

3D First Person Game by:

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1.0 Overview

1.1 Appearance

The game is designed with a 3D first person adventure game in mind, in which the main character navigates through a maze collecting items.

The main character will only be allowed to traverse the maze in 4 directions, forwards, backwards, right, and left, and will have to evade the prison guards.

1.2 Story Abstract

The main character, named Penman, is in jail for stealing. Penman wasn't known for his mental intellect, but he was known for his skittle obsession.

Our story begins when Penman impersonated Skitty, the skittles mascot. Skitty pressed charges and Penman was sent to jail. While in jail, Penman's love for skittles grew, and hours after his release, realizing he only had 43 cents to his name, Penman held up a convenience store. However, while trying to hide his identity, Penman threw a hefty bag over his head, and forgot to cut eyeholes, or nose holes for that matter. Minutes later, the ambulance took an unconscious Penman to the hospital, and later, to jail.

Fast forward a few years, Penman's out of prison again, and his love for skittles has not diminished. Penman casually strolled into another convenience store, grabbed a bag of skittles, slid it in his pocket, and walked out. Penman screamed before reaching his car, I'm going to taste the rainbow. Employees realized what he had done, and he was arrested for his third strike. That earned him life in a penitentiary.

However, while inside the penitentiary, Penman began to realize that something was wrong... very wrong.

1.3 Game play

Game play will consist of using the mouse to look around; the W key will move the character forward, and the S key will move the character backwards.

1.4 Target Audience

The game will be not be aimed at a specific audience. It holds a multigenerational allure, pleasing classic Pacman fans, and the younger generation by adding a modern twist.

1.5 Development Platform

Penman will be developed using Torque Game Engine version 1.4.2.

Torque requires a C++ compiler, and for that purpose, Microsoft Visual Studio 6.0 will be utilized.

Torque's basic requirements:

- Pentium III 1000
- 512 MB RAM
- OpenGL or DirectX Compatible 3D Graphics Accelerator
- DirectX compatible Soundcard

For the 3D artwork, Milkshape will be employed, while Photoshop will mainly be used for textures, backgrounds, developing the art for this document and any other 2D art required. For the level information and story boards, Google SketchUp was used.

1.6 Development Team

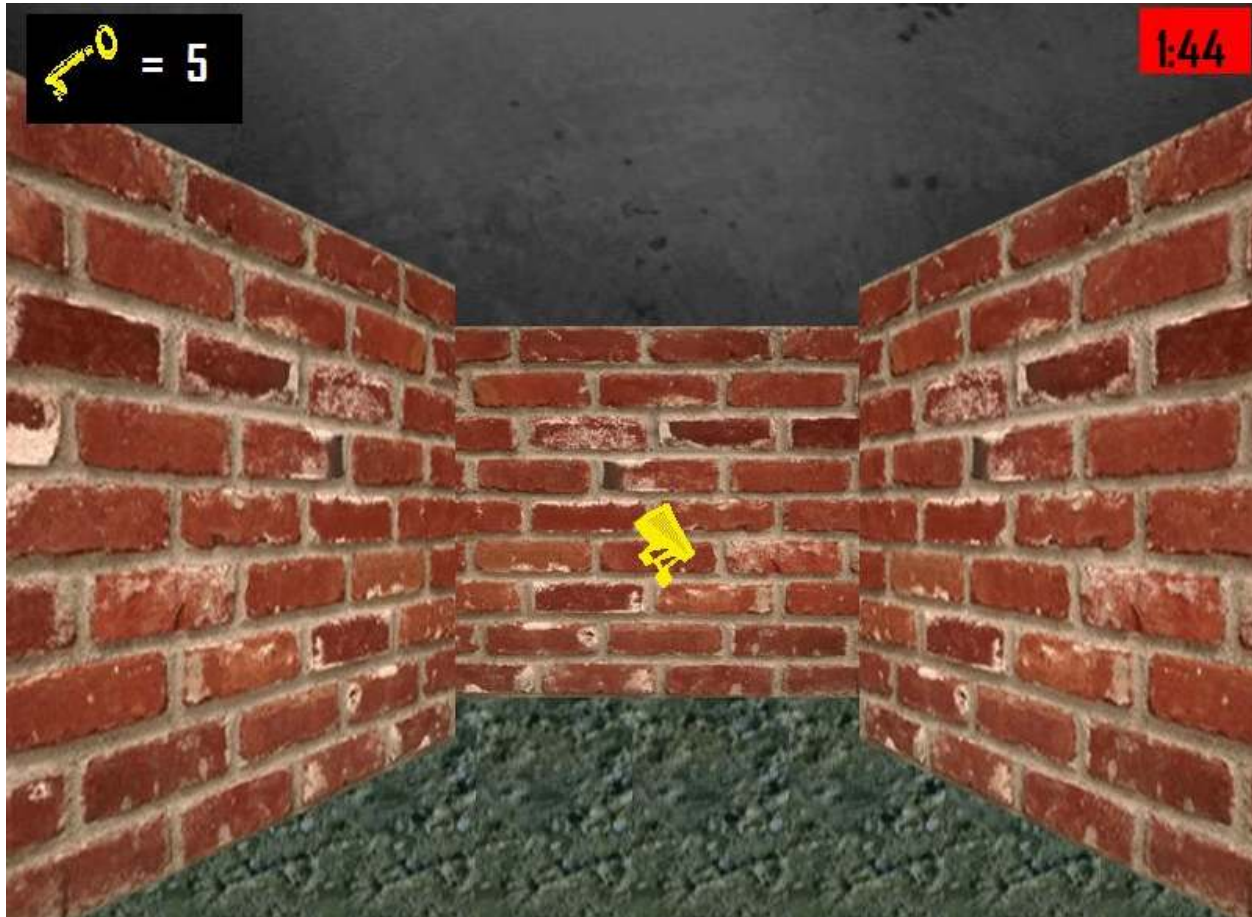
The tasks will be divided according to the following table, however, team members will assist each other as needed.

