

MTE-415 Game Development

Lec 2: Game Design & Analysis I



<http://www.hardcoregaming101.net/gng/makaimuraafc.jpg>

All graphics are fair used for education only.

Ekarat Rattagan, Ph.D.

Outline

1. Review: Game elements
2. Dai Makai-Mura
3. Bionic Commando
4. Braid & Inside

1. Dai Makai-Mura, Capcom 1988



- ***Ghouls 'n Ghosts*** (Japanese: 大魔界村 Hepburn: *Daimakaimura*[?], lit. "Great Demon World Village")
- A side-scrolling action platform game developed by Capcom and released as an arcade game in 1988 and subsequently ported to a number of other platforms.
- It is the sequel to *Ghosts 'n Goblins* and the second game in the *Ghosts 'n Goblins* series.

1. Dai Makai-Mura, Capcom 1988

❑ Players

- One player controls **Knight Arthur**.

❑ Goals

- The player controls the knight Arthur, who must advance through a series of eerie levels and defeat a number of undead and demonic creatures in his quest to restore all the people killed by Lucifer, including his beloved Princess Prin Prin, back to life.

1. Dai Makai-Mura, Capcom 1988

□ Rules

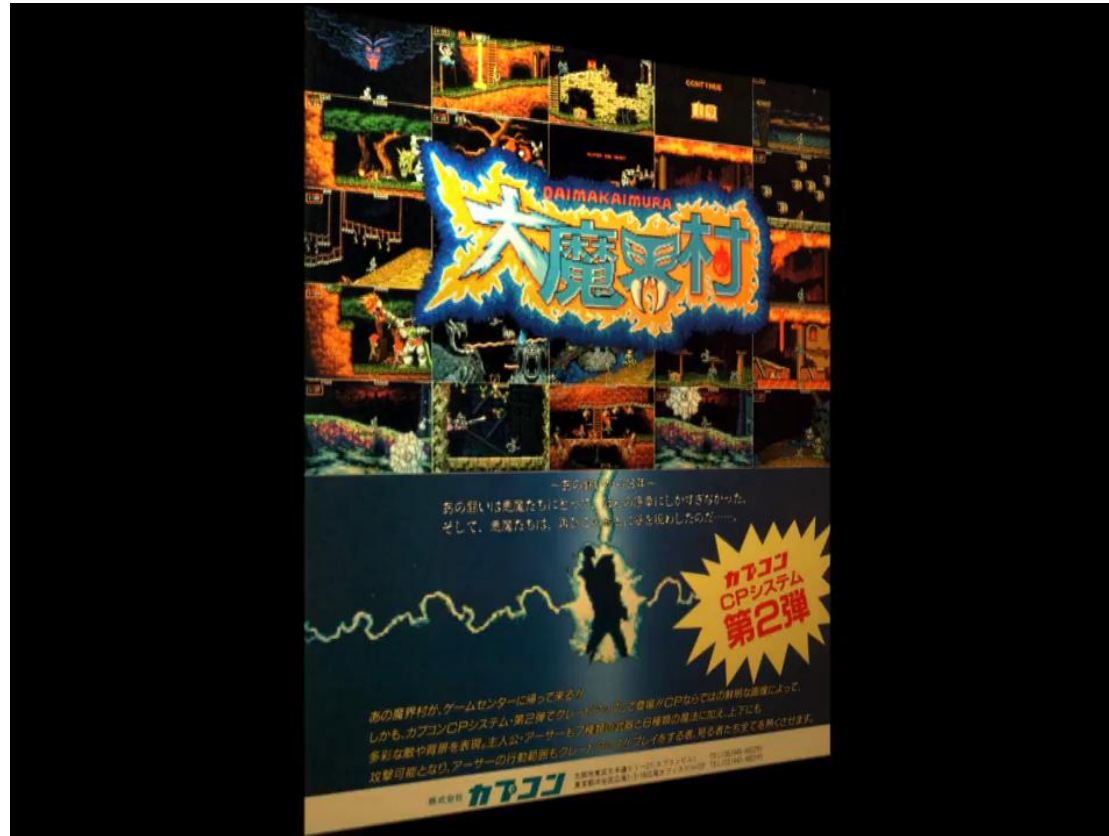
- Along the way, Arthur can pick up a variety of weapons and armor to help him in his quest.
- By jumping in certain spots, players can cause a treasure chest to erupt from the ground.
- By firing his weapon at the chest, players may uncover new weapons, gold armor or an evil magician that changes Arthur into **an elderly man** or **a helpless duck**.
- **The gold armor** allows players to charge up the weapon to release a powerful magical attack.
- Each weapon has its own special attack, with the exception of the special weapon.
- **There are five levels and Lucifer's chamber at the end**, considered a sixth level in itself.
- To defeat the game, **Arthur must complete level 1 to 5 twice**. Upon completing level's 1 to 5 the first time, Arthur is taken back to level 1 again but this time a special weapon appears during the game, which can only be collected if the player is wearing the gold armor. To enter Lucifer's chamber the player must have this special weapon equipped and defeat the penultimate boss.

