



The Salty Bunch

November 9, 2018

# Contents

<b>1 Game Overview</b>	<b>2</b>
1.1 Game Concept . . . . .	2
1.2 Setting . . . . .	2
1.3 Feature Set . . . . .	2
1.4 Genre & Target Audience . . . . .	3
1.5 Game Flow Summary . . . . .	3
1.6 Look and Feel . . . . .	4
<b>2 Story and Setting</b>	<b>5</b>
2.1 Story and Narrative . . . . .	5
2.1.1 Game Progression Summary . . . . .	5
2.2 Cut Scenes . . . . .	5
2.2.1 (Introduction) . . . . .	5
2.2.2 Victory Screen . . . . .	6
2.3 Game World . . . . .	6
2.3.1 General Look and Feel of the World . . . . .	6
<b>3 Characters</b>	<b>7</b>
3.1 Marshal “King” . . . . .	7
3.1.1 Back Story . . . . .	7
3.1.2 Personality . . . . .	7
3.1.3 Physical Characteristics . . . . .	7
3.1.4 Animations . . . . .	7
3.1.5 Special Abilities . . . . .	7
3.1.6 Statistics . . . . .	7
3.2 Anna “Jailbird” . . . . .	8
3.2.1 Back Story . . . . .	8
3.2.2 Personality . . . . .	8
3.2.3 Physical Characteristics . . . . .	8
3.2.4 Animations . . . . .	8
3.2.5 Special Abilities . . . . .	8
3.2.6 Statistics . . . . .	8
3.3 Olivia “Shadow” . . . . .	8
3.3.1 Back Story . . . . .	8
3.3.2 Personality . . . . .	9
3.3.3 Physical Characteristics . . . . .	9
3.3.4 Animations . . . . .	9

3.3.5	Special Abilities . . . . .	9
3.3.6	Statistics . . . . .	9
3.4	Rocco “Racoon” . . . . .	9
3.4.1	Back Story . . . . .	9
3.4.2	Personality . . . . .	9
3.4.3	Physical Characteristics . . . . .	9
3.4.4	Animations . . . . .	10
3.4.5	Special Abilities . . . . .	10
3.4.6	Statistics . . . . .	10
3.5	A.S.I.A (NPC) . . . . .	10
3.5.1	Back Story . . . . .	10
3.5.2	Personality . . . . .	10
<b>4</b>	<b>Gameplay and Mechanics</b>	<b>11</b>
4.1	Game Progression . . . . .	11
4.1.1	Infiltration . . . . .	11
4.1.2	Scavenging . . . . .	11
4.1.3	Lockdown . . . . .	11
4.2	Objectives . . . . .	12
4.2.1	Main Objectives . . . . .	12
4.2.2	Secondary Objectives . . . . .	12
4.3	Challenges . . . . .	12
4.3.1	Level Layout . . . . .	12
4.3.2	Security Drones . . . . .	12
4.3.3	Combat . . . . .	13
4.4	Mechanics . . . . .	13
4.4.1	Physics . . . . .	13
4.4.2	Movement . . . . .	13
4.4.3	Scoring System . . . . .	13
4.4.4	Health System . . . . .	14
4.4.5	Pick Up System . . . . .	14
4.4.6	Interactions . . . . .	14
4.5	Combat . . . . .	14
4.5.1	Player Weapons . . . . .	15
4.5.2	Player Traps . . . . .	15
4.5.3	Inventory System . . . . .	15
4.5.4	Inventory System . . . . .	16
4.6	Screen Flow . . . . .	16
4.6.1	Screen Flow Chart . . . . .	16
4.6.2	Game Screen . . . . .	16
4.6.3	Options Menu Screen . . . . .	16
<b>5</b>	<b>Levels</b>	<b>17</b>
5.1	Floor #1 . . . . .	17
5.1.1	Synopsis . . . . .	17
5.1.2	Physical Description . . . . .	17
5.1.3	Map . . . . .	17
5.1.4	Encounters . . . . .	17
5.1.5	Closing Material . . . . .	18

5.2	Floor #2 . . . . .	18
5.2.1	Synopsis . . . . .	18
5.2.2	Physical Description . . . . .	18
5.2.3	Map . . . . .	18
5.2.4	Encounters . . . . .	18
<b>6</b>	<b>User Interface</b>	<b>19</b>
6.1	UI Layout . . . . .	19
6.2	Menus . . . . .	20
6.3	Camera . . . . .	20
6.4	Control Scheme . . . . .	20
6.5	Audio . . . . .	22
6.6	Music . . . . .	22
6.7	Sound Effects . . . . .	23
6.8	Help System . . . . .	23
<b>7</b>	<b>Artificial Intelligence</b>	<b>24</b>
7.1	Enemy AI . . . . .	24
7.2	Pathfinding . . . . .	24
7.3	Drone Finite State Machine . . . . .	24
<b>8</b>	<b>Technical</b>	<b>26</b>
8.1	Target Hardware . . . . .	26
8.2	Game Engine . . . . .	26
8.3	Scripting Language . . . . .	26
<b>9</b>	<b>Game Art</b>	<b>27</b>
9.1	Concept Art . . . . .	27
9.2	Characters . . . . .	34
<b>10</b>	<b>Appendices</b>	<b>35</b>

# Chapter 1

## Game Overview

### 1.1 Game Concept

- Play as one of the four thieves attempting a heist on the Cinque National Bank.
- Players must infiltrate the bank, which is rigged with traps and hazards to challenge the player.
- Security Drones patrol the bank and will engage in combat with players if detected.
- Players will be able to use weapons and traps that are available as pickups across the map to engage in combat with other players or the drones.
- The main objective of the player is to reach the vault, then collect as much gold as possible from it, and then escape before the lockdown timer reaches zero.
- Player that escapes with the most gold possible wins, players who do not manage to escape before lockdown are not awarded points.

### 1.2 Setting

The game is set in the near future at the Cinque National Bank. The CNB is the biggest and most prestigious bank in the world, equipped with high-level defense mechanisms due to its reputation and several failed attempts at a heist. Four of the best thieves in the world are attempting to successfully pull off the biggest heist in history. Unknown to them, they are not alone.

### 1.3 Feature Set

- General Features
  - 4 Different Characters
  - Multiplayer Split-Screen Game
  - Pixelated Voxel-Style Art
  - 3D Isometric
- Gameplay

- Combat
- Hazards and Traps
- Stealth
- Enemy Drones
- Quick-time Events
- Scoring System

## 1.4 Genre & Target Audience

Heist is a multiplayer action party game, targeted at players ages 13 and above.