<u>Tasks</u>	<u>Assigned to:</u>
Character Development	Sally Tarabah, Lawrence Chan, Patrick Habib
Level Development	Lawrence Chan, Patrick Habib
Scripting Development	Kevin Bonkowski, Phil Perry
Documentation	Sally Tarabah
2D Artwork	Sally Tarabah

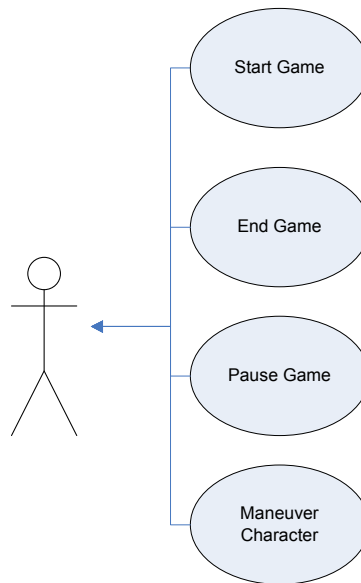
2.0 Game Mechanics

2.1 User Interface Description

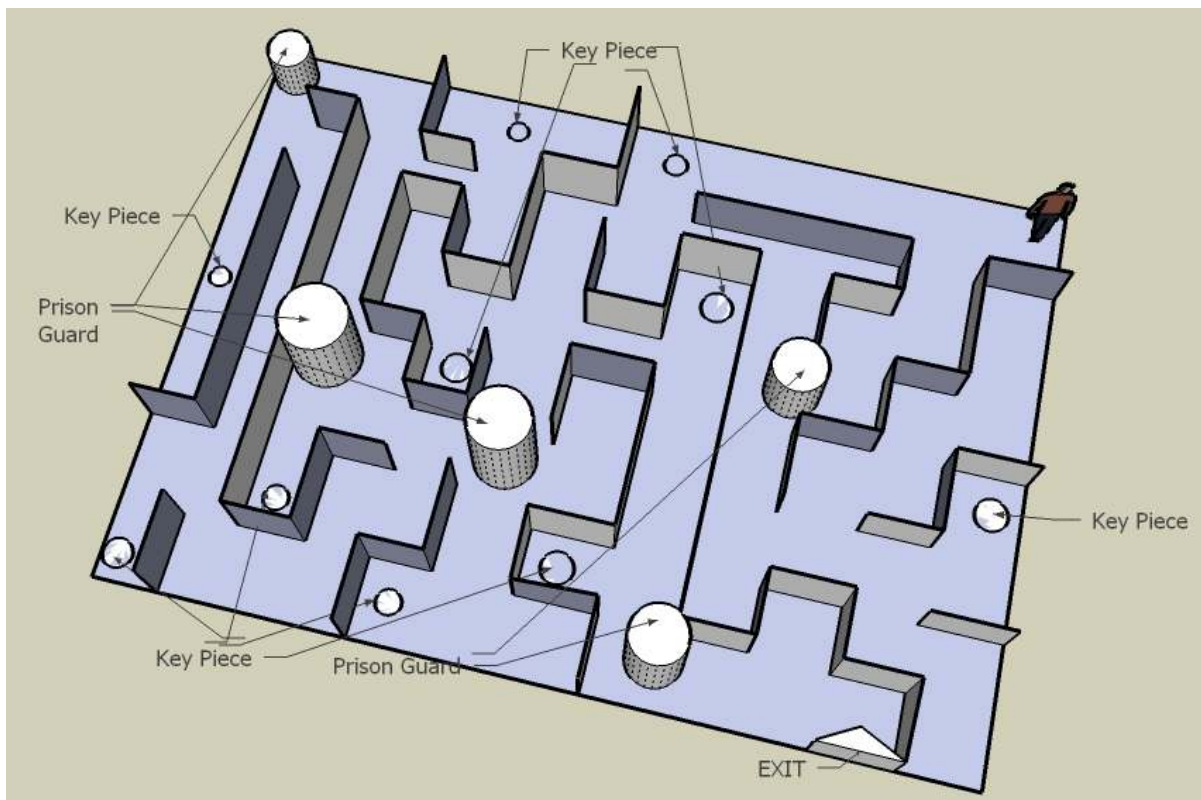
The game is a first person adventure. There is a clock in the upper right hand which tells you how long you been in playing the game which will determine your point value at the end. In the upper left hand of the screen is the number of keys that you have currently found.



