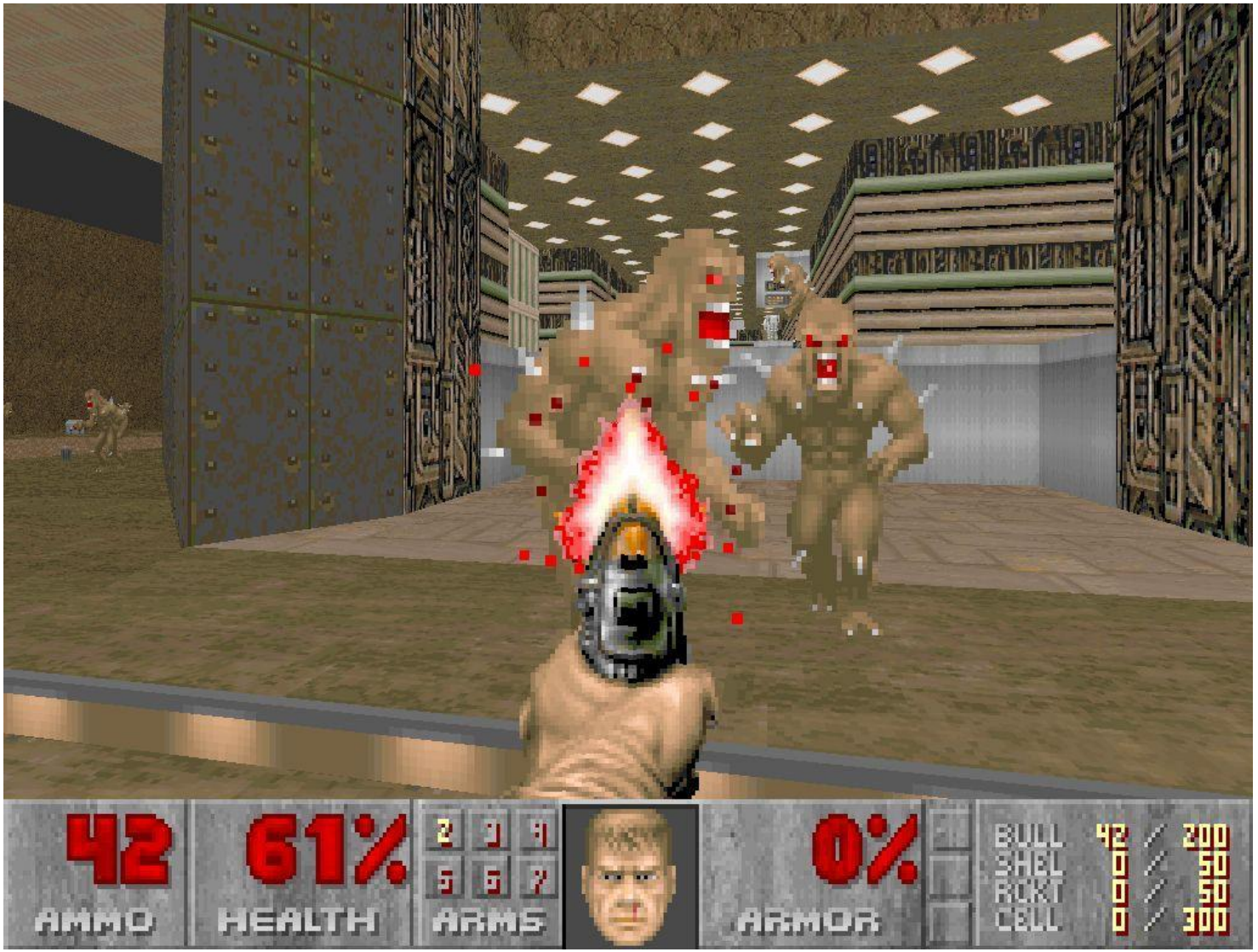
Unity進階攝影機運用

NDark

Outline

1. First Person Shooter (FPS)
2. Top down (strategy)
3. Left side (side scrolling)
4. Third person view (ADV / ACT)
5. Camera routes (light gun shooter)
6. Camera field (ADV)