## 1.5 Game Flow Summary

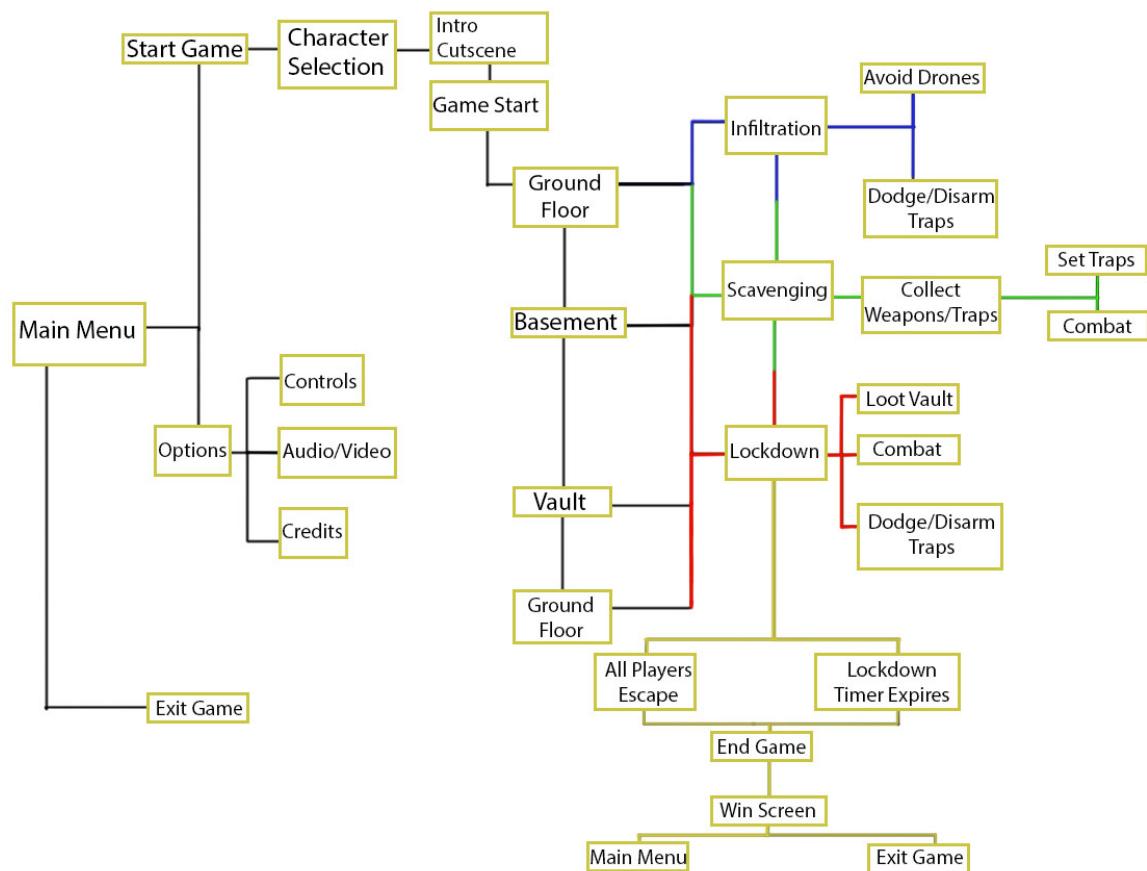


Figure 1.1: Game Flow Summary

## 1.6 Look and Feel

Heist will have a fun, arcadey, but still have a competitive side to it. It will be easy to pickup, with not much complexity to it, and a lot of intuitive mechanics. We will use a pixel low poly art style to represent the environment and the characters in the game.



Figure 1.2: Look and Feel

# Chapter 2

## Story and Setting

### 2.1 Story and Narrative

Our setting is the Cinque National Bank (CNB), it is a prestigious and sophisticated bank frequented by the rich and known by thieves as a goldmine. Set in the near future, Cinque National Bank is notorious for their top of the line security and surveillance measures in addition to being loaded. The bank is a complex building with a lot of hallways, rooms, and sections with state of the art defense and security mechanisms along with professional security drones. Although many thieves from all around the world have attempted to pull off heists, no one has been successful, so far. This time, however, four thieves plan to perform the biggest heist in history at Cinque National Bank, but little do they know, they are all there on the same night.

#### 2.1.1 Game Progression Summary

Four thieves spawn at random at one of the four points of entry. In the first stage, their objective is to infiltrate the bank by getting past quicktime events to bypass traps and hazards. Secondly, they must now move through the bank to not get spotted by other players or security drones. Their next objective is to get to the vault and obtain as much gold as possible and more than the next player to win. After they need to obtain as much gold as possible from the bank, they have to escape through the bank from a randomly chosen escape point in the bank before the lockdown timer expires and they get stuck in the bank.

### 2.2 Cut Scenes

#### 2.2.1 (Introduction)

All four characters are introduced to the player through a slanted comic book style to demonstrate to the player exposition of how the four thieves got to the bank (See concept below). This cutscene is triggered after the players have all selected their characters and enter the game.

##### Description

EXT. Outside of Bank – NIGHT

- Four characters are seen on the left side of the screen on one of the slanted comic book-like panels.

- First panel is of the one of the four characters running/sneaking to the bank.
- Second panel is one of the four characters staring up at the bank in awe.

INT. Inside of Bank – NIGHT

- Third panel is one of the four characters breaking/sneaking into the bank.
- Last panel is one of the four character gesturing that they are ready to rob the bank.

### **Storyboard**

#### **2.2.2 Victory Screen**

### **2.3 Game World**

#### **2.3.1 General Look and Feel of the World**

##### **Ground Floor**

The ground floor will contain, office spaces, board/conference rooms, teller stations, restrooms, information booths used by the employees of the CNB.

The environment will remain clean and modern with simple geometric shapes i.e. chairs, tables, ATM's and etc that are found throughout the bank.

##### **Basement**

The basement contains the vault.

# Chapter 3

## Characters

### 3.1 Marshal “King”

#### 3.1.1 Back Story

King is a gang leader who comes from a neighborhood on the outskirts of a large city. In recent times, the neighborhood had fallen into financial troubles, and the residents who live there started stealing from each other to get by. Tired of having people trying to steal his stuff, King went all-in on his criminal career and set out for the biggest and richest banks in the world with the intention of sending the money back home to put his neighborhood back on top. Despite his intimidating appearance, King is a surprisingly calm and quiet person.

#### 3.1.2 Personality

King is a good hearted man that has the soft spot for his community. His compassion to take care of his community is what motivates him to result to dangerous and criminal activity to do what is best for them.

#### 3.1.3 Physical Characteristics

Marshal is a male, athletically built, African American, brown eyes, black hair, primarily long sleeves (top color variations for how many players choose King) dark bottoms and heavy boots/shoes.

#### 3.1.4 Animations

Marshal “King” menu selection animation consists of him crossing his arm confidently and having a little smirk, showing the player his confidence and strength.

#### 3.1.5 Special Abilities

Because of Marshal’s athletic ability, he has one extra health stack which allows him to take more damage (stuns) from other players and/or security drones.

#### 3.1.6 Statistics

- Slower (2/4)

- Health (5/4)
- Lower Dexterity (2/4)

## 3.2 Anna “Jailbird”

### 3.2.1 Back Story

Jailbird is an average thief with a not-so-average amount of enthusiasm. Stealing things is her passion, and she never gives up the opportunity for a good old-fashioned heist. Her happy-go-lucky nature has managed to get her caught on multiple occasions; but no matter how well the authorities try to keep her contained, Jailbird always manages to find a way to escape and jump right back into another crime spree.

### 3.2.2 Personality

Jailbird is eccentric, curious and mischievous .With her only motivation to steal and escape when captured.

### 3.2.3 Physical Characteristics

Ana “Jailbird” menu selection animation consists of her jumping and raising her arms high with excitement.

### 3.2.4 Animations

Ana “Jailbird” menu selection animation consists of her jumping and raising her arms high with excitement.

### 3.2.5 Special Abilities

Because of Ana’s criminal background, police are always in pursuit of her, building her stamina to being able to run faster and longer.

### 3.2.6 Statistics

- Health Stack (4/4)
- Fastest Movement (5/4)
- Dexterity (3/4)

## 3.3 Olivia “Shadow”

### 3.3.1 Back Story

Shadow is a spy-for-hire with the promise of always getting the job done. Many mafia and organized crime groups across the world seek her out for whenever they’re in need of a good thief getting in and out without getting noticed. Money. Classified info. Prototype technology. You name it, she can steal it. Due to her perfect track record, Shadow has a cocky side to her. She often sees herself as unstoppable and has a tendency to taunt and charm her rival thieves.