2.2 Use Cases

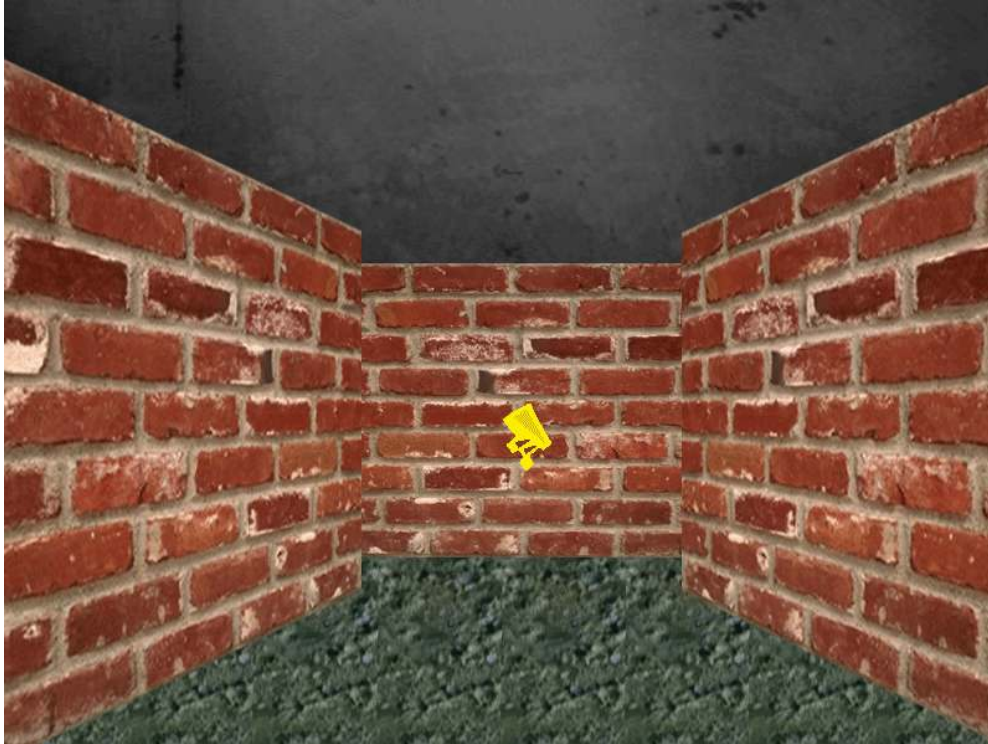


2.4 Level Summary



3.0 User Interface Design

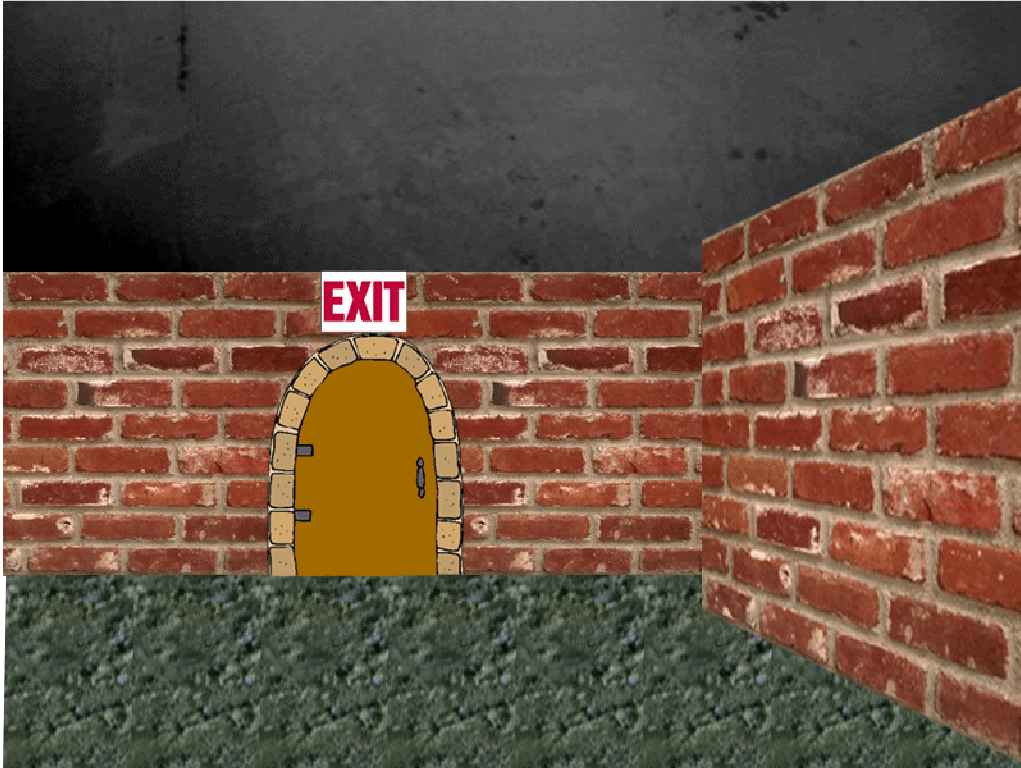
3.1 Key Screen Images



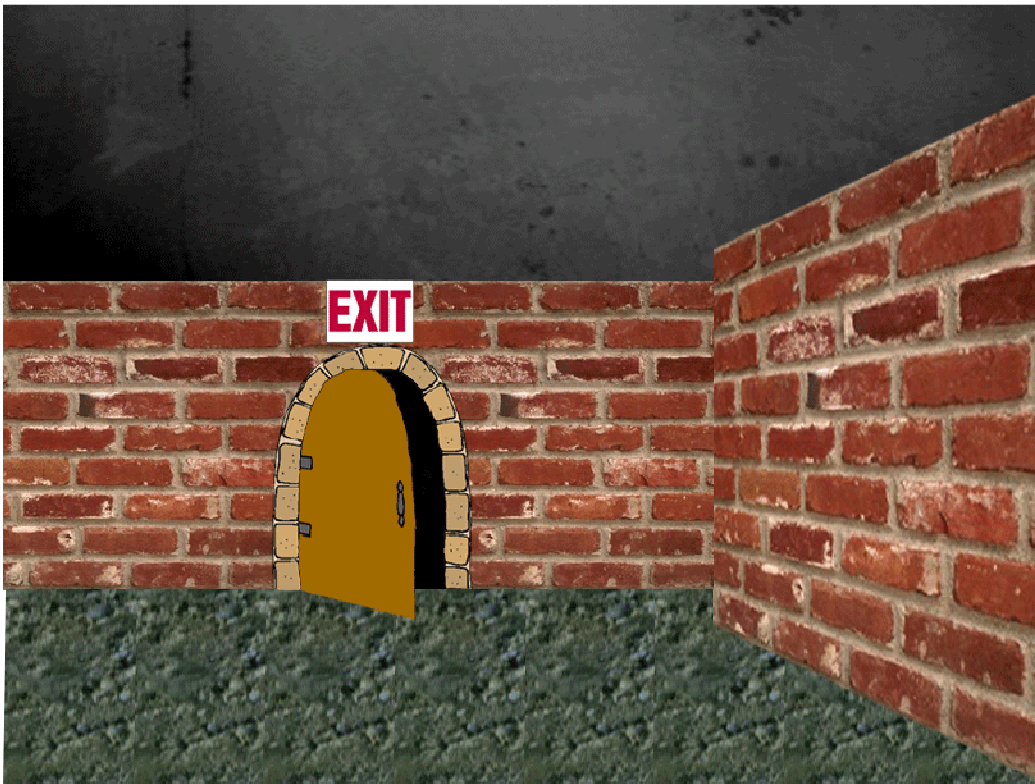
This is the main maze area where Penman navigates through the maze to find the pieces of the key

However, not all paths are safe. Prison Guards will chase you. Once the player is tagged by a guard, they lose.