1. Dai Makai-Mura, Capcom 1988

☐ Challenges

- List in the video on the next slide.

1. Dai Makai-Mura, Capcom 1988



<https://www.youtube.com/watch?v=3JpByn18xqs>

1. Dai Makai-Mura, Capcom 1988

- Example of sprite sheets: <https://www.spritters-resource.com/arcade/ghoulsnghosts/>

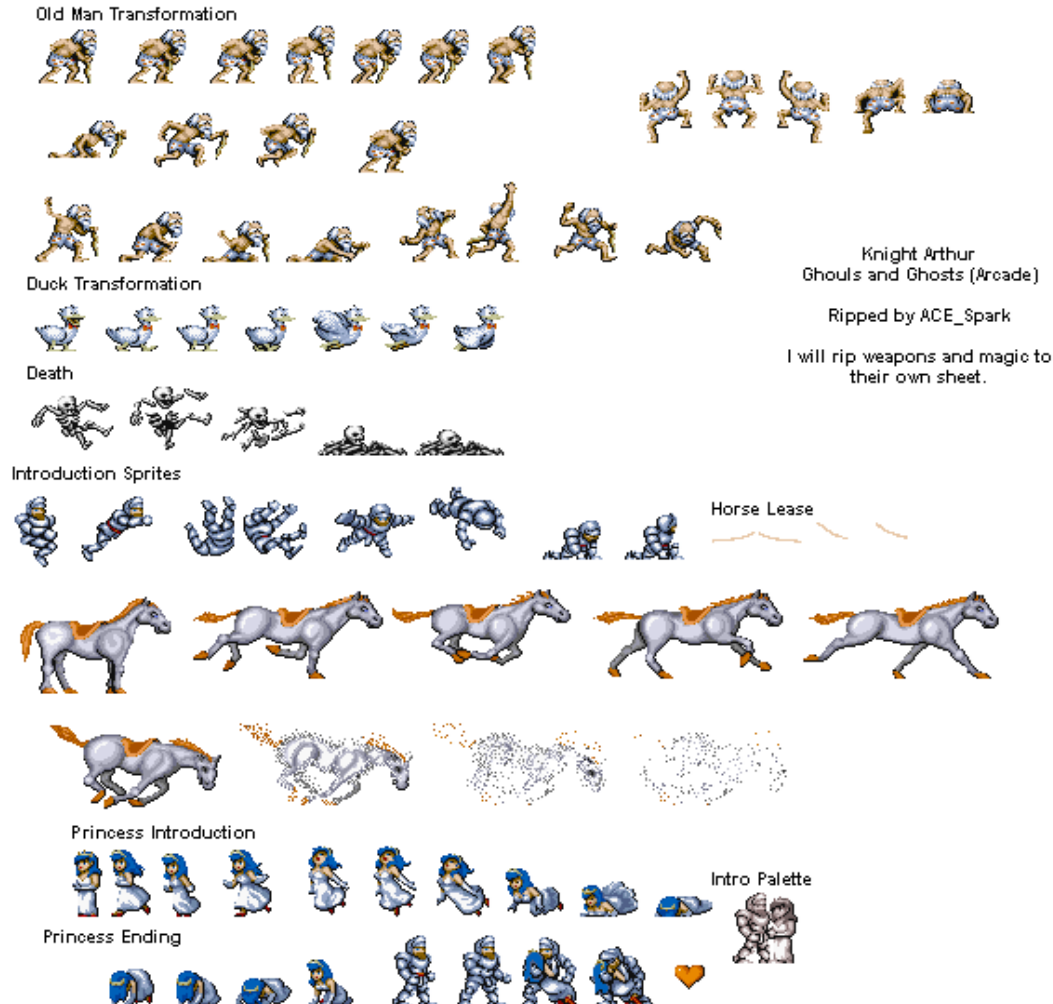


1. Dai Makai-Mura, Capcom 1988



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1. Dai Makai-Mura, Capcom 1988



1. Dai Makai-Mura, Gold knights ii

- Latest version: https://www.youtube.com/watch?v=mw6gN3J_vuQ



2. Bionic Commando



- Bionic Commando, originally released as Hitler's Revival: Top Secret (ヒットラーの復活 TOP SECRET トップシークレット Hittorā no Fukkatsu: Toppu Shīkuretto?) in Japan,
- An action-platformer video game released by Capcom for the Family Computer and Nintendo Entertainment System in 1988.

2. Bionic Commando

❑ Players

- One player controls **Ladd Spencer**.