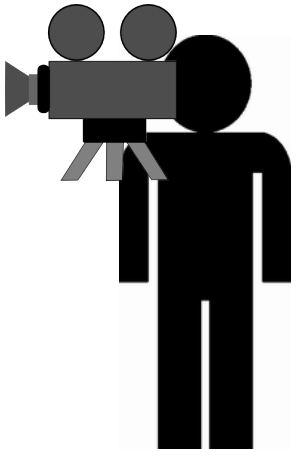
First Person Shooter



First Person Shooter

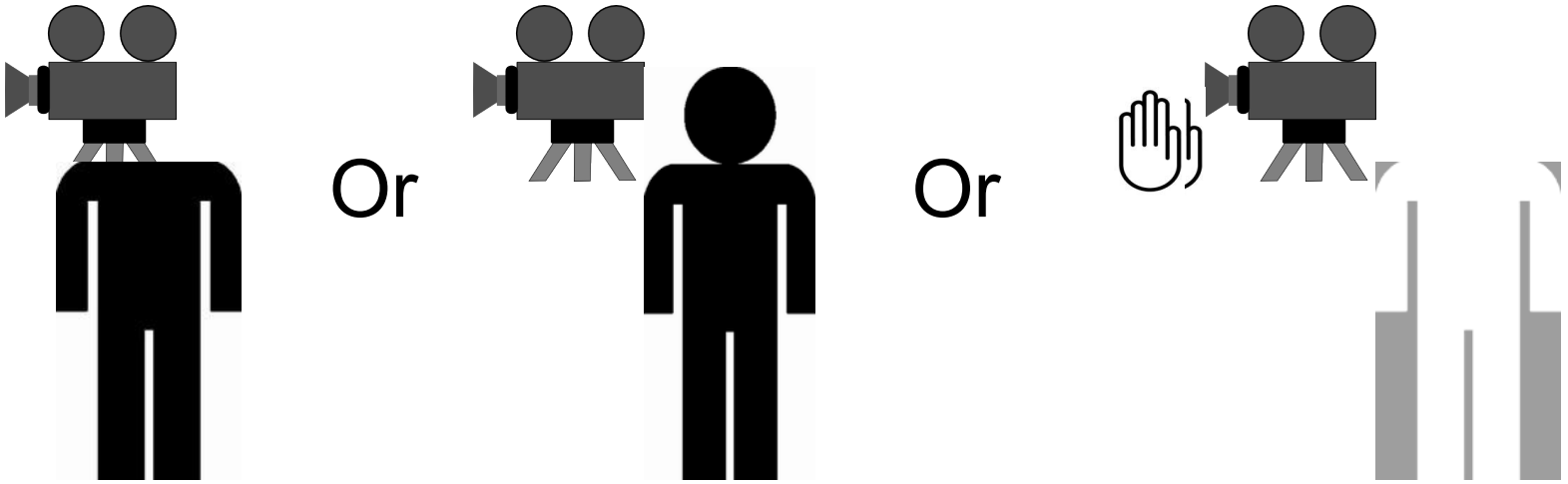
First Person Shooter

It may be



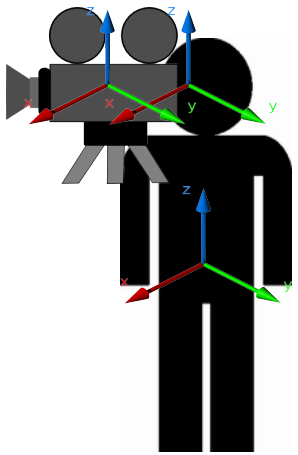
First Person Shooter

Actually...



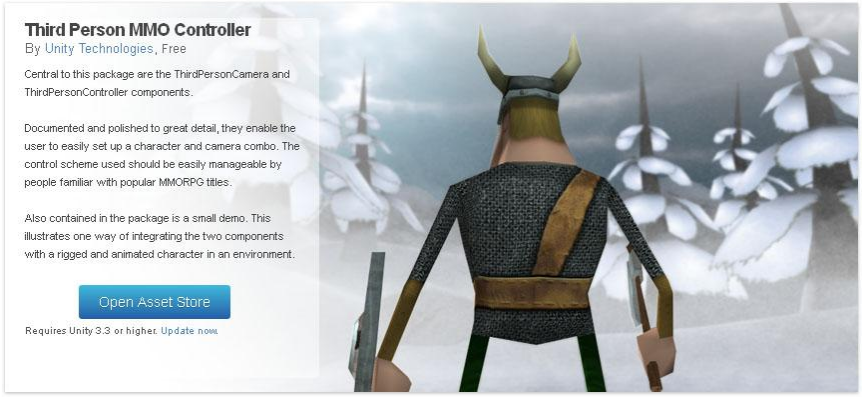
First Person Shooter

1. Main Character Object -> Eye Object -> Eye Transform (Position & Rotation).
2. Control main character.
3. Let camera follow the eye.



First Person Shooter

- Supplemental
  a. Limitation of camera.
  b. Shake of move steps.
  c. Damage effect when been hit.
- Reference
  - "Third Person MMO Controller"
    - http://u3d.as/content/unity-technologies/third-person-mmo-controller/1Wt

