

Game Design Document (GDD)

Cannon Cane Christmas

(working title)

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1.0 Overview

Use a cannon to shoot present components into present boxes. A different completed present is created depending on which present components are placed in the present boxes. The player must earn as many points(score) as possible within each stage's time limit.

Breaking down our basic gameplay:

- Use a cannon to shoot components into present boxes to craft presents.
- The player must select which components they wish to fire from the assembly conveyor.
- Presents are crafted by following recipes that require different combinations of components.
- The player must craft as many presents as they can to earn points(score) and unlock new recipes and components. (Which will travel down the conveyor).
- As new recipes and components are introduced, higher valued presents can be crafted to earn more points(score).
- Players will unlock more components during the stage by gaining levels in the round from crafting.

2.0 Controllable Objects

2.1 The Cannon

The W, S, A and D keys are used to control the Up[W], Down[S], Left[A], Right[D] movement of the cannon. Pressing and holding the SPACEBAR increases the power of the shot. The longer the player holds down the SPACEBAR, the greater the amount of power applied to the shot. The power is reset to a force of 1500 (the base power) after each shot. Use SPACEBAR to shoot loaded components out of the cannon.

There is an indicator line that shows where components will travel to help the player line up their shots. If the cannon is not loaded, it will not fire.



Power is indicated by the lights below the cannon. The player is at the lowest power and decides

They push the *UP* arrow key and the power increases. The power indicator light changes and the

The player pushes *UP* two more times reaching maximum power. The lights and projected shot

he wants more power to shoot farther.	projected shot path does as well.	path change again.
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2.2 The Loader

A conveyor belt brings randomly spawned components towards the cannon loader and incinerator. If the cannon is not currently loaded, pressing *SPACEBAR* triggers the loader to push a component off the conveyor belt into the cannon loading compartment; in doing so, it loads the cannon with a component. Only one component is loaded at a time. If the player manages to place two components into the loading compartment at the same time, the first one will be the only component that is fired from the cannon. If the component is not pushed into the loader, it will reach the end of the platform and fall into the incinerator where it will be removed from play.



A component can be seen moving down the conveyor belt. The player gets ready to push <i>SPACEBAR</i> when the component is in front of the loader.	<i>SPACEBAR</i> is pressed and the loader pushes the component into the load compartment. Meanwhile the red component is incinerated.	The yellow component is loaded and the load compartment changes color to indicate what is currently loaded in the cannon.
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3.0 Components

Components are the materials needed to craft presents. The player can combine components to come up with different presents by experimenting as well as following the crafting recipes. The components that are currently in a box are represented by small images to the side of the box. This allows the player to see which components they have placed inside the box. There are two different categories of presents: bad presents and good presents. For a breakdown see [section X](#) for a list of recipes and required components to make each.

3.1 Unlocking New Components

New components will start appearing on the conveyor belt as the player reaches new levels of experience (see section 8.3). The new components will allow the player to craft presents that are worth more points(score) and use the newly unlocked components.

4.0 Boxes

Boxes accept components to create presents. Boxes spawn at random, in type and location. When all desired components to create a specific present are within a box, the player can top it off with a *Roll of Tape* component to designate it is complete. Each completed present awards the player with points(score); some are worth more than others (see [section X](#) for point(score) values).

4.1 Good, Bad, and Neutral Boxes

Neutral boxes can accept any kind of components to create presents, allowing the player create a good or bad present. Neutral boxes only give a small portion of points for presents crafted in them.

When good and bad boxes are introduced at level 5, players are only awarded points(score) if good presents are crafted within a good box and bad presents are crafted within a bad box. Crafting in the wrong type of box does not award the player any points(score).

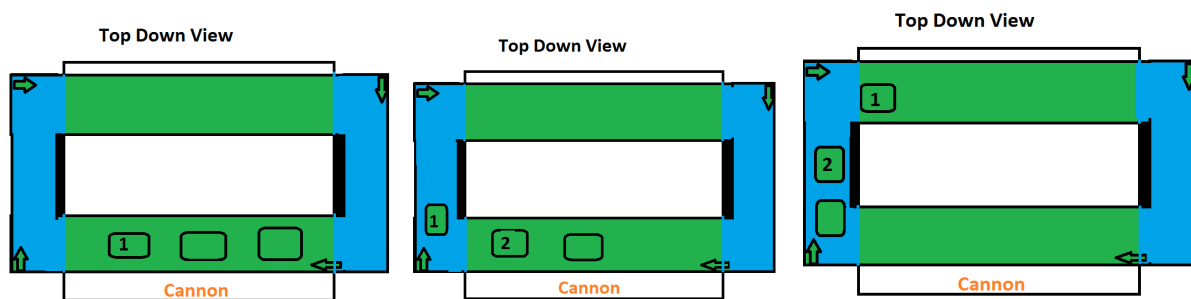
Crafting the correct present type within good and bad boxes grant more points(score) than if they were to make the same presents within neutral boxes.