❑ Goals

- The player controls Ladd Spencer, whose mission is to rescue **Super Joe** and to uncover the mystery behind the **Albatros** project

2. Bionic Commando

□ Rules

- Players use the control pad to move Ladd left and right, and the buttons to fire at enemies.
- Ladd is unable to jump, so players must use his bionic arm to navigate platforms and obstacles.
- Players can extend his bionic arm overhead, directly in front, and above at a 45-degree angle.
- The bionic arm is used to climb up to higher platforms, swing across chasms, and pick up some items.
- There are two types of areas in the game –
 - "combat areas" in which players must fight through
 - "neutral areas" in which additional information and items may be collected. If Ladd fires his weapon in any neutral area, an alarm sounds, and other combatants will start fighting.
- In the combat areas, Ladd must first find the communications room, which Ladd can use to communicate with comrades and to "wire-tap" and listen in on enemy conversations - gathering important information in the process.
- After using the communications room, a door to the remainder of the area will open. At this point, the player may need to access another communication room to gain further access.

2. Bionic Commando

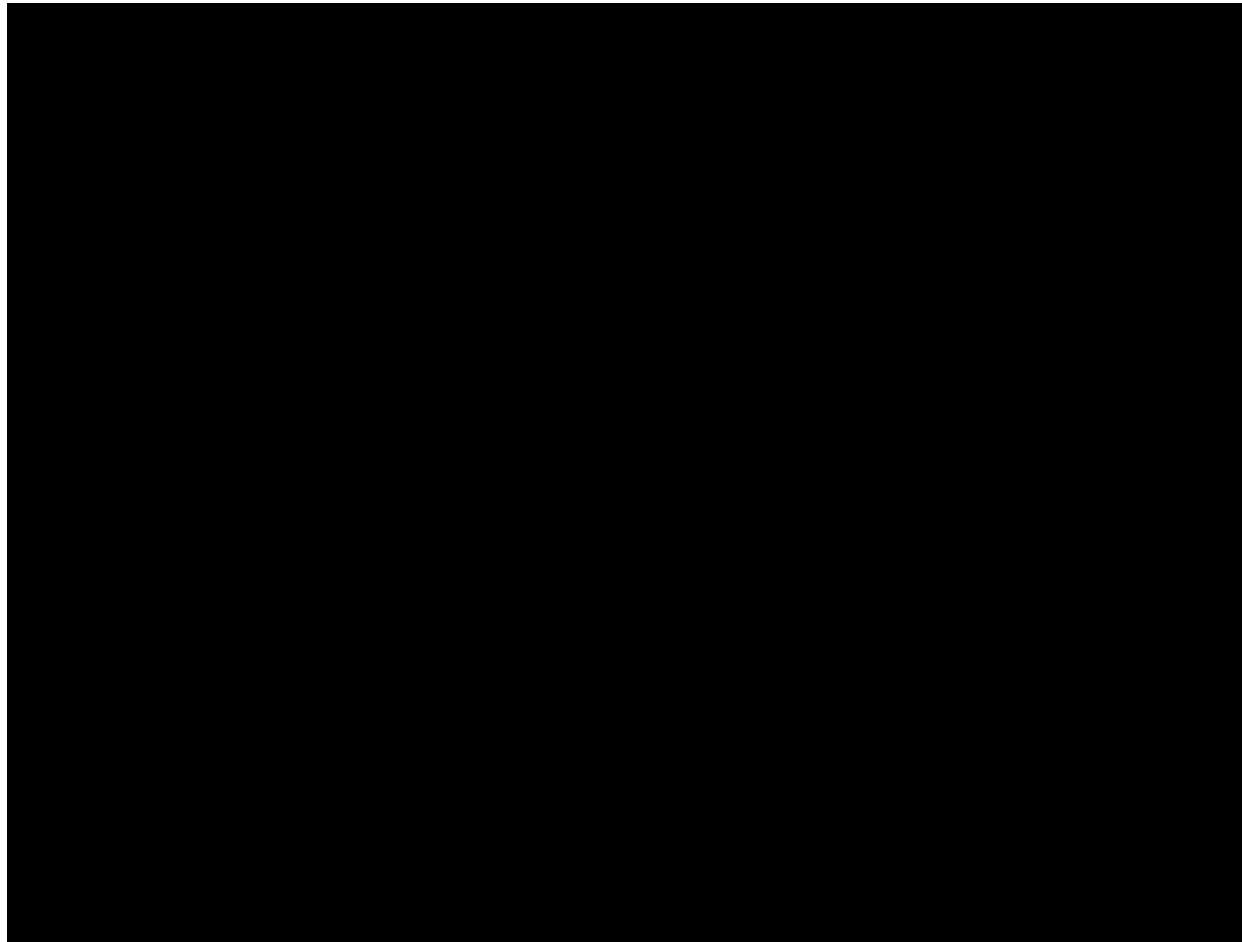
❑ Rules (Cont.)

- At the end of the area is a room that contains a mechanical core guarded by a boss.
- The player must get past the boss in order to destroy the core, clearing the area.
- At the end of each area, Ladd obtains additional items or weapons as a bonus, some of which are necessary to access different areas.
- Additional weapons include wider-range guns, 3-way guns, bazookas, and Super Joe's machine gun. Other items include the flare bomb to illuminate dark caves, medicine to restore energy, permits to access certain areas, protective gear that repels enemy bullets, extra communicators, bullets that help extend energy, and 1-ups.
- Players may need certain items and equipment to access new areas, which may require going back to previous areas to get them.