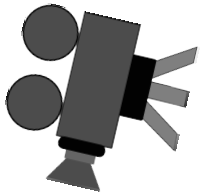


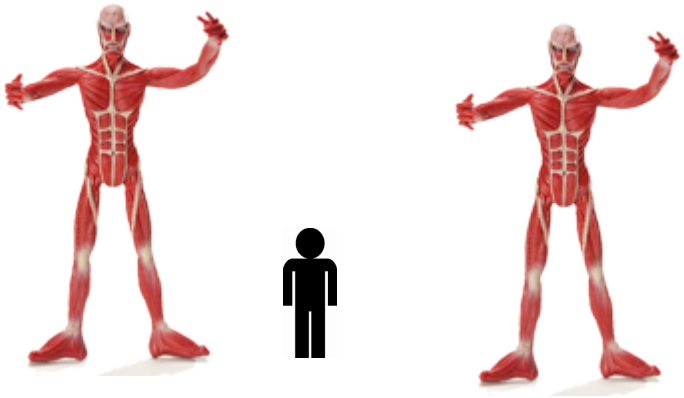
Top down

Top down


Objectives (F9)
Menu (F10)
Alliance (F11)
9708
4336
132/177
Phase Prism
40/40
100/100

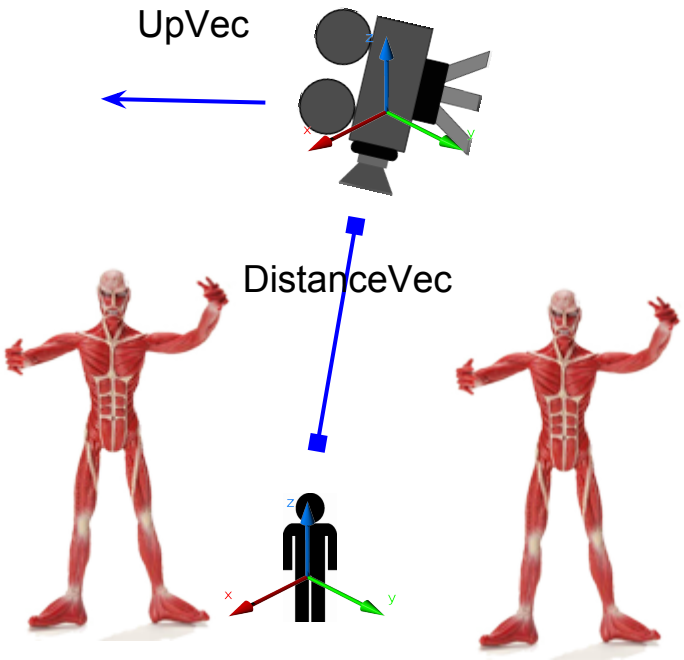
Top down





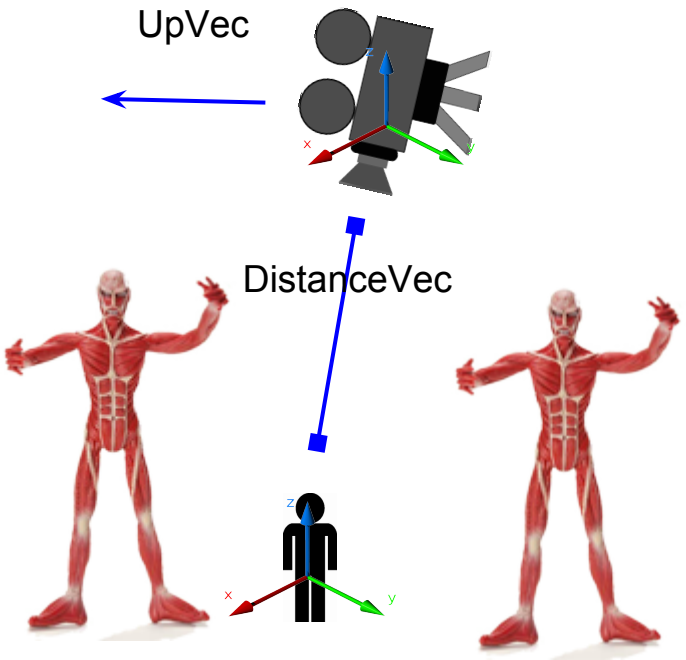
Top down 1 (FixUp)

1. Main Character Object -
   > Transform (Position).
2. Control main character.
3. Let camera follow.



Top down 2 (Not-FixUp)

