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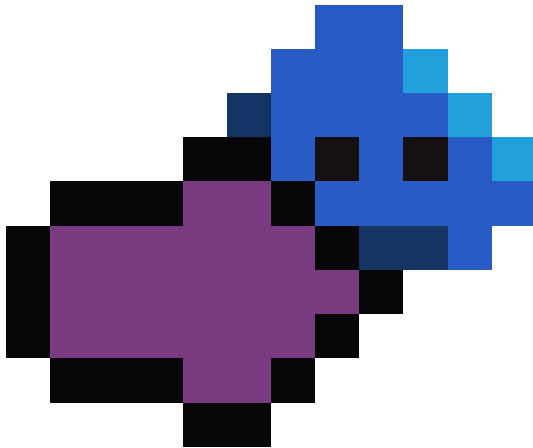
## Implemented Mechanics

### Feature 1: Enhanced Movement

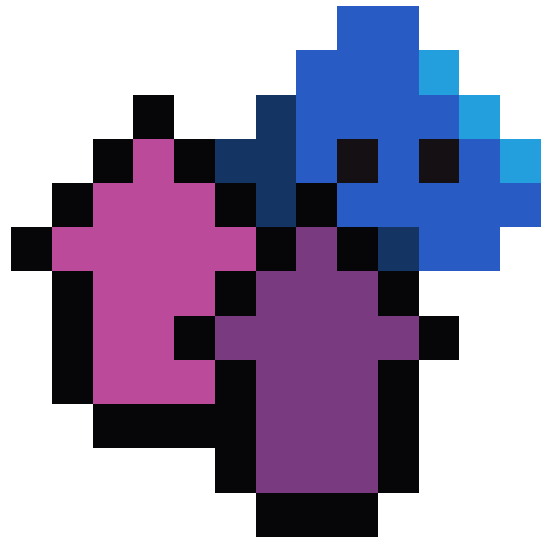
#### 1. Slime Dash

- a. The first mechanic we implemented was a dash. The dash ability is disabled by default, the player must grab a power up in order to unlock the dash. Picking up the powerup sets the maximum number of dashes and current number of dashes to 1. To dash, you must press the left shift button while also holding any of the following combinations of movement keys; A, A+W, A+S, D+S, D+W, D or arrow keys: (left, up and left, down and left, down and right, up and right, right). The player will then dash in that same direction for a number of seconds equal to dashingDuration (default 0.3 seconds), and with speed equal to dashingPower (default 10 times moveSpeed). During the dash, gravity is disabled for the player. Using a dash subtracts 1 from the current number of dashes. Dashes recharge at a rate of one per (default 1.5) seconds up to the maximum. At the end of the dash, the player is once again affected by gravity. There is an additional upgrade available that when collected increases both maximum dashes and current dashes to 2.

#### b. Powerup to unlock dash



#### Powerup to unlock double dash



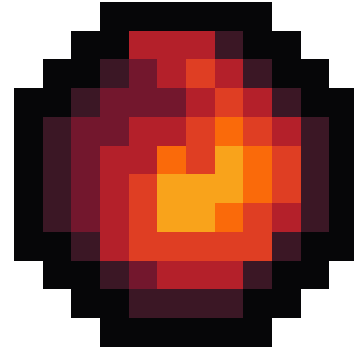
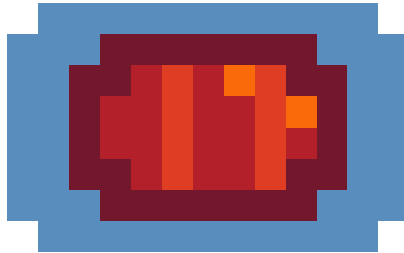
#### 2. Barrel Jump

- a. The second mechanic we have implemented was barrel absorption/jumping. Same as dashing, there is a power up you have to grab in order to unlock the ability to pick up and use barrels. With the upgrade, the player stores a boolean indicating whether or not a barrel is being held. If the upgrade has been unlocked, when a barrel hits the player and no barrel is currently being held, the colliding barrel is destroyed and the holdingBarrel boolean is set to true. A UI icon representing a barrel will appear in the top left corner of the screen to indicate a held barrel. If a player is hit with a barrel while holding one, they are

killed. Pressing C while the player is holding a barrel and is in the “grounded state” (bottom half of the character colliding with the ground) will start a barrel jump. This is a vertical jump with (default 2) times the power of a regular jump. Using this ability “consumes” the held barrel, allowing the player to pick up another one.