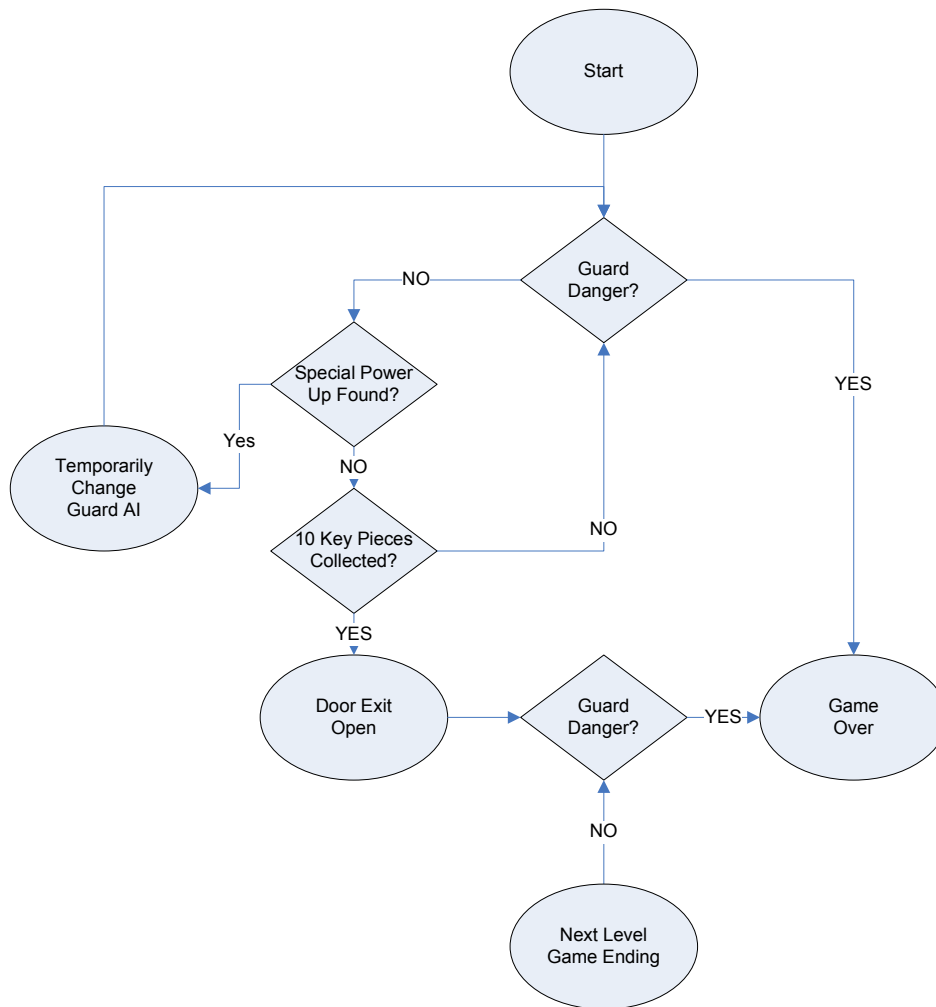
Door will open once all 10 pieces of the key are collected.



3.2 Control Summary

Action	Game Control
Forward	W
Backward	S
Left	A
Right	D
Jump	Space Bar
Look Left	Right Mouse Click + Move Left
Look Right	Right Mouse Click + Move Right
Look Up	Right Mouse Click + Move Up
Look Down	Right Mouse Click + Move Down

3.3 State Transition Diagrams



3.4 Design Rules

1. The main rules for mostly all particular types of games is to keep it simple
2. Include a short story to give meaning to the game
3. Make easy to understand and intuitive
4. Controls for the game should be relatively easy
5. The information displayed should not be difficult to interpret
6. The amount of information displayed should never be more than necessary
7. Playing and winning the game should be challenging, but also shouldn't be too difficult
8. Interpreting the display should not be difficult
9. Menus should provide help when necessary
10. Include pause menu in case player needs to take a break
11. User interface should never be too cluttered

4.0 Artificial Intelligence

4.1 Opponent AI

- **Bruno the Guard**

Bruno the Guard will be a normal type enemy. Scattered throughout the dungeon will be several other guards that look the same and act in a similar behavior.

These enemies will have basic AI involving following path markers placed throughout the maze-like corridors. The prison guards may appear easy to avoid because of their moderate scouting speed and predetermined paths, however, there will be several of them. In addition, many of these enemies will follow an intersecting path. Thus, when Penman unwittingly ends up sandwiched in between two or more guards, he is left in an inescapable position.

In order to outwit these enemies, the player will need to memorize enemy movement patterns or move quickly out of the way to prevent getting stuck between two or more guards.

- **Harold Clones**

Harold Clones are reminiscent of the main antagonist of the story, Harold the Mad Scientist, and are the failed products of his mad designs. These enemies will be scattered throughout the dungeon in hidden locations, such as a hidden concave off to the side in the middle of an unsuspecting hallway.

Harold Clones have no paths to follow and stays in a static position with a trigger in front of him. When Penman moves over this trigger, the enemy will launch himself forward and catch Penman.

In order to outwit these enemies, the player only needs to move cautiously and avoid suspiciously unguarded hallways. In addition, before moving across what looks like a harmless corner, the player can stop first and listen around for any strange cackling laughter from the clones, indicating their presence.

- **Rocco the Warden**

Rocco the Warden is similar in appearance as the generic guards, but is colored differently. There will only be one Rocco for story purposes and for a boss-like opponent.