❑ Challenges

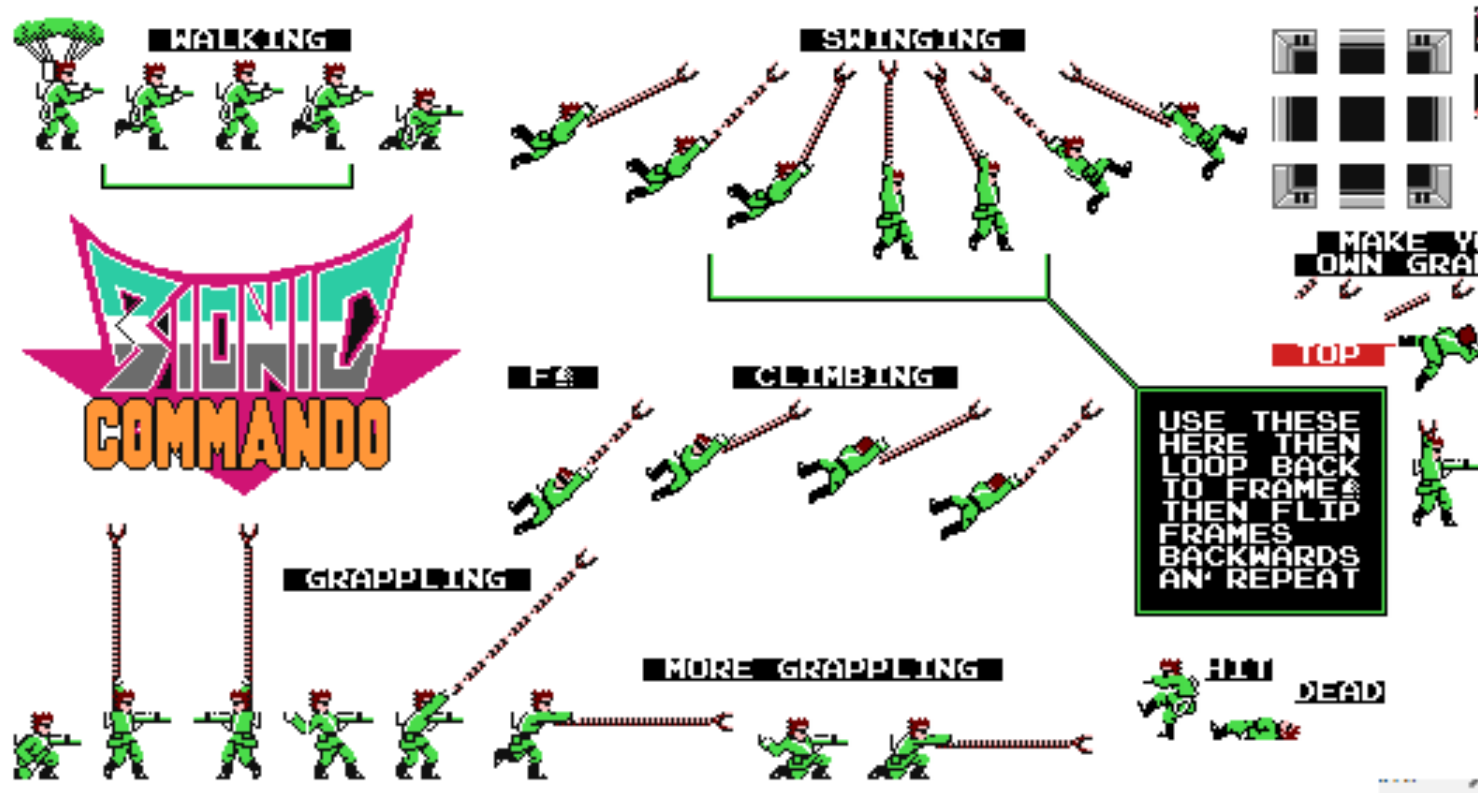
- List in the video on the next slide.