- b. Power up to unlock barrel jump

Icon in bottom left of screen



### 3. Wall Climbing

- a. The last mechanic we have implemented is wall climbing. For now this is default behavior for the slime, but eventually we will add a power up to unlock this ability as well. Currently, the only climbable objects in the game are vertical walls (the only one in this build is in the test level). An object is considered a wall by its layer. If the player is colliding with a wall, you may hold Left Control to activate climbing mode. In climbing mode, you may use the W and S keys to move up and down the wall.

## Feature 2: Added Obstacles

### 1. Breakable Walls

- a. One of the new obstacles we have implemented are breakable walls. Breakable walls are denoted by their more purplish color compared to the more pinkish color of the walls and floors. Utilizing the Slime Dash mentioned earlier, when a player is in the dashing state and collides with a breakable wall, the wall will break into multiple pieces via particle effects and disable itself, thus unlocking an area a player might not have had access to previously. The walls may be broken from any side. These walls will not respawn upon being broken.

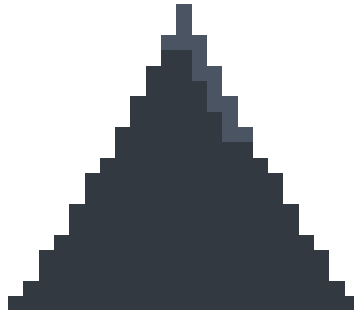
- b. Color of breakable wall



## 2. Spikes

- a. Another new obstacle we added were spikes. Typically placed upon a wall or floor, when the player collides with any spikes they will die. If the player touches the underside of a set of spikes, they won't die. However, this behavior is not expected, as spikes will almost always have a platform behind them preventing the player from accessing that side. Our spikes are gray scaled, allowing us to modify the color of the spikes within Unity's Sprite Renderer.

- b. Image of a singular spike (zoomed in)



## 3. Mud

- a. A nonlethal obstacle we added is mud. Mud looks similar to normal platforms except coated brown on the top half of its surface. When the player is in contact with mud, their movement speed is slowed by (default 30%) and they are unable to jump. Mud has no effects on the player's ability to barrel jump or dash. The image of mud shown below is gray scaled, because we use Unity's Sprite Renderer to change the color with the color setting.

- b. Mud Tile Shown Below



## 4. Water

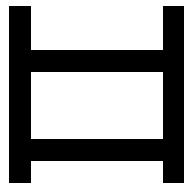
- a. Another obstacle we have added is water. Similar to spikes, when the player touches water they will die. Unlike spikes, touching water from any direction will kill the player. Water will also destroy any barrels that come into contact with it. Similar to mud, the sprite for water is also gray scaled, and is also changed using Unity's Sprite Renderer Component.

- b. Water Tile Shown Below



## 5. Archers

- a. Another lethal obstacle added is archers. These are static objects that fire projectiles named arrows. Archers, by default, instantiate an arrow instance once every (2.5 seconds). Archers may call one of four methods to instantiate arrows, one for each orthogonal direction.
- b. Arrows, once created, spawn with speed and direction. By default, arrows move with a speed (equal to the player), and a direction dictated by the method by which they were created. Arrows are destroyed after colliding with any other object except for Archers and Barrels. If an arrow collides with the player, the player is killed.
- c. Temporary Archer Sprite Below (Negative to show on white bg)



- d. Temporary Arrow Sprite Below (Negative to show on white bg)



## 6. Falling Platforms

- a. The last obstacle we have added were falling platforms. These platforms act similar to platforms, but when stepped on will fall for a period of (default one second) before beginning to disintegrate after falling for (default one second), then completely disappear. Once they disappear they can't be landed on and they don't respawn. They are denoted by their light yellow color.
- b. Falling Platform Shown Below