### **3.3.2 Personality**

Shadow is cool, adept and charming. She is able to find her way out of every sticky situation and break every problem.

### **3.3.3 Physical Characteristics**

Olivia is a female, slender built, middle eastern ancestry, brown eyes, black hair, full body catsuit (top color variations for how many players choose King) and knee high black boots.

### **3.3.4 Animations**

Olivia “Shadow” menu selection animation consists of her moving her hand with slight to reveal a jewel in her hand and the other on her hip.

### **3.3.5 Special Abilities**

Because of her long history of being a spy-for-hire, she has required a real knack for hacking and breaking into the toughest of locks.

### **3.3.6 Statistics**

- Health (4/4)
- Speed (4/5)
- Dexterity (5/4)

## **3.4 Rocco “Racoon”**

### **3.4.1 Back Story**

Raccoon is a kleptomaniac who has an obsession with anything and everything shiny. He was originally a scavenger who would scour around junk piles and scrap yards for anything that seemed valuable. Soon enough he looked to bigger and better ambitions of stealing jewels and gold. His costume resembles that of a raccoon, hence his name, and his small build makes him surprisingly nimble and hard to catch than most other thieves.

### **3.4.2 Personality**

From a young age, Rocco, a slight maniac just can’t keep his hands off anything that is remotely shiny or expensive. His body movements are sporadic and jerky due to his suspicious mentality that someone might want to take this “shiny things”.

### **3.4.3 Physical Characteristics**

Rocco is a male, medium built, Caucasian, blue eyes, tattered clothing, hair is disordered with two bunches are pointed up that resembles ears and wears a mask.

### **3.4.4 Animations**

Rocco “Racoon” menu selection animation consists of him rubbing his hand together to portray that he is ready to take the big score.

### **3.4.5 Special Abilities**

Because of his long history of stealing, Rocco has the ability to obtain loot faster than most thieves and has a longer range to grab pick ups.

### **3.4.6 Statistics**

- Health (4/4)
- Speed (4/4)
- Dexterity (4/4)

## **3.5 A.S.I.A (NPC)**

### **3.5.1 Back Story**

A.S.I.A stands for Artificial Security Intelligence Administrator, and is the name of the AI developed by the CNB Security Technologies team to control the bank’s security system. She is a highly advanced AI bot that controls the drones and traps 24 hours per day. A.S.I.A will be responsive to the player’s actions and will dish out trash talk whenever the fail.

### **3.5.2 Personality**

A.S.I.A was developed to be a sassy, pretentious, and cocky character to destroy any potential intruder’s confidence and lead them to more errors. She looks down upon any intruder, and believes her security mechanisms are impenetrable.

# Chapter 4

## Gameplay and Mechanics

### 4.1 Game Progression

Game Progression split into 3 parts

#### 4.1.1 Infiltration

- Infiltration stage implies that the players must sneak in to the bank and make their way towards the basement.
- Infiltration stage will require players to be more stealthy
- Players can engage in combat
- Players will familiarize themselves with the environment and its challenges in this stage

#### 4.1.2 Scavenging

- This stage of the game blends between the other two stages
- Players will collect weapons and traps
- Players will set traps across the map for other players
- They will explore rooms and hallways for loot

#### 4.1.3 Lockdown

- This stage will be the most chaotic stage of the game
- As soon as a player accesses the vault, a lockdown timer initiates
- In this stage, players will be rushing and battling to gather as much gold as possible and try to escape the bank before lockdown.
- Only one exit will be available
- More traps and hazards will spawn
- Drones will be more aggressive

## 4.2 Objectives

### 4.2.1 Main Objectives

- Achieve the highest score possible by collecting gold from the vault
- Escape before lockdown

### 4.2.2 Secondary Objectives

- Dodge and disable traps and hazards
- Collect weapons and traps
- Use weapons to engage in combat with players and/or drones
- Set up traps
- Unlock doors

## 4.3 Challenges

### 4.3.1 Level Layout

- Levels are not going to be straightforward paths towards the vault
- Levels will contain multiple paths, each with their own pros and cons
- Level of difficulty and frequency of pickups will vary area to area
- Hazards will already be set in the map at the beginning of the game
  - Laser Tripwire: will inform enemy drones to the players position and send them to the player's area
  - Electric Field: Damages (1DMG) and slows players
  - Lethal Lasers: Damages players (2 DMG)
- Hazards will be strategically set at areas of importance
- Some hazards can be disabled temporarily through a quick-time event
  - If quick-time event is successful, trap is disabled for a short amount of time
  - If quick-time event is failed, trap is triggered

### 4.3.2 Security Drones

- Drones are the primary enemy for the players
- They patrol the bank, and will detect players in their vision radius
- Drones will attack the player if a player is detected
- Drones will be equipped with either of the following weapons

- Stun Gun: ranged weapon that charges up before firing (dodge-able)
- Electric Field: AoE weapon that drones can deploy for short bursts, it deploys an electric field under them that will damage players that step in it. Drones will be faster and chase players around
- Drones will drop gold when they are damaged or stunned
- Drones will need to gain 3 stacks to be stunned.

#### **4.3.3 Combat**

- Players can engage in combat with other players and/or drones.
- Players will have a default melee weapon unique to each character.
- Players will also have 2 weapons that are available as pickups:
  - Stun gun: Semi-auto weapon that shoots in a certain direction and damages enemies.
  - Electric Baton: Melee weapon that does high damage, and applies a short stun.
- Weapons will have limited uses (ammo).
- Players will have 2 traps that are available as pickups:
  - Lethal Lasers: will damage players if they step into it.
  - Electric Field: AoE field, will slow and damage players over time.

### **4.4 Mechanics**

#### **4.4.1 Physics**

#### **4.4.2 Movement**

The player can move in all directions along the xz plane, and can also use a dash.

#### **4.4.3 Scoring System**

- Score will be calculated according to how much gold is collected
- Player with the highest score (that manages to escape) will win
- 1 Gold = 1 Score
- When players get damaged/stunned and drop gold, they will lose score
- Each drone will drop X amount of gold only

#### **4.4.4 Health System**

- Players and drones will share the same health system
- Health system will be a 4-hit system
  - 1 Damage point will reduce a Health Stack on the player/drones
  - Health stack will regain after 20 seconds for the first stack and 5 seconds for the following stacks, if player/drone is not damaged
  - If player/drone manages to get max stacks, they will be stunned for 5 secs
  - If player is attacked while stunned, or up to 3 seconds after a stun, no stacks will be applied
- Player/drones will drop X amount of gold when damaged
- Player/drones will drop Y amount of gold when stunned

#### **4.4.5 Pick Up System**

- Pickups are available in designated areas in the map
- Pickups respawn every 45 secs
- There is a minimum and maximum number of pickups available at all times

#### **4.4.6 Interactions**

- Players can interact with pickups to add to their inventory
- Players can also interact with traps and locked doors to disable/unlock them
  - Players will be presented with either quicktime event challenge
    - \* Players will have to press space at the right time to stop the arrows in the right area to disable traps. If failed, trap will activate
    - \* Players will have to quickly tap buttons in the right order to unlock doors. If failed, nearby drones will gain gold, if failed, player will lose gold.
- Players can interact with gold piles in the vault and will be presented with quicktime challenges. If successful, player will gain bonus gold, if failed, player will lose gold.