4.2 Exact Boxes

Exact boxes require specific presents to be crafted within them; the type of present is indicated on the lid of the box. The player only earns points(score) if that exact present is crafted. Exact boxes are worth more than good, bad, and neutral boxes.

4.4 Moving Boxes

Moving boxes move along conveyor belts. It will be very difficult for the player to create a gift in a box before it moves out of the player's view. The box will rotate in a circle throughout the stage, so when the box comes back into view, the player can add more components to it and finish it off.



The blue and green areas are the conveyor belt. The areas in	The boxes continue to move and the far left box moves out of	The 2nd and 3rd box move out of sight. The 1st comes back into
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blue are outside the players FOV. The player shoots 1 component into the far left box.	sight. The player manages to get 2 presents into the 2nd box.	view, but it is further away. The player can now continue to put components into that box, but may want to adjust their power.
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5.0 Present Recipes

These are the possible gift outcomes of all the components when they are combined. Special recipes are worth more points(score) as there are fewer of them and they require more components to craft.

5.1 Normal Recipes

Normal recipes can be made at any time even if the player has not unlocked the recipe in their recipe book. Making a recipe that has not yet been introduced to the player unlocks it for the book.

5.2 Special Recipes

Special recipes are unlocked as described below. These are always worth more points(score) than normal recipes.

5.3 Unlocking New Recipes

Recipes are kept track of in the recipe book as a way for the player reference how to craft specific presents. Entries in the recipe book can be unlocked in several ways including:

1. Performing the combination in a level before it is learned
2. Getting a Gold Star Rating in a level (cannot be unlocked using method 1)
3. Getting all Silver Star Ratings in a stage
4. Getting all Gold Star Ratings in a stage (cannot be unlocked using method 1)

6.0 Other Objects

These are objects that help or hinder the player during game play.

6.1 Sign

Displays instructions/goals to communicate to the player what is expected of them and inform them of their current progress.

6.2 Hard Workers

Starting on level 11 workers will be on the factory floor. It is frowned upon when components hit workers, so the player will lose points(score) when this occurs.

This can create high risk/reward situations such as having boxes spawn in an area near several workers. The player can take the chance of shooting into the box, but if they miss they will hit a worker and lose points(score). The present box that would spawn in this location would be a good/bad box as to entice the player more as they are worth more points(score).

6.3 Krampus Spy

On rare occasions Krampus will send a spy to see what Santa is doing. When the spy pops his head in through the factory windows the player can earn bonus points(score) by hitting him with a component. This will allow the player to get a large amount of bonus points(score) if they have the accuracy to hit the Krampus spy, and the time to do it.

This provides the player with the choice of going for the hard to get bonus points(score), or just going steady with the boxes.

6.3 Clogs

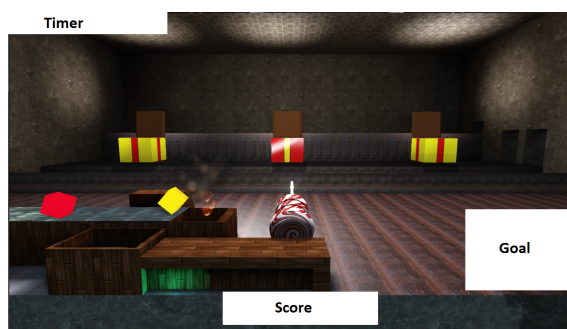
Krampus uses magic to make clogs fall from the ceiling to clog up the boxes. The player must use *Bag of spirit* to unclog the box. The component is consumed in doing so and does not count as a component in the present. If players are focusing all their efforts into one box and it clogs they must either wait for a *Bag of spirit* or redirect their efforts to other boxes while waiting.

6.4 Recipe book

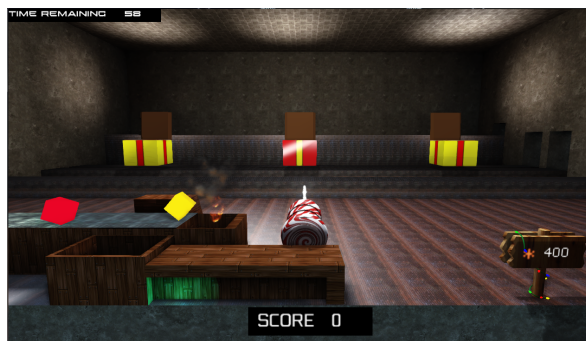
During gameplay, the player can press R to bring up a recipe book to reference learned recipes. This does not stop the game time. The player navigates this book as they do a menu (see section 10). This book gives the player the opportunity to not have to solely rely on their memory. However it is risky to use, as they lose valuable time and cannot see the screen while the book is open.

