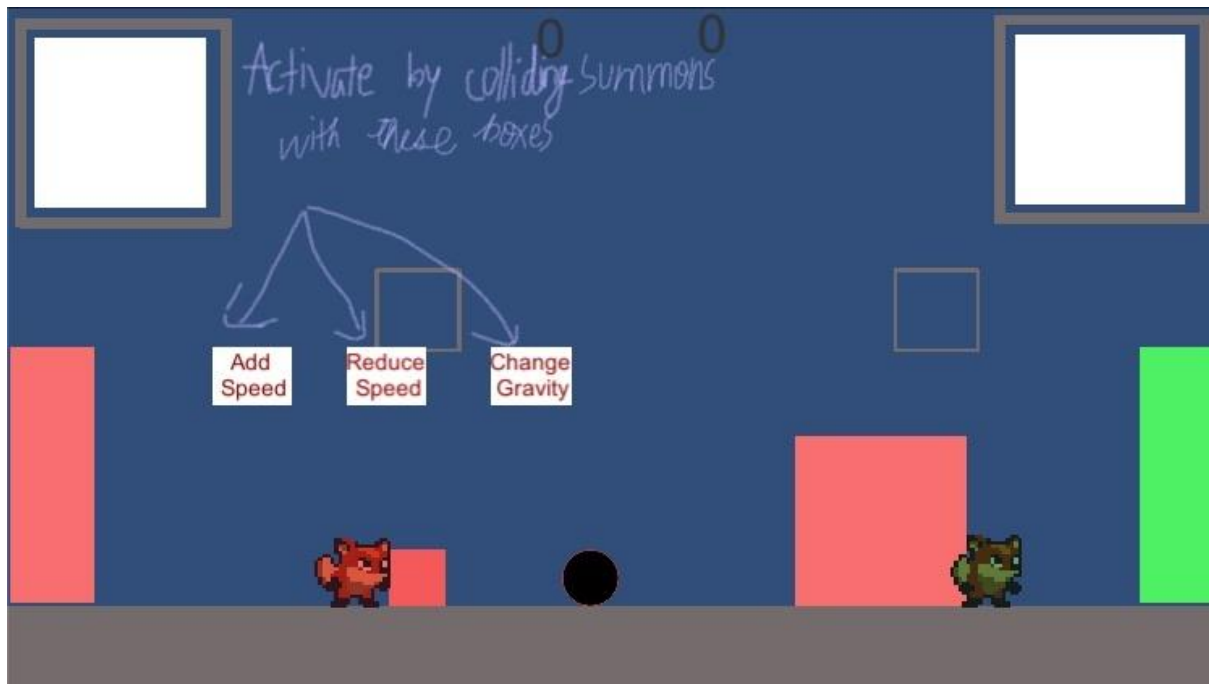
To accommodate and test out the features explained above, only improvements to the digital interface were made. These improvements were just addition of new abilities. Two different forms of accessing the abilities were added. Moreover, for testing the disadvantaged side, code was written in such a way that restricts the right player from being able to use abilities. On the physical interaction side, constructing the physical prototype with new gestures and controls did not seem necessary to the purposes of testing so they were left out. Physical interaction does not provide any hinderance to the playing aspect of the game and on its own, it’s focus is to role play into the wizard cosplay. Hence, as the physical interaction does not affect the agenda for testing round, only digital interface was used, which performs same actions as physical interaction but in a simplified manner, i.e. using keys instead of gestures.

### **The Form of the prototype:**

The prototype for this testing session is just the digital interface of the game. The prototype has all the basic controls as below –

<u>Actions</u>	<u>Left Character</u>	<u>Right Character</u>
Movement and Jump	A, D, W	G, J, Y
Boost	L-Shift	R-Alt
Summon dog	1+E	5+U
Summon rabbit	2+E	6+U
Summon bear	3+E	7+U
Activate “add speed”	Z	NIL
Activate “reduce speed”	X	NIL
Activate “Change gravity”	C	NIL

There are two ways to activate the power ups. The first way is to use set of keys mentioned above, the second way is to collide your summons with the ability box.



Other aspects of the game are the same as mentioned in *The Concept*.