2. Bionic Commando



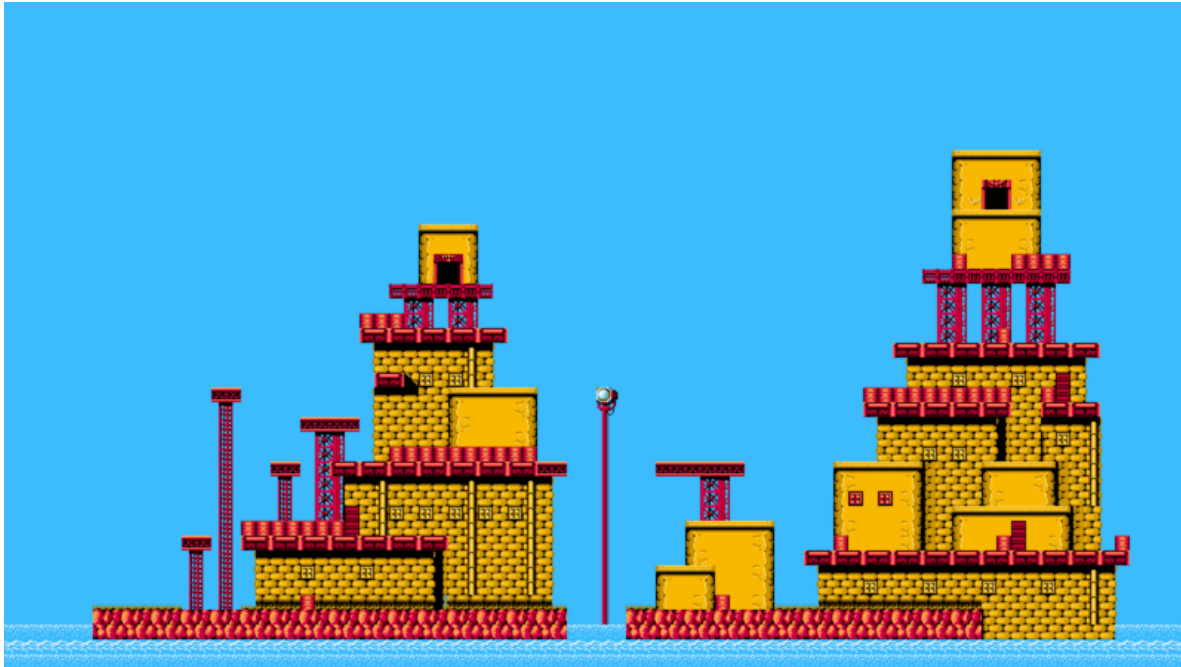
2. Bionic Commando

- Example of sprite sheets: <https://www.spriteresource.com/arcade/ghoulsnghosts/>

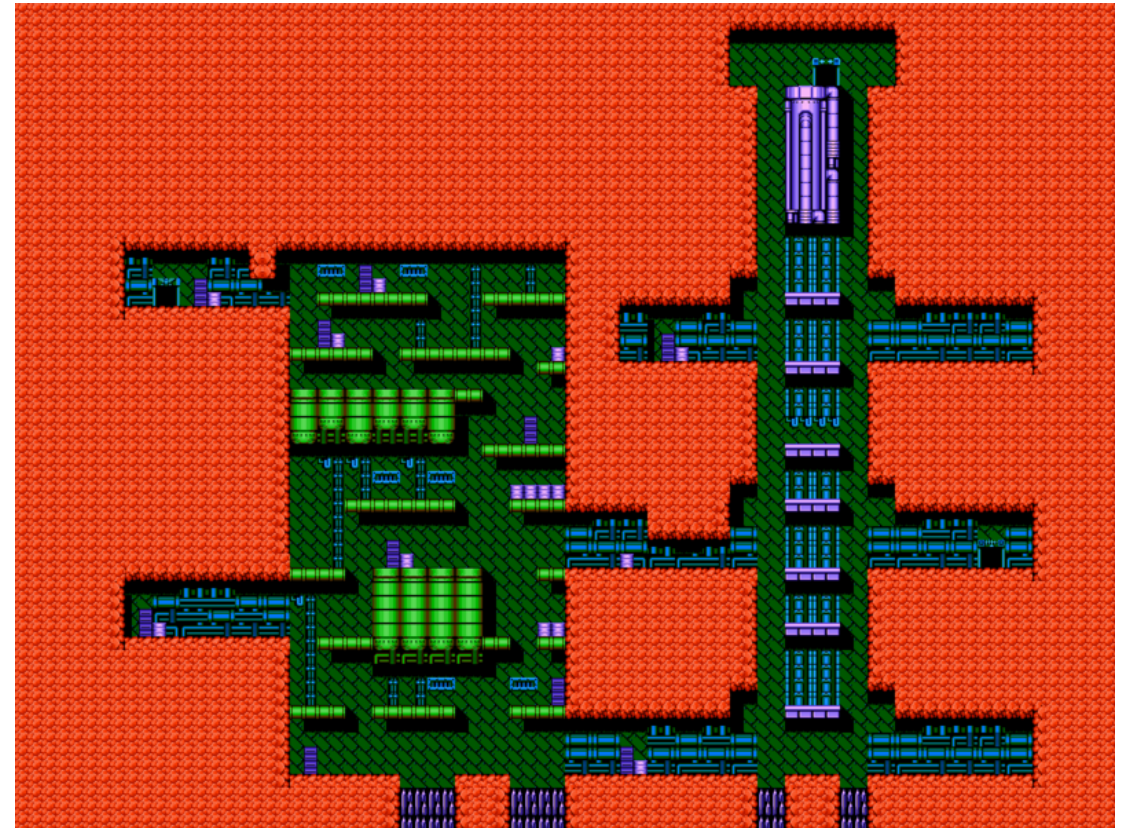


2. Bionic Commando

- Example of map: http://www.thealmightyguru.com/Reviews/BionicCommando/Wiki/index.php?title=Graphics:_NES