### **4.5 Combat**

- Players will be able to engage in combat with:
  - Other Player Characters
  - Drones
- Players will have a basic melee attack that does no damage but pushes players/drones away.
- Weapons will also push away enemies.
- Player *Weapons* that will be available as pickups across the map:

#### 4.5.1 Player Weapons

- *Stun Gun:*
  - Shoots a projectile in a straight line.
  - Projectile will do 1 DMG when enemy is hit
  - Projectile will disappear upon impact
  - Player gets 5 shots (ammo) per Stun Gun pickup
  - After 5 shots, Stun Gun will disappear from inventory
- *Electric Baton*
  - Activatable weapon, does AoE DMG around character
  - Does 1 DMG per hit
  - Pushes enemies away
  - Melee weapon that increases player movement speed by 30
  - Lasts for 8 secs (Active)

#### 4.5.2 Player Traps

- *Electric Field:*
  - Pick up
  - Can be deployed on any tile (if the tile has no traps already)
  - AoE damage field
    - \* Does 1 Damage/2secs
    - \* Slows Players Movement Speed by 25%
    - \* Lasts for 2 Minutes if untriggered
    - \* Lasts for 30 secs after triggered
- *Lethal Lasers:*
  - Pick up
  - Can be deployed on any tile (if the tile has no traps already)
  - On-Contact damage
    - \* Does 2 Damage/contact
    - \* Lasts for 2 Minutes if untriggered.
    - \* Disappear after trigger.

#### 4.5.3 Inventory System

- An inventory system will be in place for weapons and traps pickups
- Pickups will be available across the map
  - Players will need to be in range to pick up a weapon or trap
  - A button prompt will appear when player in range

- Player can press button to pick up weapon/trap
- Picking up a weapon that the player already has refreshes the ammo
- Picking up a trap that the player already has adds to the ammo (Max 4)
- Players presses button to cycle between items

#### 4.5.4 Inventory System

- An inventory system will be in place for weapons and traps pickups
- Pickups will be available across the map
  - Players will need to be in range to pick up a weapon or trap
  - A button prompt will appear when player in range
  - Player can press button to pick up weapon/trap
- Picking up a weapon that the player already has refreshes the ammo
- Picking up a trap that the player already has adds to the ammo (Max 4)
- Players presses button to cycle between items

### 4.6 Screen Flow

#### 4.6.1 Screen Flow Chart

##### Main Menu Screen

First Screen that the player has access to. Contains Start Game, Options, and Exit Game buttons.

#### 4.6.2 Game Screen

- This screen starts after player selects Start Game, and includes multiple other screens.
  - **Character Selection:** In this menu, players select their characters before the match starts
  - **Intro Cutscene:** This cutscene plays before the match starts, giving context for the game and explains the setting.
  - **Play State:** This screen includes everything in the actual game, from UI to the Characters. It is the main screen the players are going to be on.
  - **End Game Screen:** This screen shows the winner's character splash art then all of the players ranked in order of score in front of the vault. This screen contains Main Menu and Exit Game buttons

#### 4.6.3 Options Menu Screen

- This screen can be access through the **Main Menu** by selecting the **Options** button. It contains multiple other screens.
  - **Controls:** This shows the controls for both controllers and keyboard
  - **Audio/Video:** This allows the player to customize Audio and Video settings
  - **Credits:** This shows the credits screen.

# Chapter 5

## Levels

### 5.1 Floor #1

#### 5.1.1 Synopsis

The Ground Floor is the starting point for all characters. It contains the player spawn points. This floor has a lower number of pickups and obstacles than the Basement Floor. There are hazards and traps around, but very few in comparison to the lower level of the bank.

#### 5.1.2 Physical Description

The map contains many shades of grey and dark colours such as azure blue and seaweed green. It's viewed in a top-down, Isometric angle. The rooms present are offices, lobbies, meeting rooms, and bathrooms. They are all connected through a series of long hallways that will be filled with hazards and drones.

#### 5.1.3 Map

##### Primary Path

(Shown in Blue) The player spawns and makes their way directly down the stairs to the vault. This way is the fastest, but the players miss out on valuable pickups.

##### Secondary Path

(Shown in Magenta) The player spawns and looks around the bank for pickups. This way they gain an advantage against other players and drones, but it is not as fast as just going to the ground floor.

#### 5.1.4 Encounters

The player will encounter various challenges. The drones will attempt to stun them, and other players will be trying to prevent them from making it to the vault. There will also be various types of hazards that will slow the player down. The multiple Drones follow the yellow paths in opposite directions.

### **5.1.5 Closing Material**

At the end of the game, the players will view a victory screen. The screen will show all four players as well as how much gold each player acquired. The players will be ranked in the order of how much gold they stole

## **5.2 Floor #2**

### **5.2.1 Synopsis**

The basement floor is accessible through the staircases on the first floor. The basement contains a large amount of pickups and hazards - far more than the first floor. The vault is also located in the center of the basement. The players must go here to get the gold

### **5.2.2 Physical Description**

The map contains many shades of grey and dark colours such as azure blue and seaweed green. It's viewed in a top-down, Isometric angle. The rooms present are security rooms, more offices, storage rooms, and server rooms, in addition to the large gold vault.

### **5.2.3 Map**

#### **Primary Path**

(Shown in Blue) The player gets down the stairs and immediately makes their way to the vault. This way is the fastest, but the players miss out on valuable pickups around the basement.

#### **Secondary Path**

(Shown in Magenta) The player gets down the stairs and looks around the basement for pickups. This way they gain an advantage against other players and drones, but it is not as fast as just going to the vault.

### **5.2.4 Encounters**

The player will encounter various challenges. The drones will attempt to stun them, and other players will be trying to prevent them from making it to the vault. There will also be various types of hazards that will slow the player down. There will be far more hazards and drones in the basement. The multiple Drones follow the yellow path in opposite directions.

# Chapter 6

## User Interface

### 6.1 UI Layout

As seen in Figure 6.1, the UI elements will appear on the corner of each respective player's screen. The elements shown in the UI are going to be:

- **Player Health:** Health is represented using the red bars
- **Gold Score:** Score is represented above the health using numbers
- **Character Profile:** A picture of the selected character
- **Active Item:** An icon of the selected weapon/trap
  - This will disappear if player doesn't switch/use weapons/traps for 10 secs