### The Testing Approach:

The testing is in the form of A/B testing. Instead of creating two different versions of prototype, the game contains two simple ends of a prototype. The left character is overpowered in every sense. He has been given abilities, ways to use them and every advantage he/she may need. The second player, right character is not given any ability and furthermore, he/she has disadvantages because what left character's abilities does is make it difficult for right player to play the game. It restricts their options and movement and continuously tries to confuse them.

To test out what each player's approach to game would be, each person would experience both sides. First, tester would use left character (i.e. overpowered wizard) and asked to complete the following tasks –

- Goal 2 points using abilities (using colliding boxes).
- Goal 2 points using abilities (using keys).
- Try to push your opponent into goal post.

Scoring using colliding boxes and keys are supposed to get tester's views about the "form" of power up. While doing these tasks, testers are asked to think aloud. This gets their thought process while playing the game. After completion, testers are asked to switch around to use right character (wizard with no abilities) and complete same tasks without any abilities. Following their completion of tasks, they are asked a spectrum of questions pertaining to the difference between both states of the game. Below are the questions asked along with the reasoning behind asking each.

Q1.) Tell me at least one thing you liked and disliked about the game.

Here I want to get testers to say about the positives and negatives they got from playing both sides. Positives are things that makes game more fun and negatives are things that can be further worked on.

Q2.) What is your imagination of balance between both these sides?

Here, I explore the first goal in testing agenda, i.e. to find the best form to use the abilities. By asking players balance they come up with ways to be able to use abilities that give each player fair chance.

Q3.) If given chance to change the game according to your liking, what would you do to the game?

In this question, testers give their opinion about game's direction and the way they would like the game to go. Testers get to weigh in their ideas this way.

Q4.) Summarise your experience?

The last question is supposed to be the closing of their testing experience. Testers are able to tell any other aspect of game improvement I might have missed in the previous questions.

#### Method of Evaluation:

Both think aloud and questionnaire gives qualitative data. Qualitative data is analysed by going through each answer and trying to understand the issues among players.

### **Evaluation Outcomes & Reflection:**

Summary of Think Aloud –

For raw notes refer to Appendix A on page 7. Below is the summation of data collected through think aloud exercise.

- Mobility Altering power ups are thumbs up. Also, tester suggested resetting player position after each score. (Kevin)
- Opponents should be given a way to counteract the other player using ability. (Harry)
- Tester wanted to fight for ability rather than it being presented in front of him. Tester also came up strategy to use change gravity power up. (Eugene)
- Tester liked being disadvantaged. He feels more engaged because he has to try more. He also was able to adapt to add speed power to be advantageous to him on the right side (disadvantaged side). (Anthony)

Summary of Interview –

Refer to Appendix B on page 7 - 9 for Interview Transcripts.

- Testers were pleased with how power ups worked, especially how abilities alter their opponents. (Q1, Kevin, Eugene & Anthony)
- Tester was pleased with the way you can activate ability on his side of screen only. It gave him home ground advantage. Also, boost was not used as much as expected. (Q1, Harry)
- Testers suggested to fight for the abilities. Suggestions included moving boxes and being able to throw the ability somehow. (Q2, Harry & Eugene)
- Some way to reverse the ability or cancel is suggested. This gives the other player a way to counteract. (Q3, Harry)
- Reversing control on slow speed isn't of much use. Also, player came up with way to use add speed ability. (Q3, Anthony)
- Player suggested an alternative way to use change gravity. (Q3, Eugene)

- Suggestion of replacing slow speed by freeze ability. Moreover, boost isn't useful for new players. (Q4, Harry)

Changes to game –

Following are the changes which correspond to the points highlighted in summaries above.

- The players are pleased with mobility altering abilities although it can be improved. Immediate improvements include changing reduce speed to freeze because they do the same thing. Change gravity can have two modes, one where gravity is reduced and one where player goes to opposite side of floor. Add speed remains the same.
- The way players can access ability is changed. Basically, a chest would move around map which both players can do damage to by hitting it with their summons. Then after chest breaks you get a random ability which you can throw to opponent by performing some unique gesture (like a throwing action). If opponent dodges, they can then pick up ability. This makes it competitive to gather ability and also gives the opponent a chance to counteract it.
- Resetting of player position to default after each score. This is better since it stops the opponent from being in advantage after being so near to opponents' goal.