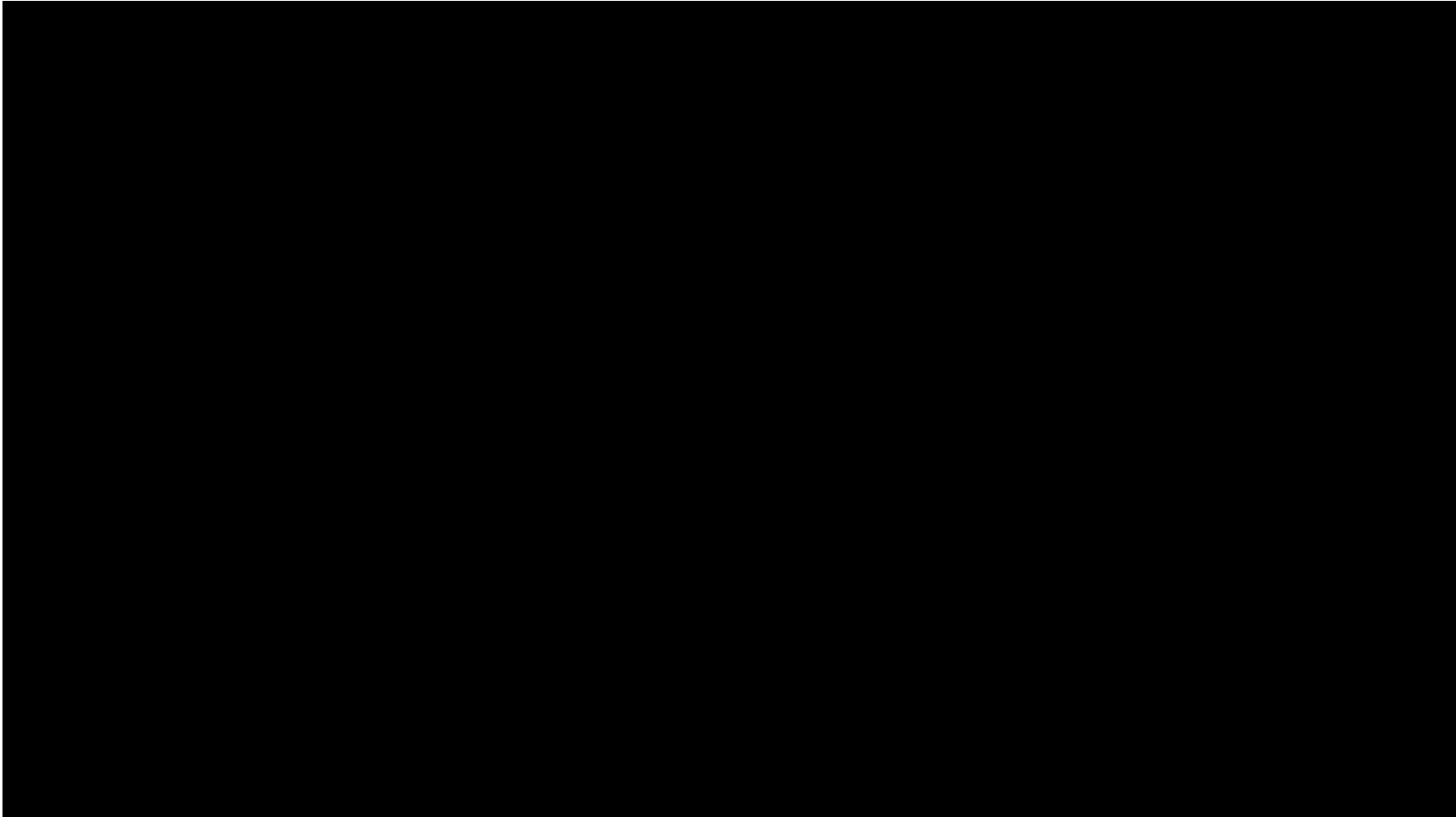
Area 1: Exterior



Area 1: Interior

2. Bionic Commando

- Latest version



3. More interesting gameplay

- Braid

- <https://www.youtube.com/watch?v=uyH4Hd1NHho>



Inside

- <https://www.youtube.com/watch?v=vPcolQbesz4>

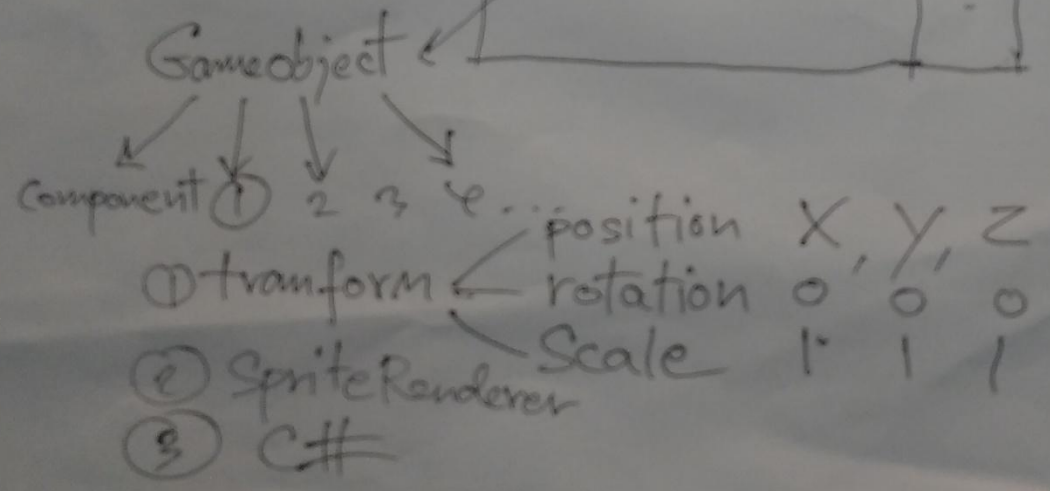
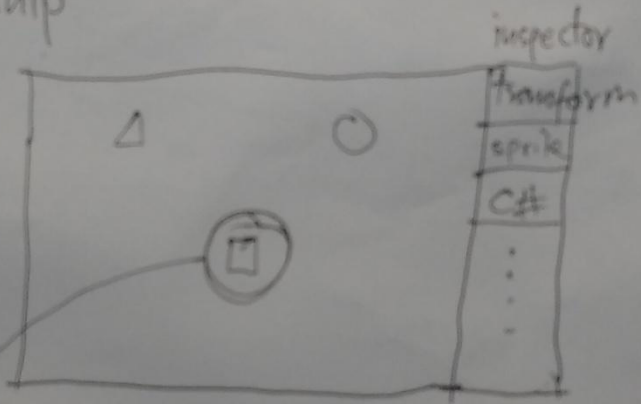