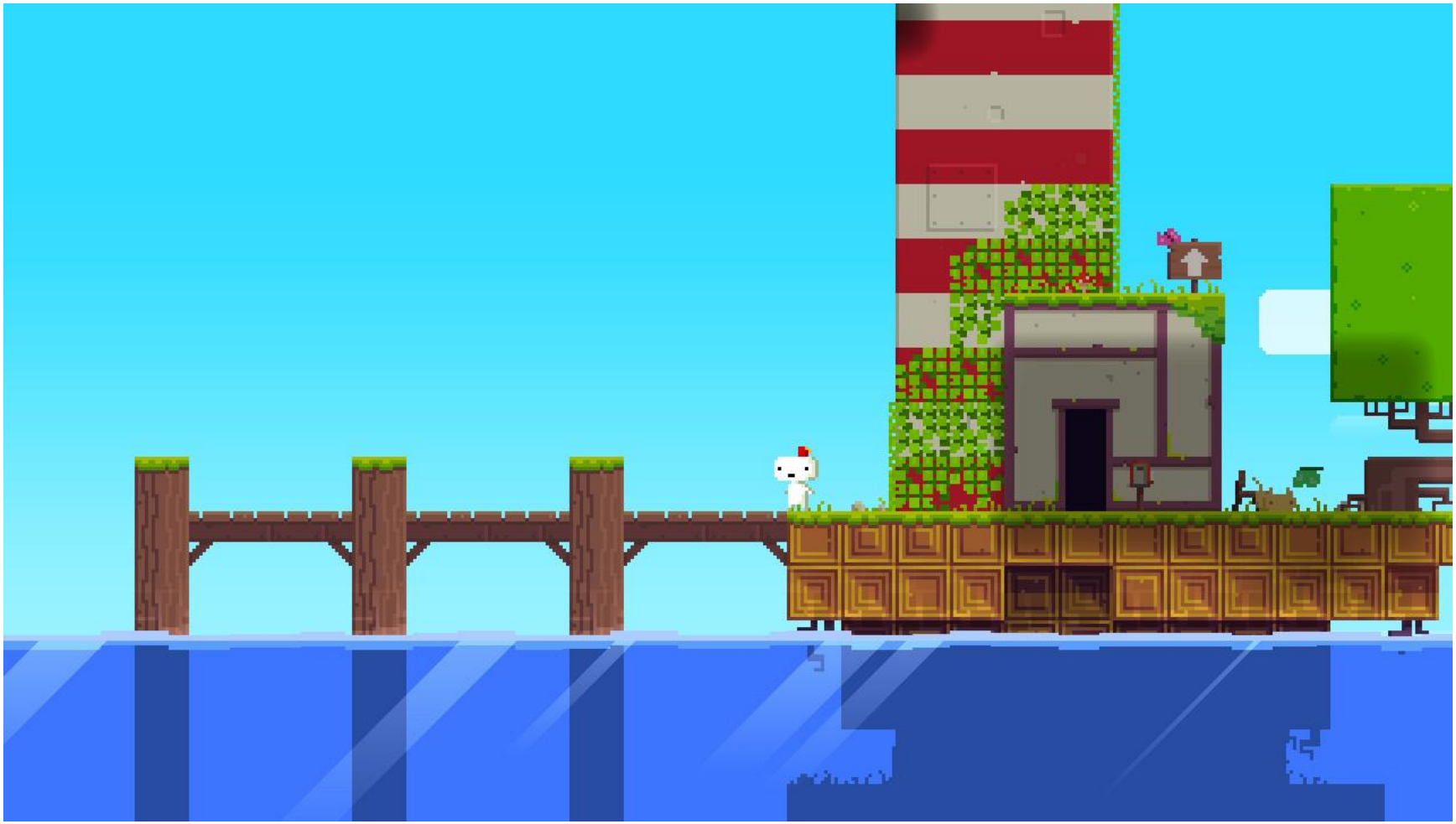
1. Main Character Object -
   > Transform (Position & Rotation).
2. Control main character.
3. Let camera follow.