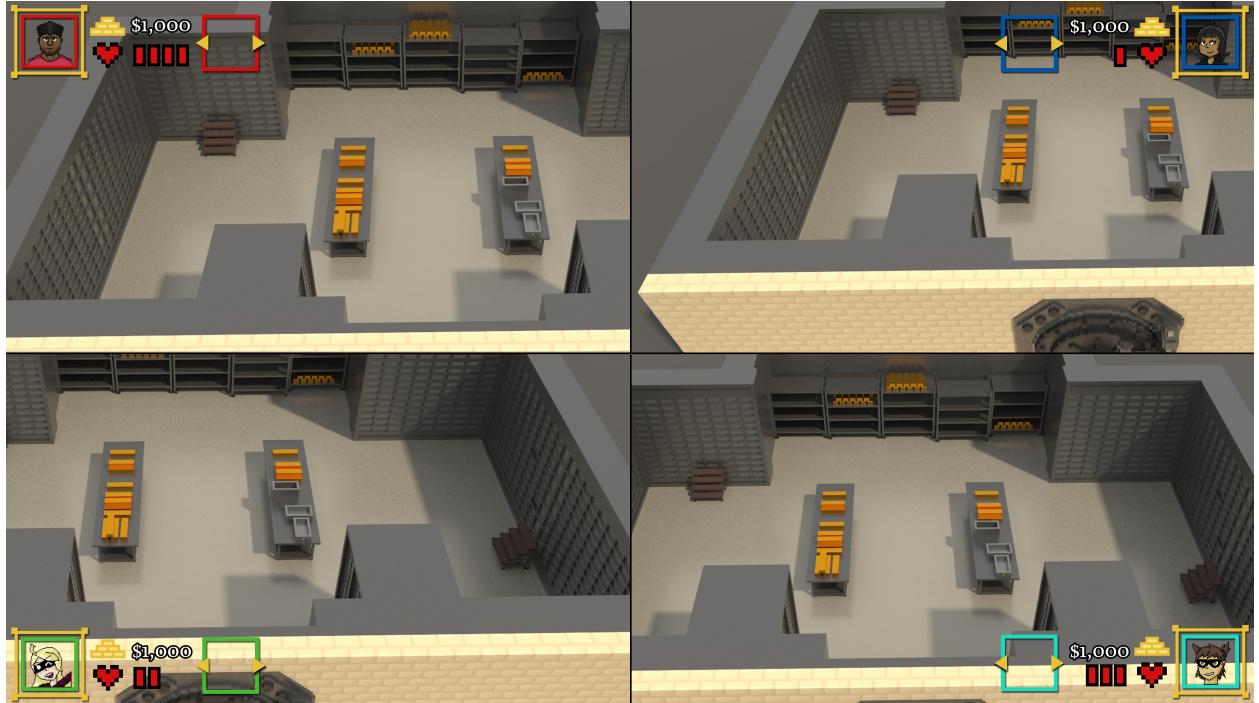


Figure 6.1: UI Layout

## 6.2 Menus

The only in-game menu available is the pause menu. It will include 2 buttons:

- **Resume Game:** Exits pause screen and continues game.
- **Exit Game:** Exits game
  - If a player exits a game, their controller will be disconnected. If controller is connected again, player can jump back in where they last stopped

Gameplay will only pause if two or more players bring up the pause menu

## 6.3 Camera

## 6.4 Control Scheme

Players could use either Keyboard/Mouse or a controller to play Heist.

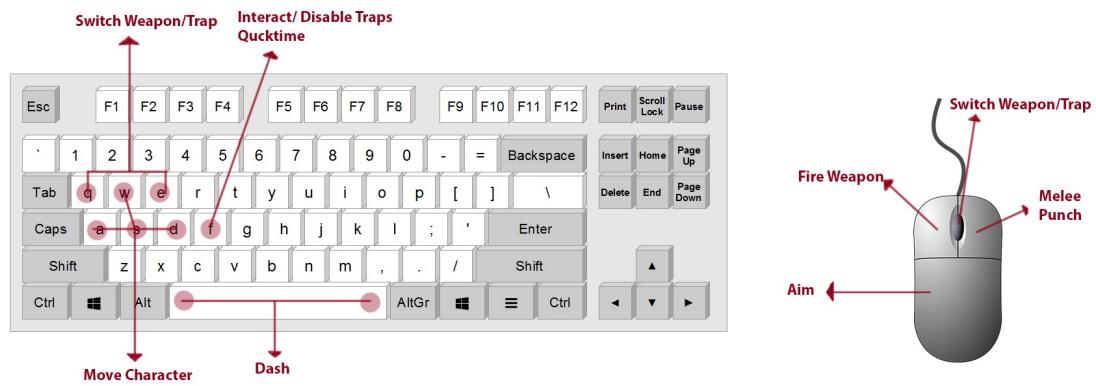


Figure 6.2: Keyboard Control Layout



Figure 6.3: Controller Control Layout

## 6.5 Audio

- Audio prompts will aid the players comprehension on when key events are happening in game

## 6.6 Music

- Three general themes will be present, and be active once a certain stage in the game has passed:
  - Infiltration Phase
  - Scavenging Phase
  - Lockdown Phase
- Additionally, different “jingles” will play depending on the outcome of the match for the player:
  - Victory Jingle
  - Defeat Jingle

## 6.7 Sound Effects

- Sound effects will play depending on the situation:
  - Picking up an object
  - Placing a trap
  - Succeed/fail a quicktime event
  - Taking damage
  - Opening a door
  - Collecting/dropping gold
  - Attacking with weapons
  - Drones
  - Activating a trap
  - Lockdown Siren

## 6.8 Help System

- Button prompts will appear when player is:
  - Close to a pickup
  - Close to an unlockable door
  - Close to a gold pile in the vault
- Controls will be shown in the beginning of each match after the cutscene.

# Chapter 7

## Artificial Intelligence

### 7.1 Enemy AI

Drones

- Patrols a set path until alerted and returns to the path once threat level returns to zero
- If it is alerted by a sound, the threat level becomes one and attempts to find the source of the sound
  - It will go to the place the sound originated at, and once there begin a patrol of the area. Once patrol is complete and it doesn't see anything, its threat level returns to zero and resumes its initial patrol.
- If it sees a player, its threat level goes to two and attempts to follow and stun the player.
  - If it loses site of the player for 5 secs, the threat level becomes one, and it will begin to patrol the area.
  - If the drone successfully stuns the player, it will pick up a portion of gold (if dropped) and return it to the vault. Once the gold has been returned, the threat level returns to zero and the initial patrol is resumed.
- If the drone, while following or patrolling an area, moves beyond a set distance from its original patrol, it will disengage, set its threat level to zero and return to its original patrol.
- Once the lockdown has been activated, the drones will begin threat level three, where their patrol distance is increased and their speed is increased.

### 7.2 Pathfinding

Uses the default Unity Navmesh Agent, setting the focused player's as the Drone's target. When returning to the vault all players are swapped to obstacles with width wide enough to block the hallway, so the drone's pathfinding will avoid them.