7.0 HUD

The HUD displays all the important information the player needs to know during gameplay.



Example Layout



Example Display

7.1 Timer

The timer shows how much time the player has to complete a level.

7.2 Score

The target score is displayed so the player has a goal.

7.3 Goal

Displays points(score) the player has earned during the level.

7.4 XP info

Displays points(score) the player has earned during the current player level. The player level increases by meeting XP GOAL's.

7.5 XP Goals/Levels

Displays points(score) the player must reach to unlock more components on the conveyor belt.

8.0 Score

Each level the player must meet a target points(score)/goal in order to progress. The player must obtain at least a Bronze Star Rating to move on to the next level.

- Bronze Star Rating - Met the minimum (goal and/or points(score)) to progress through the level.
- Silver Star Rating - Met the minimum (goal and/or points(score)) plus additional points(score) beyond progression goals.
- Gold Star Rating - Met the minimum goals and caused the most expected damage value.

The star system gives the player a goal to aim for while also rewarding them with new recipes.

8.1 Earning Points(Score)

Points(score) can be earned in several ways

- Getting a component into a box (5 points)
- Crafting a present within a Neutral Box(50 - 250 points)
- Crafting a valid present within a Good or Bad Box (100-1000 points)
- Crafting a valid present within a Exact Box(200-2000points)
- Crafting a present within a Moving Box (150-1500 points)
- Waking up a lazy worker(20 points)

8.2 Losing Points(Score)

Points(score) can be lost by hitting workers in later levels. Negative points(score) will appear above the workers as they are knocked out and then subtracted from the total points(score). Points(score) CAN go into the negatives.

8.3 Experience Levels

The points(score) also acts as experience for the player in each level. When the player reaches an XP Goal point(score) threshold they will increase in level, giving them access to new components that create presents worth more points(score).

9.0 Camera

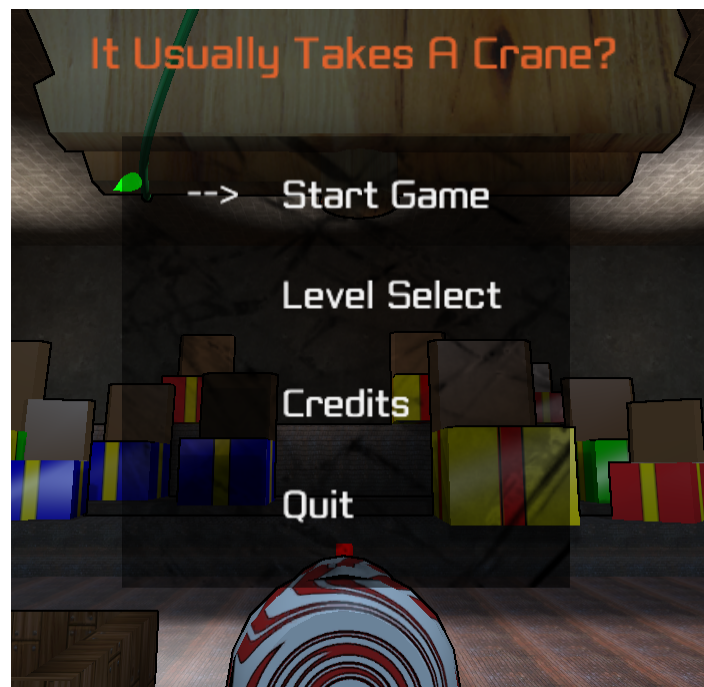
The player has a stationary camera located directly behind the cannon. This will not change on any level.

10.0 Menus

All menus have the same controls. The arrow keys are used to navigate, and the *ENTER* key selects an option.