Rocco will be the type of enemy the player would want to avoid the most. At first, Rocco would only follow a predetermined path that surrounds the perimeter of the dungeon. However, following in front of Rocco would be a few triggers that detects if the player appears in his line of sight. If the player activates this trigger, Rocco's AI would change into a homing algorithm that will follow Penman's path wherever he goes. Rocco would not stop chasing Penman until he is caught. Rocco moves much faster than his lesser counterparts, the guards, and would prove to be quite a nuisance if the player is being chased.

In order to outwit Rocco, the player would be best off avoiding him altogether. However, if Rocco is chasing Penman, as long as the player keeps moving, Penman should still be able to outrun

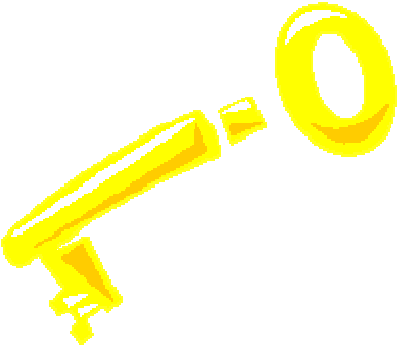
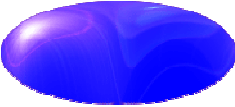

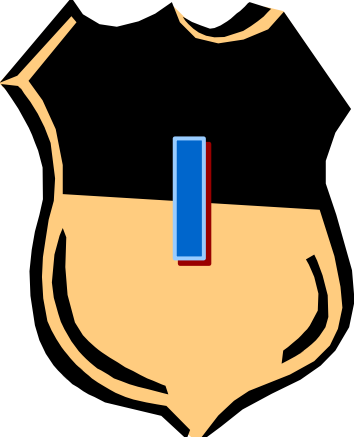
Rocco, but the player may get confused and run into other enemies. Penman can still obtain all the key parts and open the door while being chased by Rocco. In addition, obtaining the Invisibility Shield item will cause Rocco to lose track of Penman and he will return to following his original predetermined path.

4.2 NPC (Non-Playable Characters)

- **Jefferson the Inmate**

Jefferson will just be a character in the game that will give the player several hints, game goals, and further develop the story. Jefferson will mainly stay in one static location and will “talk” to the Penman if the player desires to hear his cryptic advice.

4.2 Reactive Items

Item Picture	Item Name	Item Property
	<p>Key</p>	<p>There are 10 pieces scattered throughout the level. Once all 10 pieces are collected, the main door opens and the player can escape.</p>
	<p>Blue power-up</p>	<p>Slows down the guards for a specified period of time.</p>
	<p>Red power-down</p>	<p>Speeds up the guards for a specified period of time.</p>
	<p>Invisibility Shield</p>	<p>Allows Penman to become invisible for a specified period of time.</p>