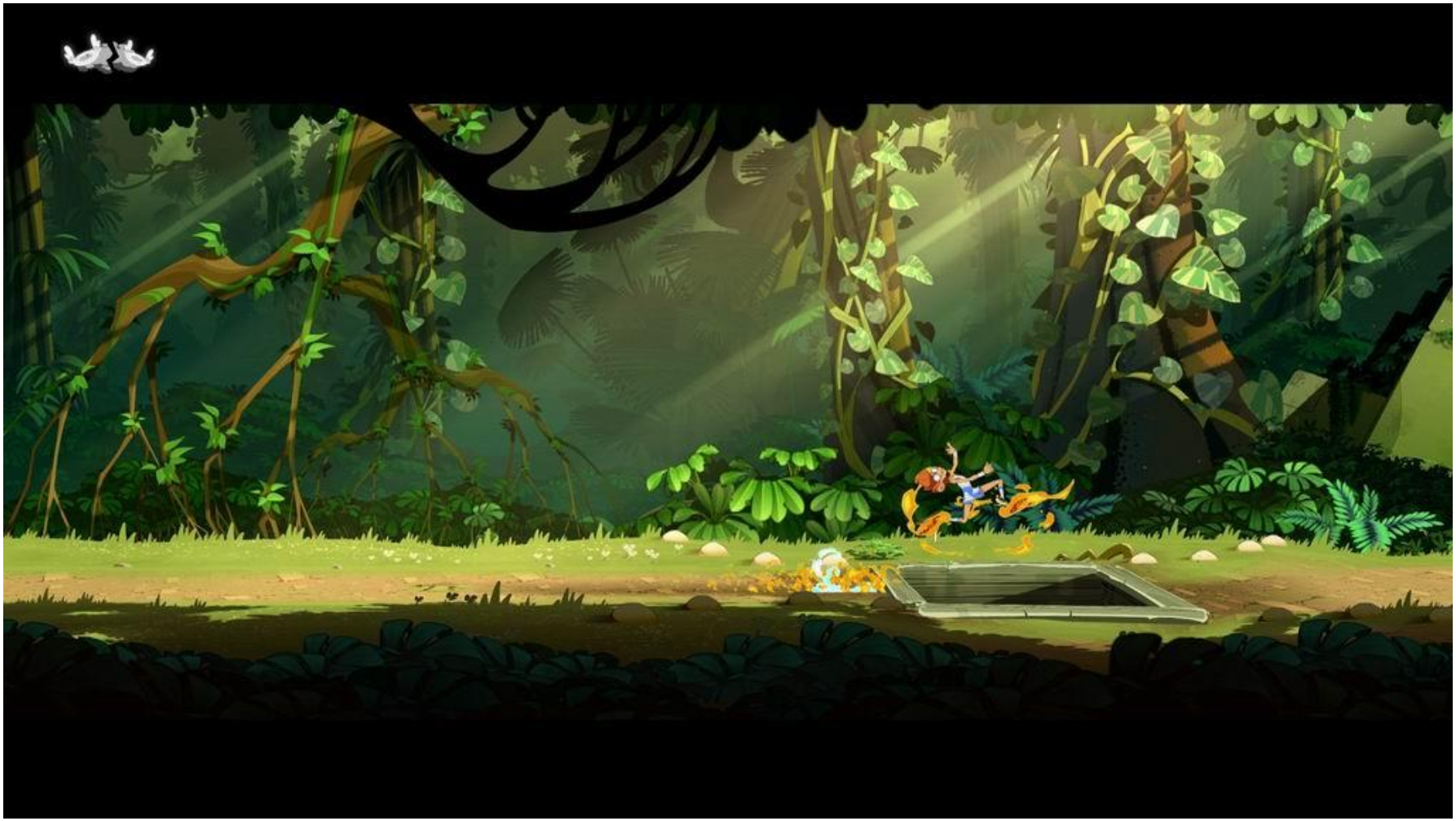
Top down

- Supplemental
  - Distance
  - Target
  - Up vector
- Reference
  - Kobayashi Maru Commander
    - https://github.com/NDark/KobayashiMaruCommanderOS
    - https://www.facebook.com/groups/1512800216817 43/

Left side

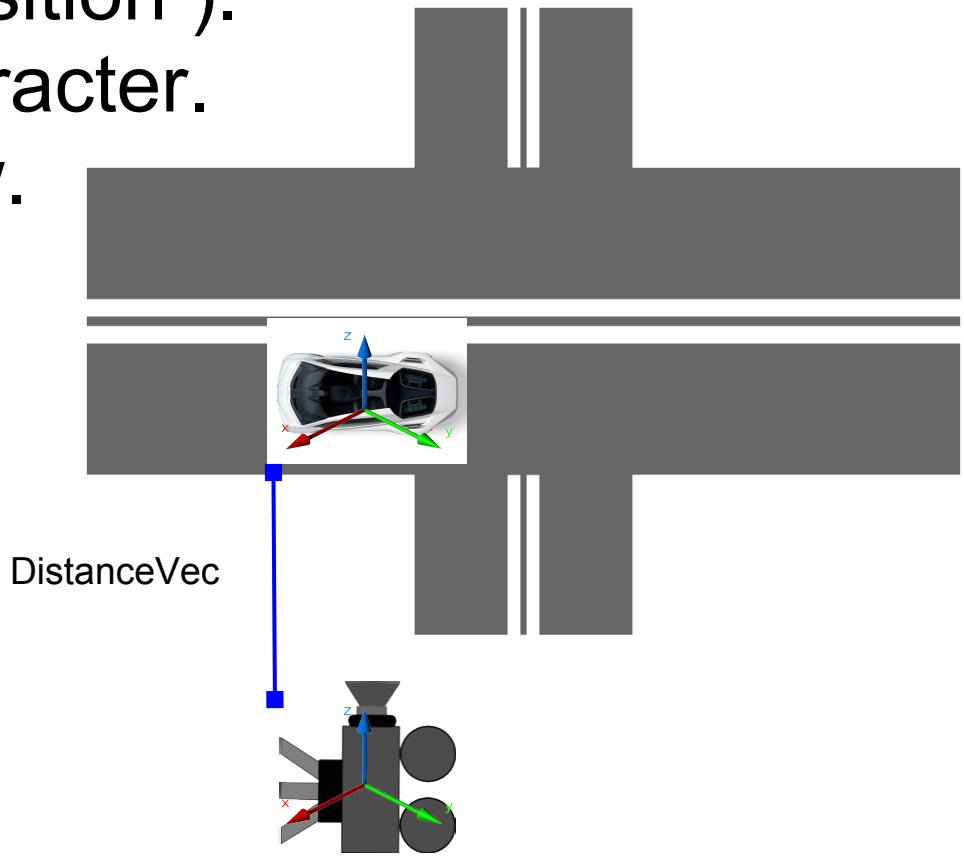


Left side



Left side

1. Main Character Object -
   > Transform (Position).
2. Control main character.
3. Let camera follow.



Left side

- Supplemental
  - Define distance vector
  - Limitation at boundaries
  - Define left and right of main character
  - Define up vector of camera
  - 環型軌道