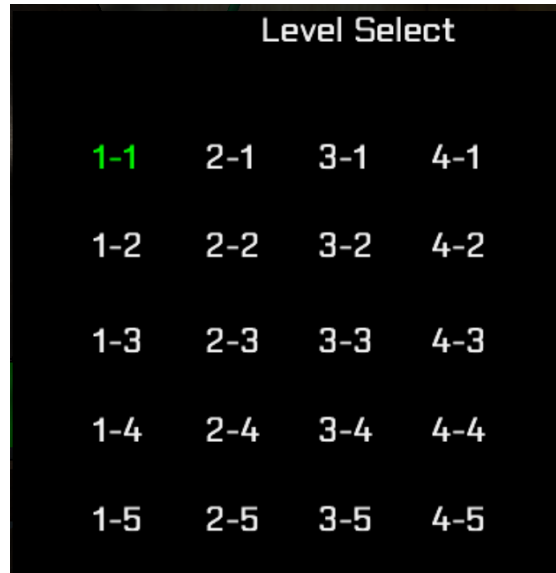
10.1 Title Menu

When the player starts up the game they are brought to this screen. From here they can start the game, go to the level select menu, view the credits, or exit the game.



10.2 Level Select Menu

This screen will display the 5 different stages that the player can choose from. The player will only be able to choose stages/ levels that they have unlocked. To signify that the other levels cannot be chosen yet they will be grayed out.



10.3 Pause Menu

During gameplay the player can pause the game by pressing P. This menu is navigated like the rest, using the arrow keys. While on this screen the player can resume the level, restart, return to the title menu, or quit with the enter key.



10.4 Game Over Menu

When the timer of the map reaches 0 the player is informed of how well they did. From this menu they can retry, continue on to the next level, or return to the title menu



Level failed screen



Level complete screen

10.5 High Score Layout

The player will be able to see their high scores for each stage at this menu. This allows the player to show off their skills to their friends.

11.0 Level Design

As levels progress, players will be introduced to new recipes and components to create new presents. Environmental obstacles and challenges will also be gradually presented along the way. The player will be given enough time and opportunity to master their skills before a new feature is introduced and expected to be mastered.

11.1 Stages

There will be 5 stages, and 5 levels in each stage. Each new stage will bring forth new challenges for the player to overcome.

11.2 Level Progression

Each stage will follow the same level progression.

- Introducing new feature
- Mastering new feature
- Combining the new feature with old features
- Challenging the player to master what they know so far
- Challenging the player again to become a true master of the mechanics

11.1 Boss level

The last level in every stage is a boss stage. These stages will serve as transitions between the different level backgrounds from factory, large factory, to outside. A large monster will move around on the screen

opening and closing its mouth. The player must shoot components into the creatures mouth to defeat it. The sign will pop up in these levels to give the player some direction in defeating the bosses.

11.3 IPM Chart

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Controls	I	P	M																	
neutral boxes	I	P	M																	
Crafting		I	P		M															
Experience		I	P		M															
Good/Bad					I	P	M													
Clogs									I	P		M								
Boss										I					P					M
Workers											I		P	M						
Krampus spy												I	P	M						
Exact box															I	P				M

12.0 Misc

12.1 Achievements

The player will be able to earn achievements in this game. Here is a list of example achievements:

- Gold Stars in all the levels in stage one
- Gold stars in all levels in all stages
- Breaking a wall in one throw
- Completing stage one
- Completing all stages

instructor meeting notes - Sorry they're super rough:

- Game depth!
- Pre- pro and production at the same time feels like catch up
- That is normal to feel this way

GDD improve:

- Not specific enough – do not speak in generalities - EVER
- 4.0 Mixing up terminology – not consistent - (ie use of journal vs recipe)
- Gifts/presents - when referring to a game feature, it needs to be referred to by its actual name
- Why are they moving? How are they moving?
- Shooting tape needs to be referred to as a component
- Define more distinctions from special and regular recipes

Doesn't have a strong idea of what the game is really about

Constantly think about:

- How we are communicating to someone that is not on your team
- Quality of document

Due: Monday 5pm est

Functionality needs to be better explained! The most important and relevant pieces of information we need to know. Functionality needs to represent game design

Need more insight on crafting

25 levels might be too much!

we don't need 16 rows to communicate what we need

Aiming/shooting = Cannon Controls

Loading is barely a feature – level of difficulty will not be scaled

PRESENT BOX – l to p to m that means we are changing the size, moving, etc

Experience – does collecting xp change at all? No

Is a result of everything we are doing - Crafting is an entire concept

Clock is not something we need to introduce practice or master

Goals are just something we are trying to reach at the end of the level

Good/Bad – first functional element of our game

Distance is not, goes hand in hand with shooting

Size is just a modifier on present boxes

Boss/bonus – functional element, but never described to him (this is something we should maybe do every so many levels)

WASD controls should be changed to mouse

IPM requires - Actual functional elements that need to be IMPed – is this something that the player has to practice? How would the player practice this?

How is one level going to be different than the other????

Research!!!!!! Play other games. Not just shooting galleries