5.0 Story Overview

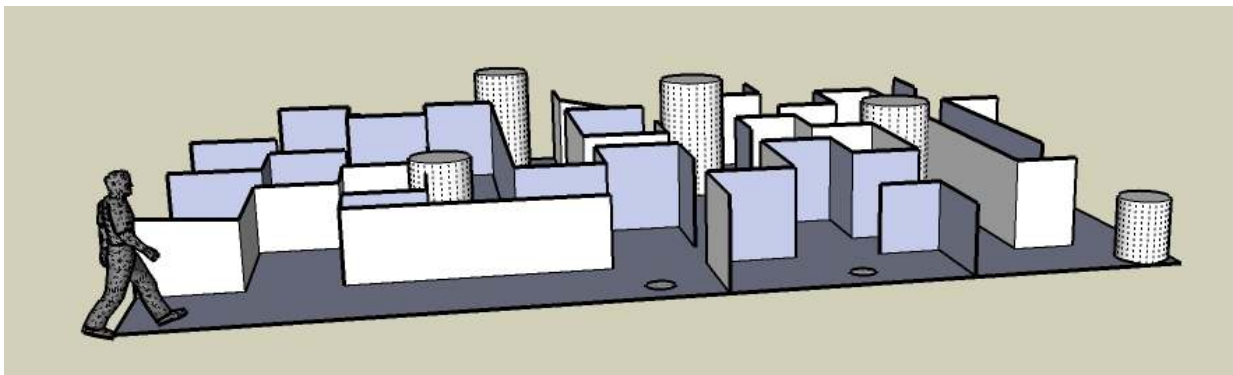
5.1 Plot Summary

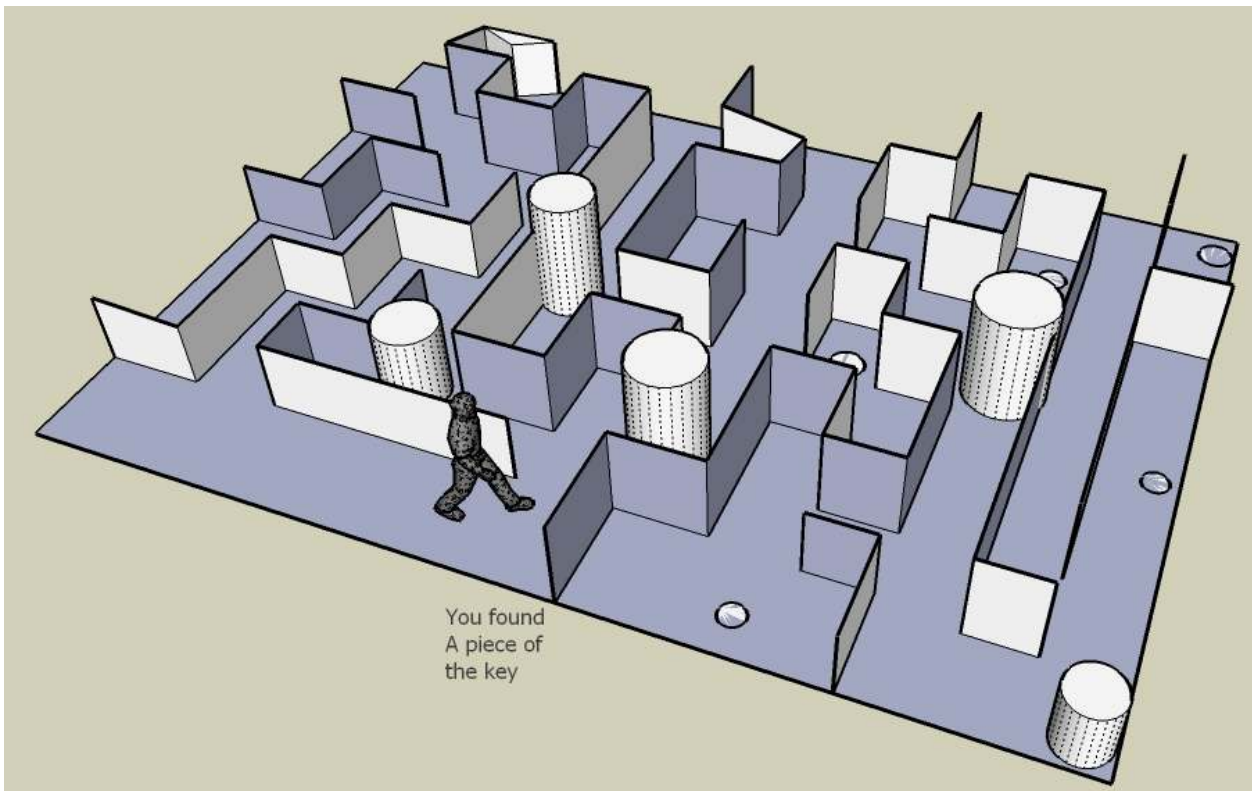
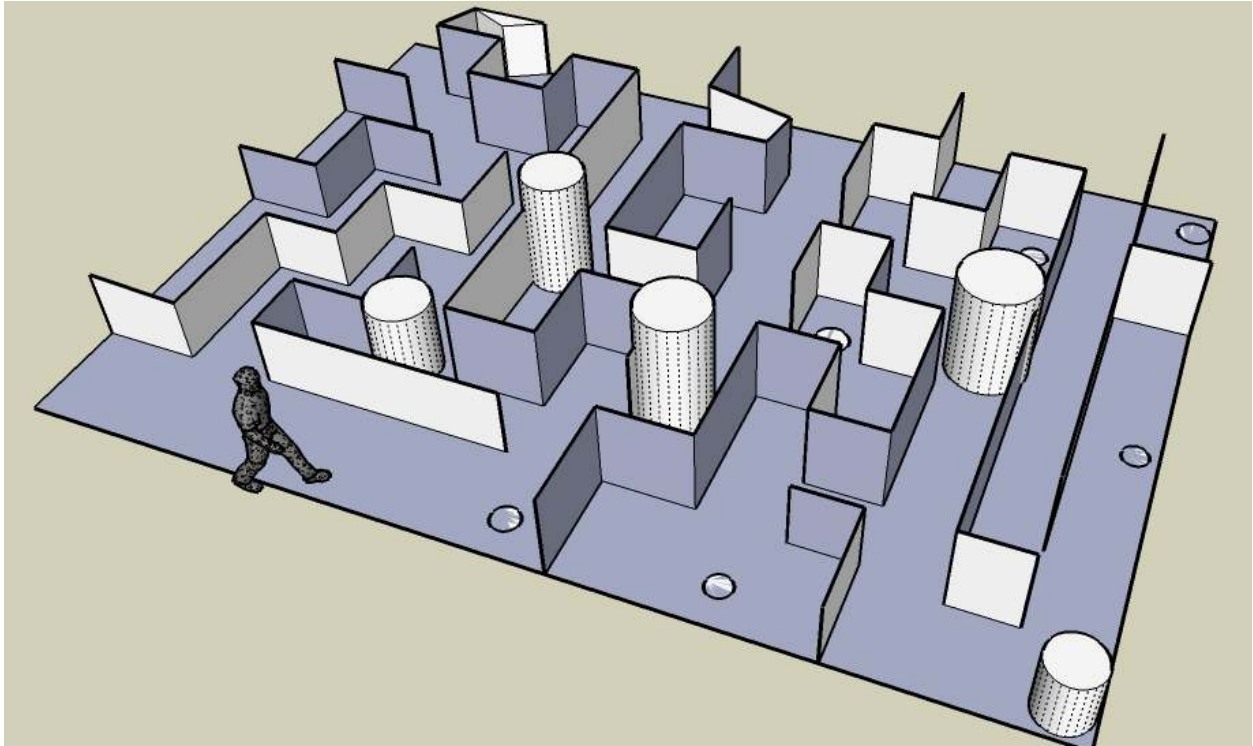
Penman wakes up in a dungeon. He tries to remember what happened to him. His last thoughts were of a convenience store, and it suddenly starts coming back to him. He remembers the skittles. Those bright colored dots calling to him, he just wanted to taste the rainbow. However, he didn't pay for those skittles, and Penman was sent to prison for life. It was his third strike. Yet this place doesn't look like a normal prison.