Third person view

Third person view

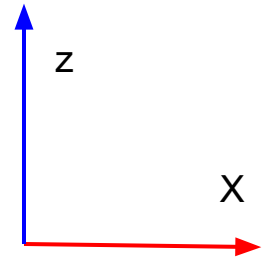
Third person view

Third person view

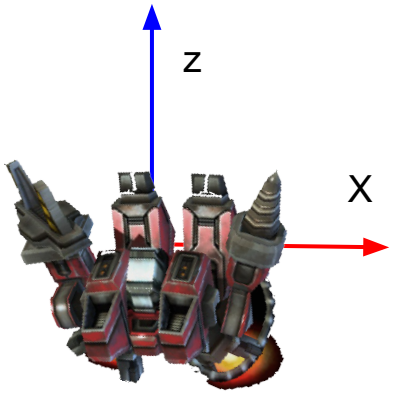
Height

Distance

Third person view (local coordinate)

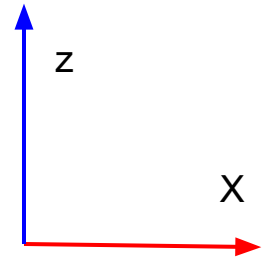


World Coordinate

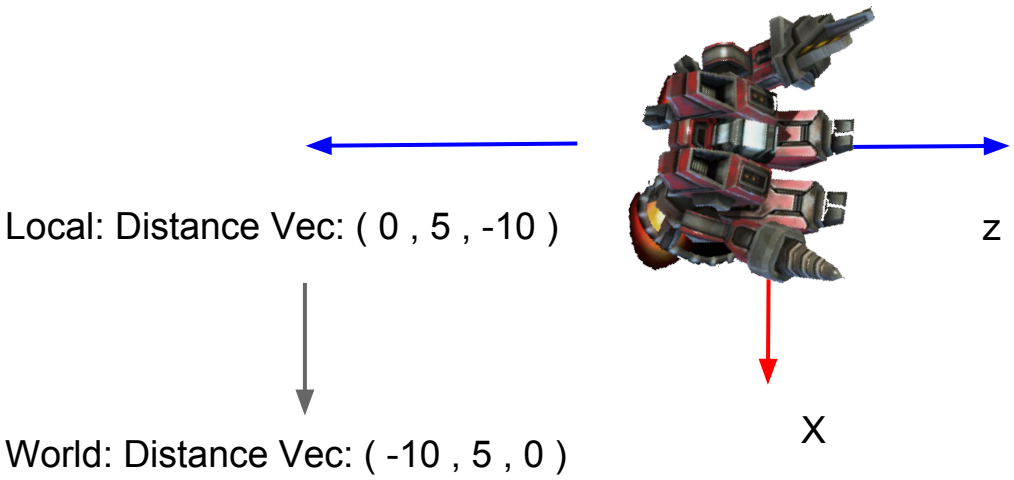


Distance Vec: (0 , 5 , -10)

Third person view (world coordinate)



World Coordinate



Third person view

- Supplemental
  - Parameter: distance, height.
  - Don't target at center of character.
  - The left and right to control character.

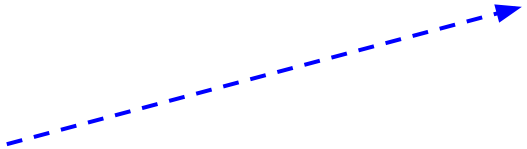
Camera routes

Camera routes

Camera routes

route 1

route 0



route 2

Camera routes

route 0

Transform.Position
Transform.Rotation

route 1

Transform.Position
Transform.Rotation

Camera routes

route 0

Transform.Position
Transform.Rotation

t t+1

route 1

Transform.Position
Transform.Rotation

Camera routes

1. Move to target
2. Check reach to target?
    a. If false, back to (1)
    b. if true, check next target
3. is there next target?
    a. if false, end simulation.
    b. if true, replace next target and back to (1)

Camera routes

1. 我們需要什麼資訊
   a. 下一個目標的姿勢(位置及轉向)
   b. 速度？時間？
2. 如何算出下一個畫格該跑多少(移動到哪裡)？該轉多少？

3秒跑10單位

下一個畫格該在哪裡?

Camera routes

3秒跑10單位

下一個畫格該在哪裡?