Sufficiency of Prototype –

I believe the prototype to be sufficient to the purposes of testing. The prototype contained sufficient level of abilities to introduce to testers the concept and in the end, I was able to get a balanced approach to use abilities, which I aimed for. Additionally, I was able to understand the disadvantaged player's side and how even a disadvantage can be engaging. To summarise, prototype was sufficient and allowed me to explore aspects that I wanted to.

## **Appendices:**

Appendix A (Think Aloud Notes) →

Kevin:

- A tutorial for clear way of understanding controls. Like those tutorials where you have to follow an action.

- The player's positions should reset after a score. You can't score multiple times, One score and then you are back to position you started.
- No point in adding speed. Could be advantageous to opponent after their initial shock of flip controls.
- Using mobility altering controls are a good idea.

Harry:

- Bit difficult to learn control because of no gaming background.
- Should be given choice and actions that opponent can take. Something like reversal can be good to counteract ability.

Eugene:

- Spawning and fighting for activating ability rather than pressing button is preferred because it gives reason to go back to my part of screen.
- Change gravity button is most powerful among them. Can attack and if the opponent has to defend, he has to jump then I can cross him and score.

Anthony:

- Game more challenging than before.
- Have to be more aware about jumping. One jump when change gravity is applied can be dangerous.
- Being on disadvantaged side, I am more engaged. Didn't have to try on the other side (the left side, with abilities) but since I have to put in more effort, it's not boring.
- Ability such as add speed is advantageous once you adjust to inverted controls.

## Appendix B (Interview Transcripts) →

Q1.) Tell at least one thing you liked and disliked about the game.

Kevin:

Liked that you can manipulate opponent. Disliked unfairness to right side (the one w/o ability).

Harry:

Liked how he can activate ability on his side. Gives him home ground advantage. Disliked boost since it wasn't much useful.

Eugene:

Liked adding speed and reduce speed flips movement. Disliked Aesthetics. Could have a background and space warping affect for the portal (goal).

Anthony:

Liked that it's fun to mess with the other player. Disliked that its unfair on other side.

Q2.) What is your imagination of balance between both these sides?

Kevin:

Use abilities for defence purposes only.

Harry:

Use the same boxes but you have to fight against your opponents to get the ability. Boxes can move around and appear/ disappear.

Eugene:

Grant a summon to player randomly and if the player and touch the opponent with the spawn, they get the effect. Just like throwing potions in Minecraft.

Anthony:

Make the buff and de-buff for each player the same and have objects appear in the same location based on the screen (e.g. - red side does not have all 3)

Q3.) If given chance to change the game according to your liking, what would you do to the game?

Kevin:

Timer for showing the ability effect time. Like on the icon and time remaining till ability wears off.

Harry:

Include those buttons like in WWE. Press button again and again to break through the power up effect. Or some other series of commands to break the ability.

Eugene:

Improve visual presentation of the game. Except for that, controls seem solid. Could also add another ability where you reverse gravity and opponent lands on the opposite side of floor. Then they can only defend using their spawns.

Anthony:

There's no point in reversing controls for speed. In add speed it makes sense because if I activate ability, you go flying in other direction than one you want to but that doesn't happen in slow speed. So, I would just remove the inverted controls for slow speed.

Q4.) Summarise your experience.

Kevin:

The game is much more unique and interesting compared to before. The only thing I keep forgetting is the targets displayed are top corners. I lose track when the target changes.



Harry:

I was unsure about controls at start but later on got used to them. Boost was not very useful, maybe it would be used in more master level competitions. Liked the ability, could replace slow speed with freeze for second or two since slow speed is almost equal to freeze.

Eugene:

Good concept and would love to play more.

Anthony:

Make the game more fair!

## References:

- Character Assets : Assets/Downloads/Sunnyland by ANSIMUZ retrieved from Unity Asset Store([ <https://assetstore.unity.com/packages/2d/characters/sunny-land-103349>]), Last Accessed 2/9/2019
- ArduinoController Script: Assets/Scripts/ArduinoControllercs by Jason Weigel retrieved from Deco-2300-7230 Slack Channel
- Character movement Scripts: Assets/Scripts/CharacterMovement.cs & Assets/Scripts/PlayerMovement.cs by Brackeys retrieved from 2d movement in Unity(<https://www.youtube.com/watch?v=dwcTDch0bA&list=PLPV2Kylb3jR6TFcFuzI2bB7TMNIIBpKMQ&index=2>), Last Accessed 2/9/2019