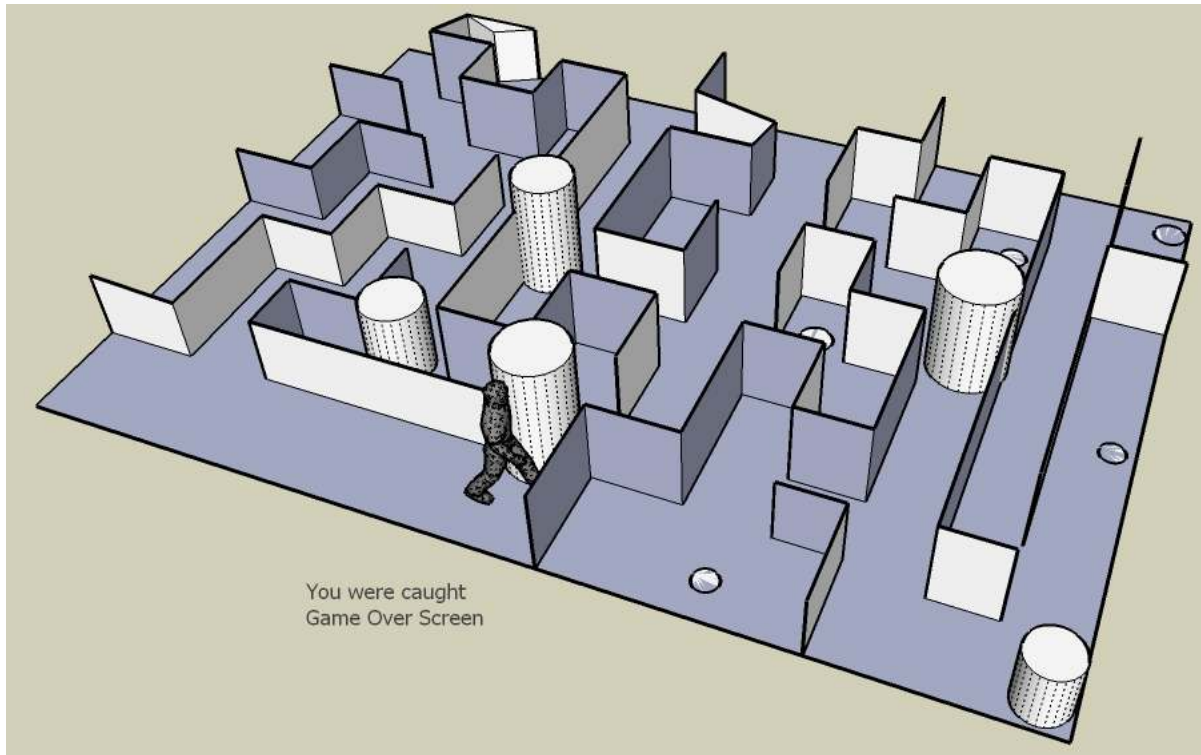
He then realizes that this is the dungeon of the famed Harold the evil scientist. Harold must pay the warden plenty of money to be able to experiment on the prisoners, and Penman refuses to be another victim. He realizes that his only chance of survival is to break out and escape.

Harold may be a mad scientist, but he is a fair man. He gives all of the inmates a chance to escape; however, none have ever lived to tell the tale of success. Harold and the Warden have dismantled the key in ten different pieces. The pieces are placed throughout the maze. Lets not forget that Harold is, after all, a scientist. Harold has also placed several objects in throughout the maze. Those objects may hinder, or help his cause. Penman should be careful, because he might discover a pill that will give the prison guards temporary hyper-speed. But he can also find the pill that causes hypo-speed for the guards. Penman may get lucky and find the temporary invisibility shields, or he may find other things too evil to mention.

5.2 Story Boards







5.3 Game Over Condition

The player will die once they are tagged by a prison guard. Once tagged, player will lose all of the key pieces that they have collected, and will be forced to start over.

The end game screen is as follows:



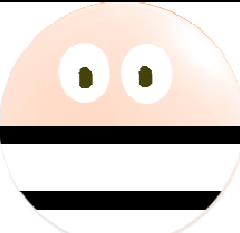



5.4 Victory Condition

The player will be victorious once all 10 pieces of the key are collected, and the player finds the exit door safely.

The end game screen is as follows:

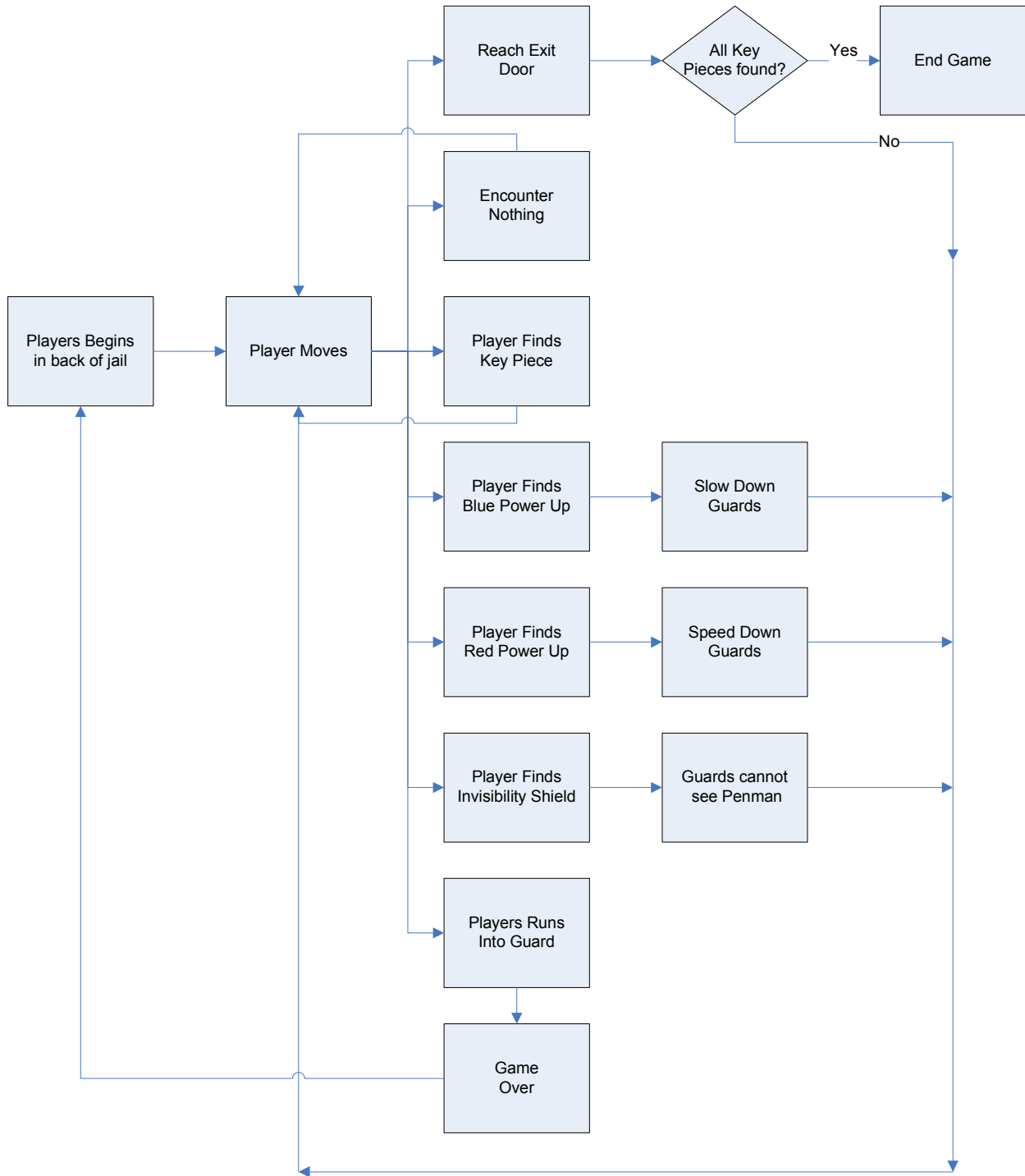


5.5 Character Bible

Character Picture	Character Name	Character Information
	<p>Penman</p>	<p>Please read section 1.2 to get information regarding Penman and his state of mind.</p>
	<p>Jefferson the Inmate</p>	<p>Jefferson is a fellow inmate, and unlike Penman, will not have the courage to escape. However, Jefferson has been in jail long enough to be able to offer Penman hints and advice regarding the guards, their routines, and key locations.</p>
	<p>Rocco the Warden</p>	<p>Rocco is a sadistic jail warden. He usually sits back and lets the guards do his dirty work. However, once a prisoner becomes a real escape threat, Rocco takes it upon himself to catch the prisoner attempting escape.</p>
	<p>Bruno the Guard</p>	<p>There are many guards in the hallways; however, all of them are named Bruno. No one knows why. Maybe they are all clones, experiments from Dr Harold. Or it could be that their parents lacked creativity when it comes to naming, but one thing is for sure – the guards are good at following orders. Guards will never leave their post, or the area they are monitoring, unless they spot an escaped prisoner, and even then, they will only pursue for so far.</p>
	<p>Harold the Mad Scientist</p>	<p>There may be just one Dr Harold, or there may be 10 – no one really knows. Dr Harold, or his many clones, hide in dark corners and wait for unsuspecting prisoners. Once a prisoner passes by, Harold, or the clones, come out of their hiding place, and chase the prisoner until he is caught.</p>

6.0 Game Progression

6.1 Flowchart



6.2 Level and Scene Details

The level will take place inside a prison in which the walls will be composed of a brick texture and the floor will be a slab of concrete. We would like to implement some jail cells to hide objects in. The cells will be bared in with details such as a bed, toilet, chains, etc. Throughout the level, several characters will be moving around the level. These characters consist of Jefferson the inmate, Rocco the warden, Bruno the guard, and Harold the mad scientist. Objects can be picked along the journey through prison. Penmen will come across good and bad objects. A good object is the blue power up which slows guards down so it is easier to sneak around or get away from. Another good object is the invincibility shield which allows Penmen to get around without being seen. A bad object is the red power up which increases the speed of the guards making it easier for them to catch you. The mission of the game is to collect 10 pieces of a complete key that are scattered throughout the level in order open the main door and exit the prison.

6.3 Sound Effects

Sound effects also need to be in either OGG or WAV formats. Sound effects will be stored in `~/penman/data/Sound/<package>`. The `~` is used by Torque script as the path string for the game installation directory. The `<package>` is the name of the sound package, organized by origin.

Sound effects were taken from the following sources:

- BBC Sound Effects Library CDs from the Dearborn Public Libraries
 - Will be stored in `~/penman/data/Sound/BBC`
- Sound effect package from Torque Game Engine sample and demos
 - Will be stored in `~/penman/data/Sound/TGE_sound`

Effects include, but are not limit to:

- Sirens (non-looping, 3D)
- Footsteps (non-looping, 3D)
- Objects toppling over (non-looping, 3D)

Currently, there are no plans for any background musical scores, however a “You Win” themed music, and “You Lose” themed music may be played when the game over screens display.

7.0 Bibliography

7.1 Software Used

The production team would like to thank the following companies for making the game possible. Adobe Photoshop 7.0, whom without, Sally would never have found her true love of graphics. Also, Microsoft Visio for allowing chart editing to be painless. Furthermore, Google SketchUp, for making architectural design available for the architecturally ignorant. Finally, Microsoft Word and Excel for making document assembly as easy as copy and paste.

7.2 Other Tools Used

The production team would also like to thank BBC for making their countless sound effects to be available for free through the local public libraries.

8.0 Lessons Learned

To efficiently create a 3D Torque game for our CIS 487/587 Game Design Course within the course of time given to complete the game and design document, the following lessons were learned:

8.1 Planning

It was crucial to form a team and maintain a team structured project. The game planning involves the team of 5 members to communicate effectively to separate tasks and plan deadlines in which those tasks are to be completed.

8.2 Procrastination

The production team members have learned that nothing good can come out of putting off till tomorrow what you can do today.

8.3 Time Management

The production team members, who have other classes as well as jobs, have also learned to prioritize the tasks at hand in order to maximize their full potential.

8.4 Keeping it Simple

In continuance with the time management lesson, the production team members have also learned that over-thinking and making the game grand only complicates the present tasks at hand. Keeping the entire project simple gives realistic expectations. That way, more effort can be delegated to the current task with better results.

8.5 Have Fun

Enjoying the work being done means more effort spent to produce a better product!