### 7.3 Drone Finite State Machine

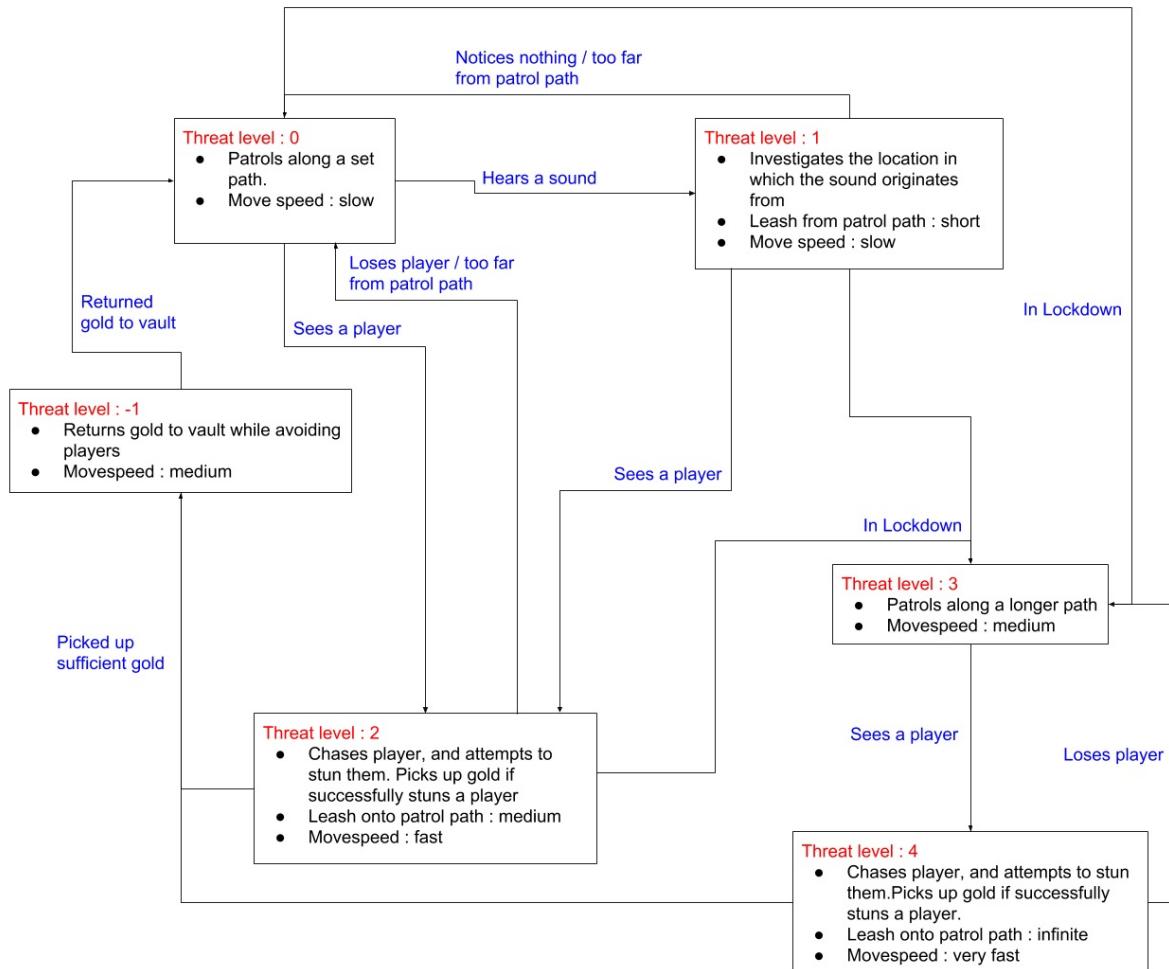


Figure 7.1: Drone FSM

# **Chapter 8**

## **Technical**

### **8.1 Target Hardware**

Target hardware is as follows:

	Minimum	Recommended
CPU	Pentium G4500 or Equivalent	Core i3-8500 or Equivalent
GPU	AMD 7750 or Equivalent	AMD 260X or Equivalent
RAM	2 GB	4 GB
OS	Windows	Windows

### **8.2 Game Engine**

The game engine will be Unity 2018.4 LTS once it has been released. Pre-production work will be done in the most up to date version of Unity.

### **8.3 Scripting Language**

All scripts are written in C# following the guidelines that are outlined on Microsoft C# Coding Conventions