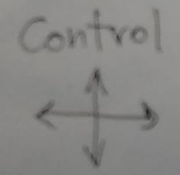


<http://www.playdead.com/games/inside/>

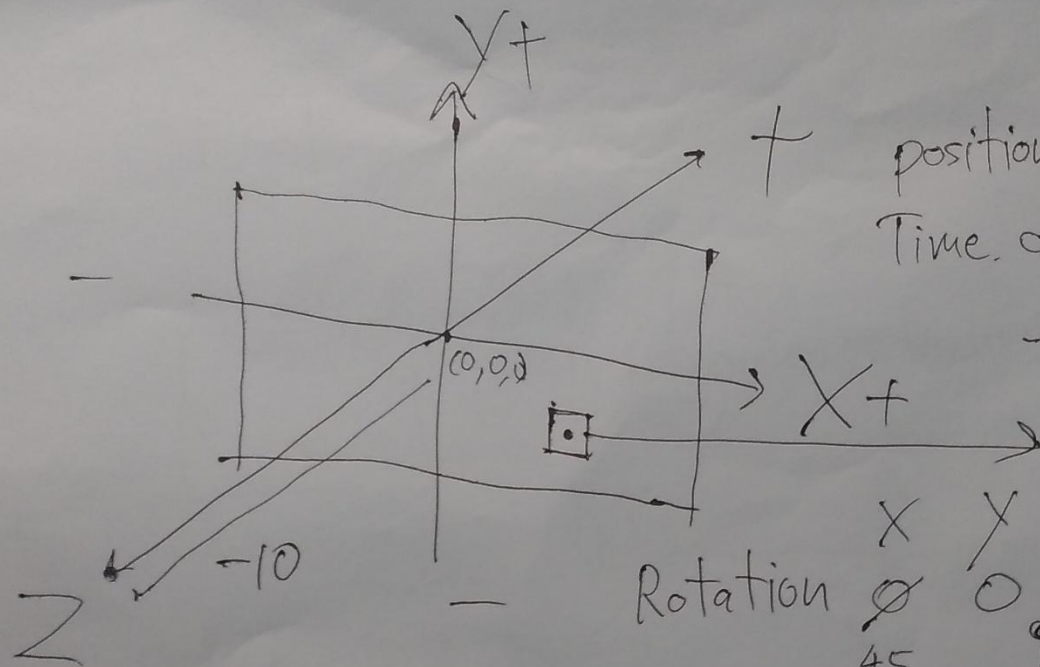
Week 2



Sprite
ship



50 | 0.05 (2)
100



position $x += 1$
Time.deltaTime

$$\frac{1}{60} = 0.016\text{s.}$$

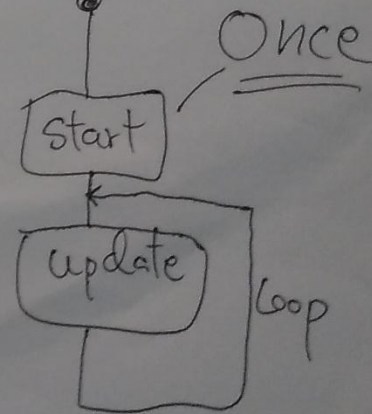
Rotation

X	Y	Z
0	0	0
45		

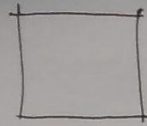
Start()