目前遊戲FPS30 每秒30格

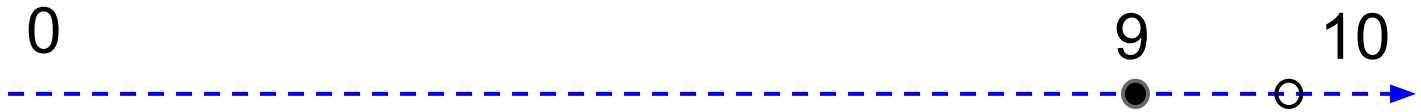
目前畫格每格1/30秒=0.03sec

3秒跑10單位，速度10/3=3.33/秒，0.03秒應跑0.0999

以這樣的速度只要跑90格(3秒)就會抵達終點。

Camera routes

問題如果FPS瞬間飆低每格時間變大，那麼本畫格移動就有可能超過目標(過頭)



目前遊戲FPS2 每秒2格

目前畫格1/2秒=0.5sec

3秒跑10單位，速度10/3=3.33/秒，0.5秒應跑0.5*3.33=1.665，超過10

Camera routes

解答

1. 超過時就設定為立即抵達
2. 使用絕對不會超過的計算方式:內差法＝等比例法:
   a. 每次都以一定比例靠近目標。
   b. 距離目標越遠移動越快，距離目標越近移動越慢。

3. 優點:
   a. 造成一個緩衝的效果。
   b. 可以對抗移動中的目標。
   c. 移動及旋轉都已經內建Lerp函式。因為旋轉很難算。
4. 缺點:比較不能精確計算移動所花費時間，

Camera routes 2

1. Use 2 positions to present camera position a nd look at position of camera pose, instead o f use 1 position and 1 rotation.