# Chapter 9

## Game Art

### 9.1 Concept Art

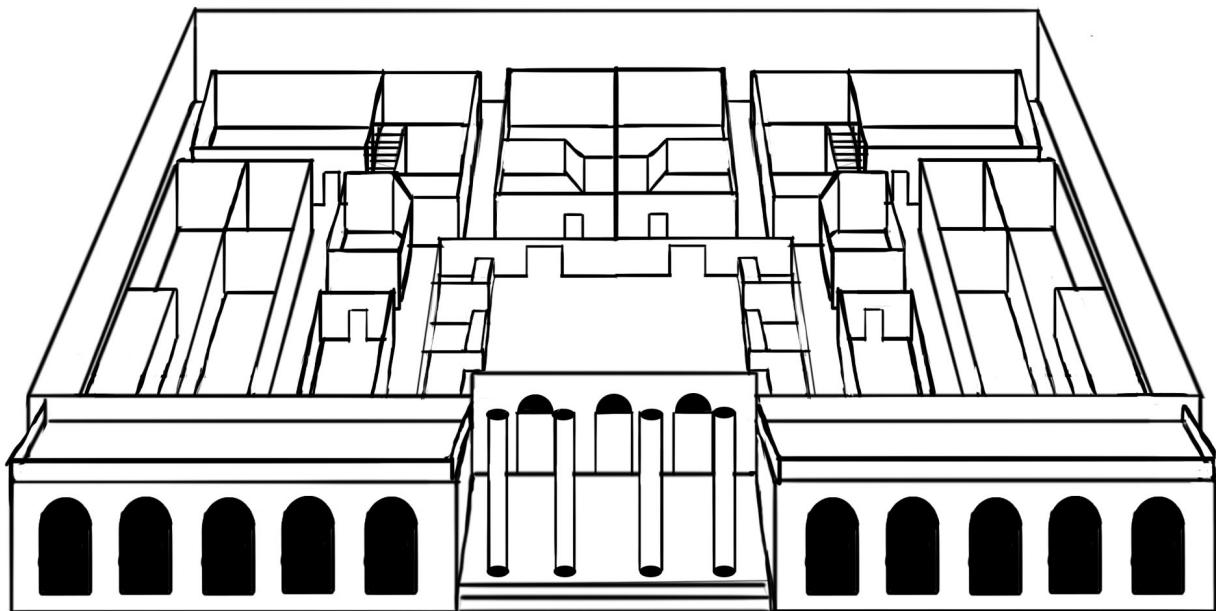


Figure 9.1: Early layout showing perspective



Figure 9.2: Assets for Bank interior

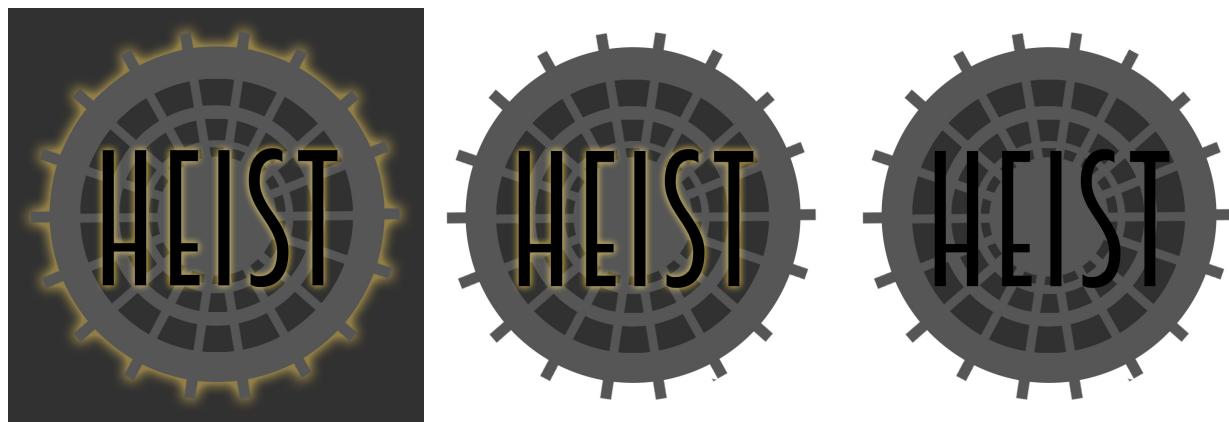


Figure 9.3: Logo concepts



Figure 9.4: Main Menu

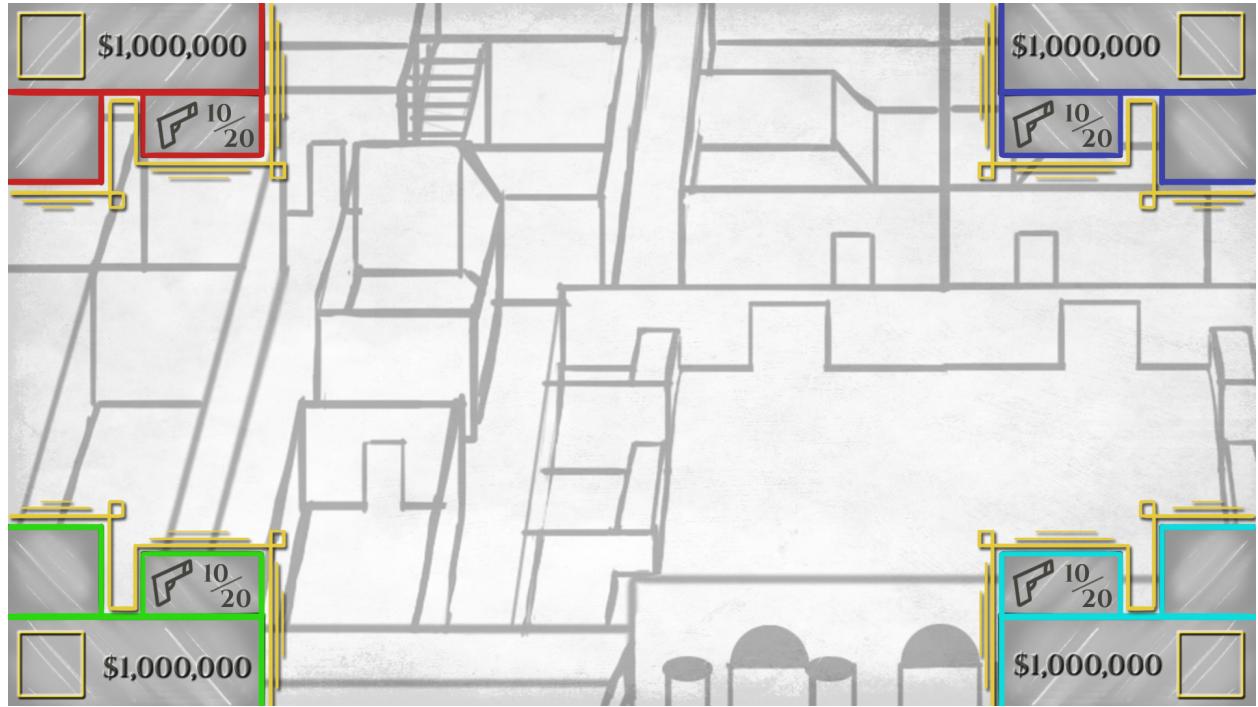


Figure 9.5: Early UI Concept

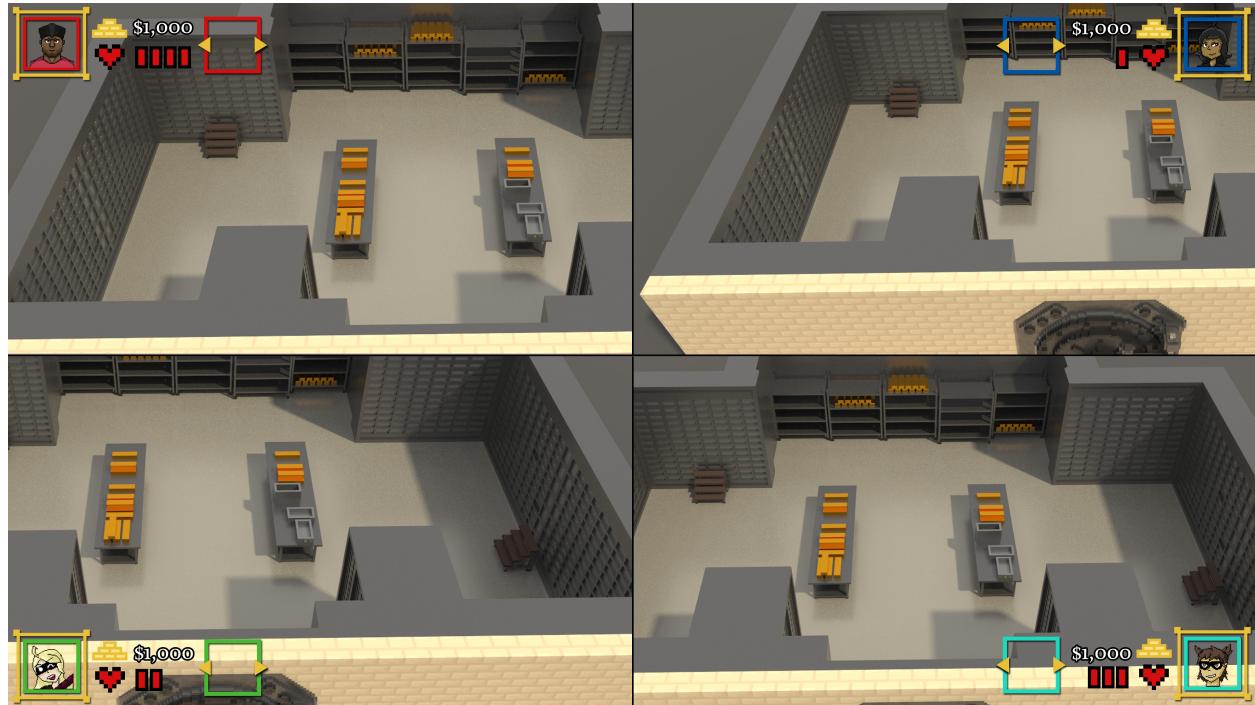


Figure 9.6: In-game UI