Update()

60 500 / 2400 = fps

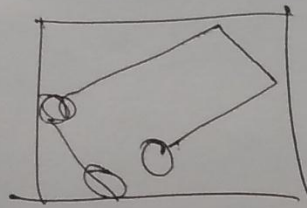


3



scale X = 1

0.5 ~ 1.5



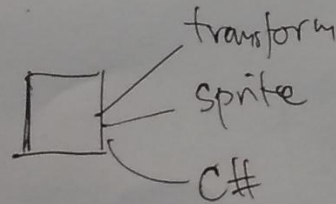
scale X += 0.1

if (transform.localScale.X > 1.5

ကျော်ပြန်

if (transform.localScale.X < 0.5)

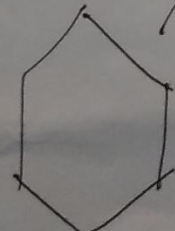
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in Editor, (0,0,0)

Enemy

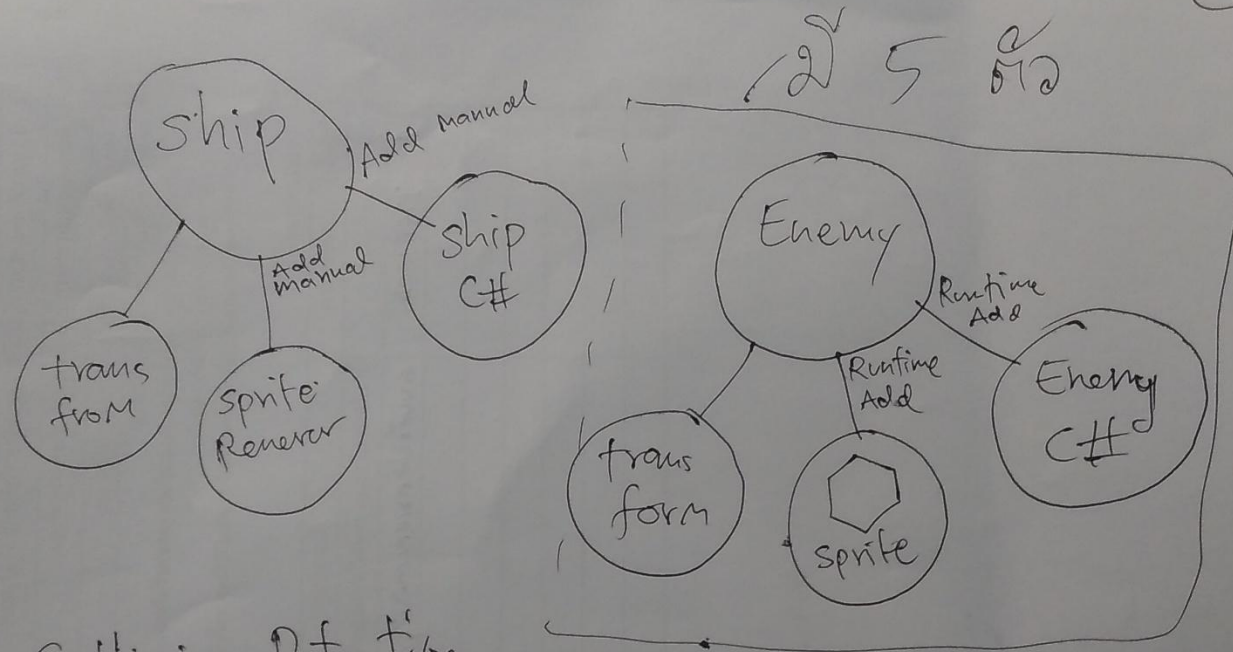


ကျန်သေး at Runtime

Add sprite

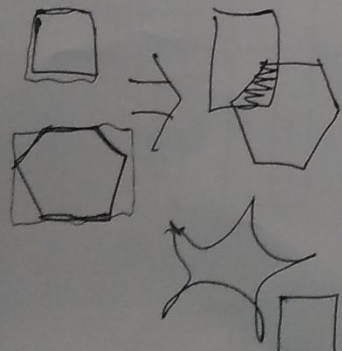
~~Add C#~~

(4)



bounds

Collision Detection 1584



```
foreach(GameObject go in MainGame.gameObjs)
    if(this.GetComponent<SpriteRenderer>().bounds.
    Intersects(go.GetComponent<SpriteRenderer>().bounds))
        DestroyObject(go)
```