Camera routes 3

1. Combination of camera routes and other c amera moving method.

Camera routes 4

1. Combination of camera routes and other c amera moving method.

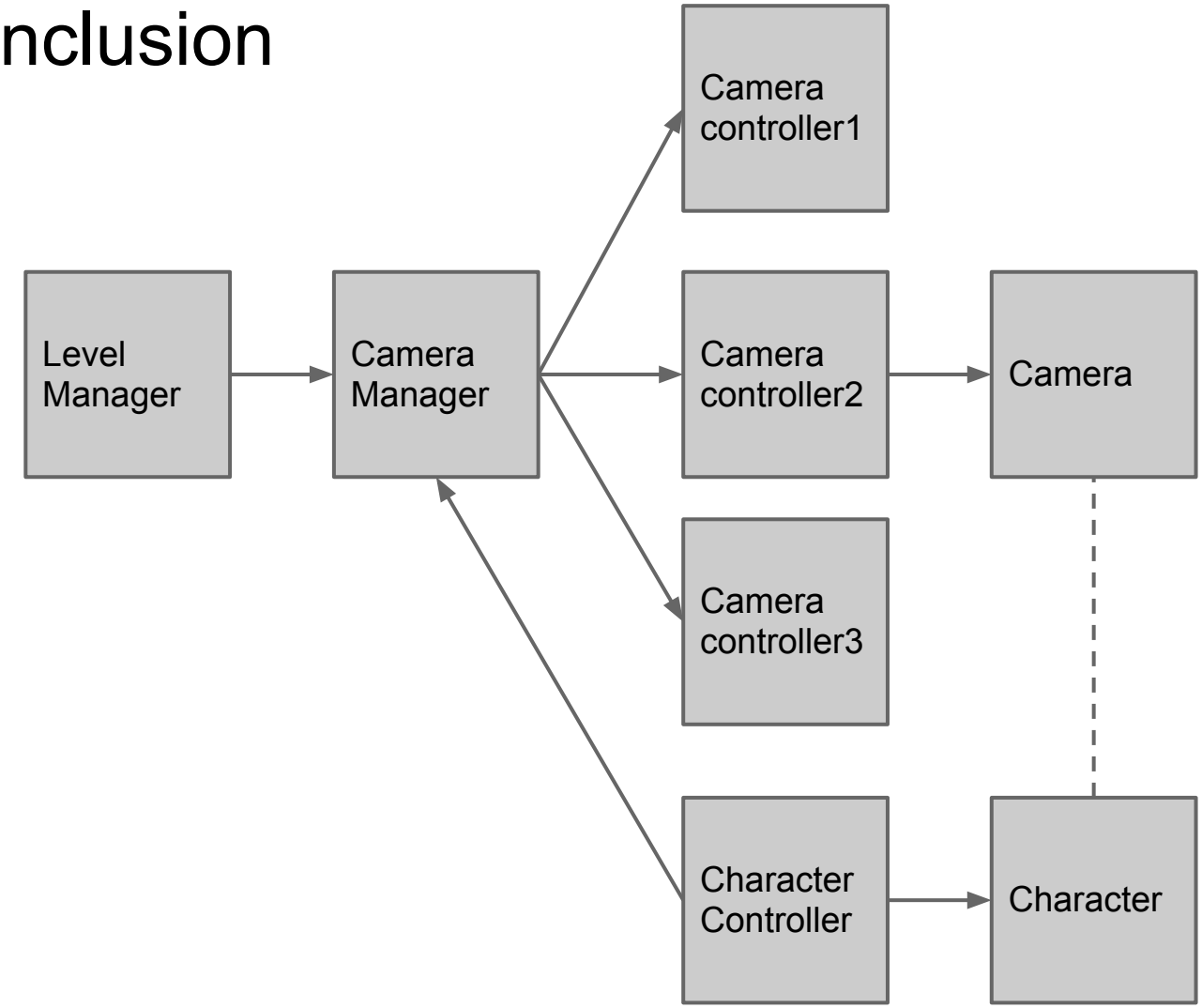
Camera routes

- Supplemental
  - Parameter: speed.
  - Interpolate or Jump now.
  - Up direction.

Camera routes

Camera routes

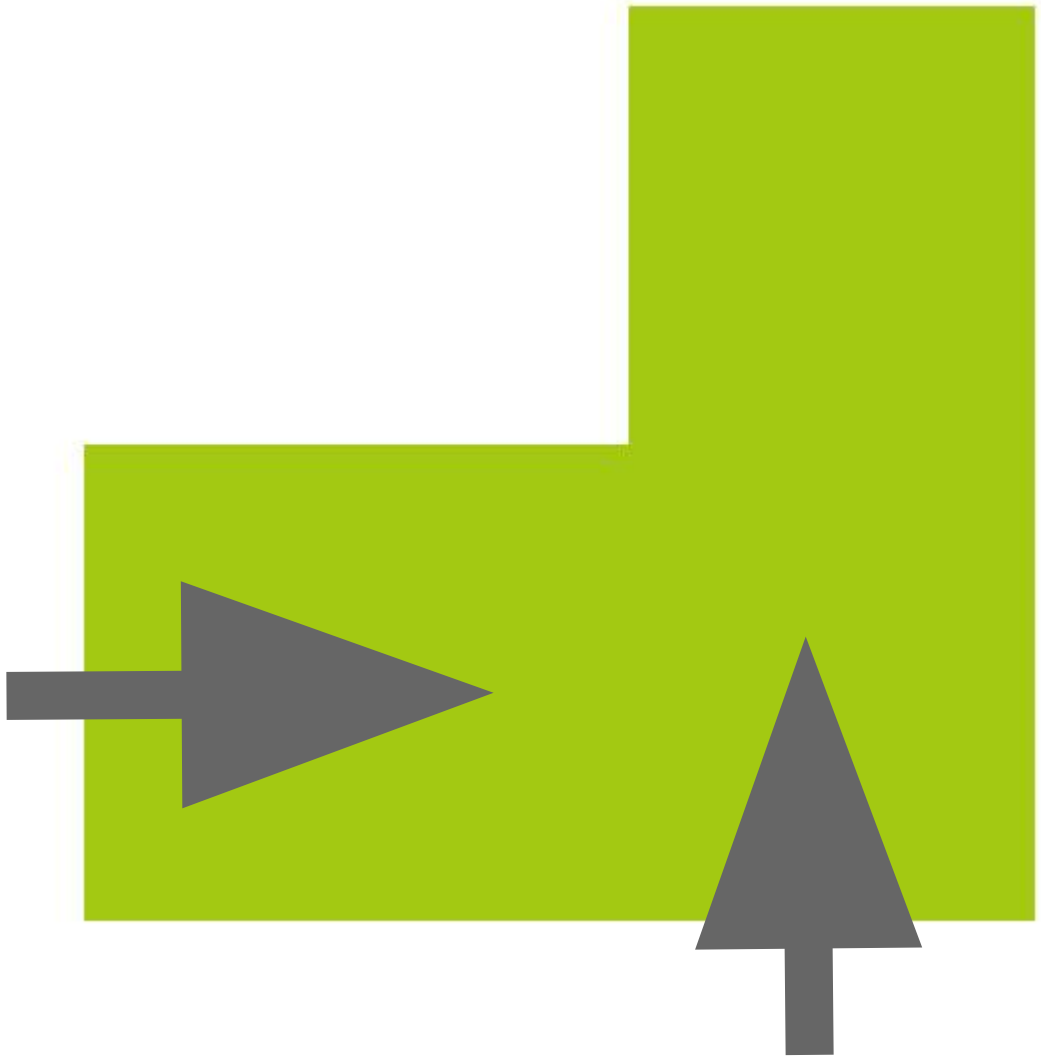
In conclusion



Camera field

Camera field

Camera field



Camera field

1. Camera Field Manager
2. Camera Controller

Camera field 1

Almost the same with Third person view type.

Camera field 2

Combine with the concept of camera route.

Camera field 3

Always fixed at position(more simple).

Camera field

- Supplemental
  - Editor, Editor, Editor.