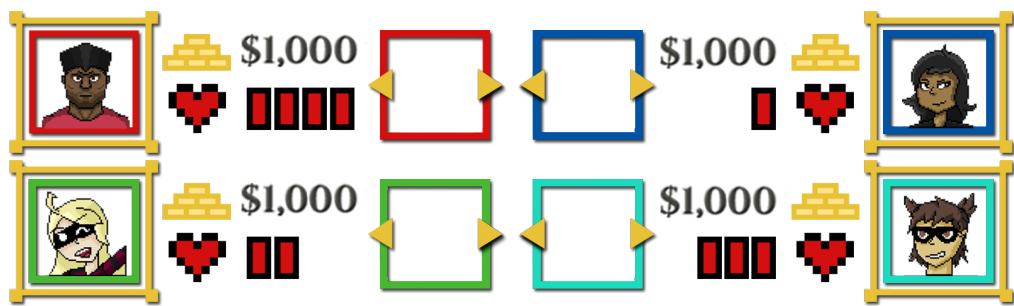


Figure 9.7: Early Character UI

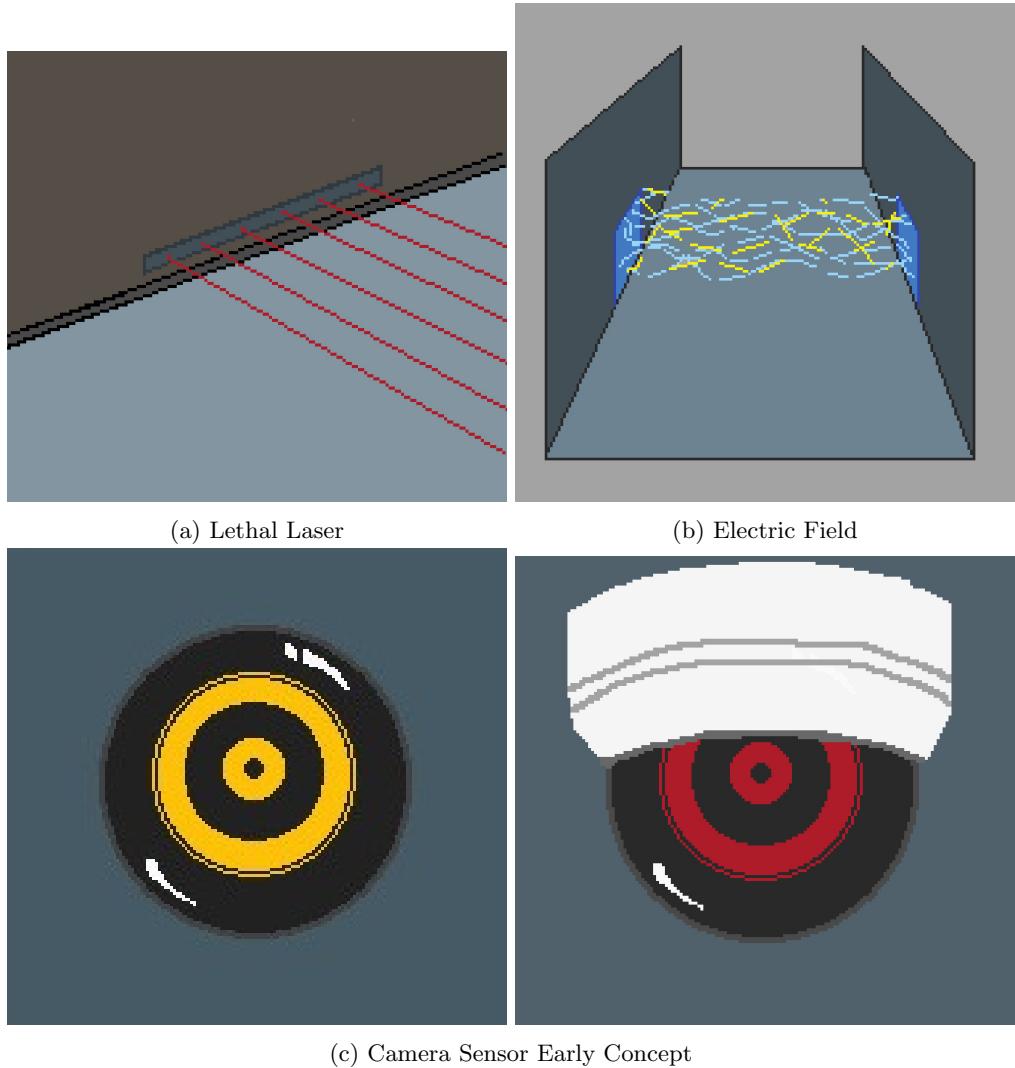


Figure 9.8: Concept of Hazards

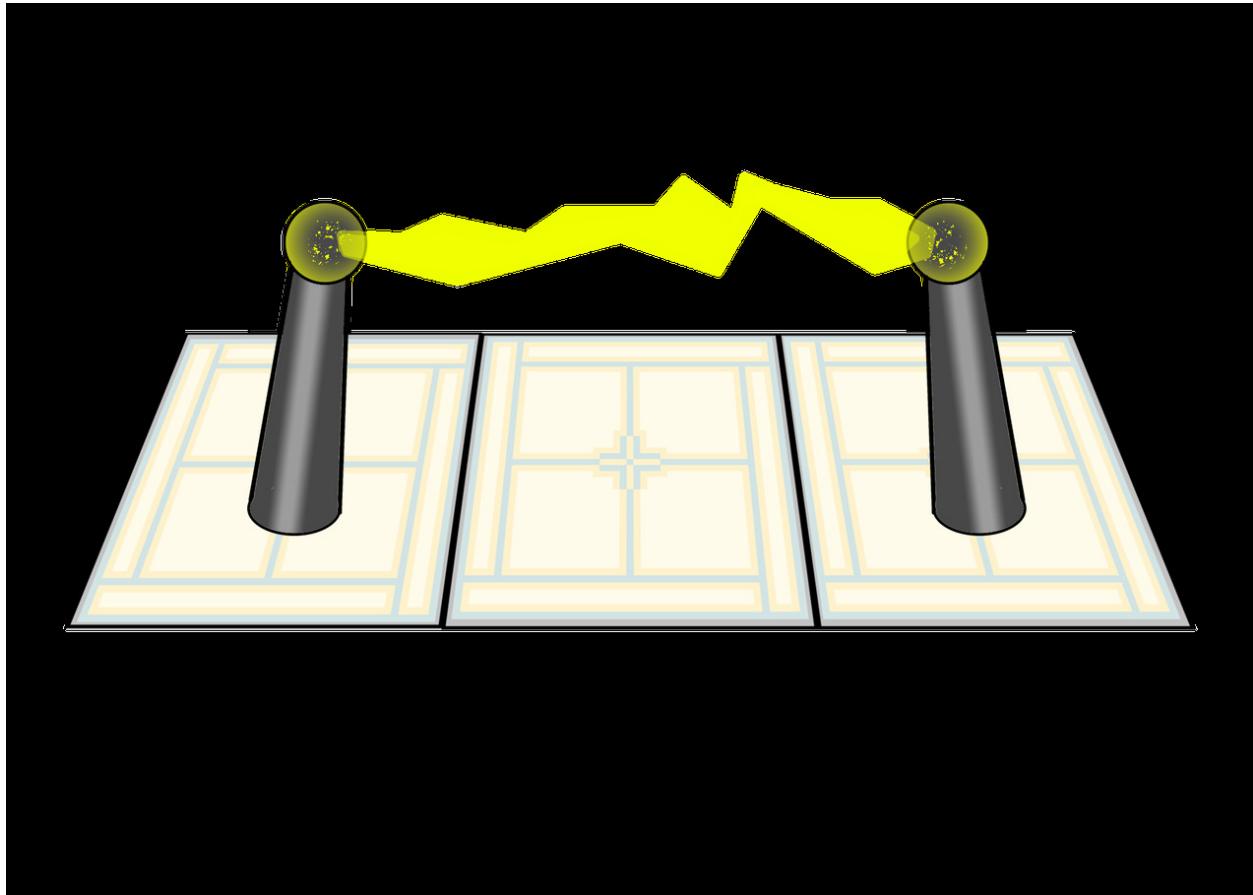


Figure 9.9: Electric Field Concept



Figure 9.10: Stun Gun and Baton Concept Art

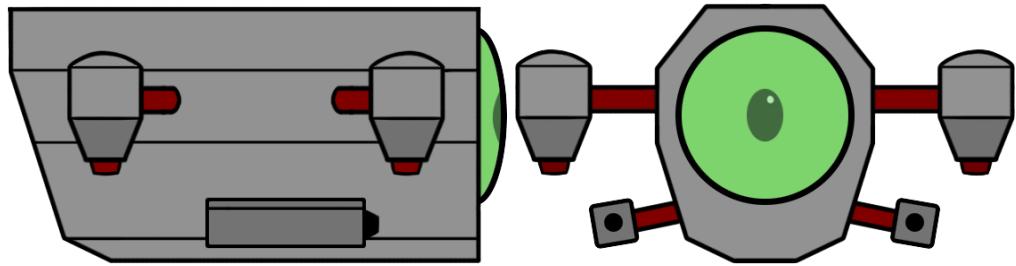


Figure 9.11: Security Drone

## 9.2 Characters

# Chapter 10

# Appendices