게임 엔진

LEC 08 입력 시스템

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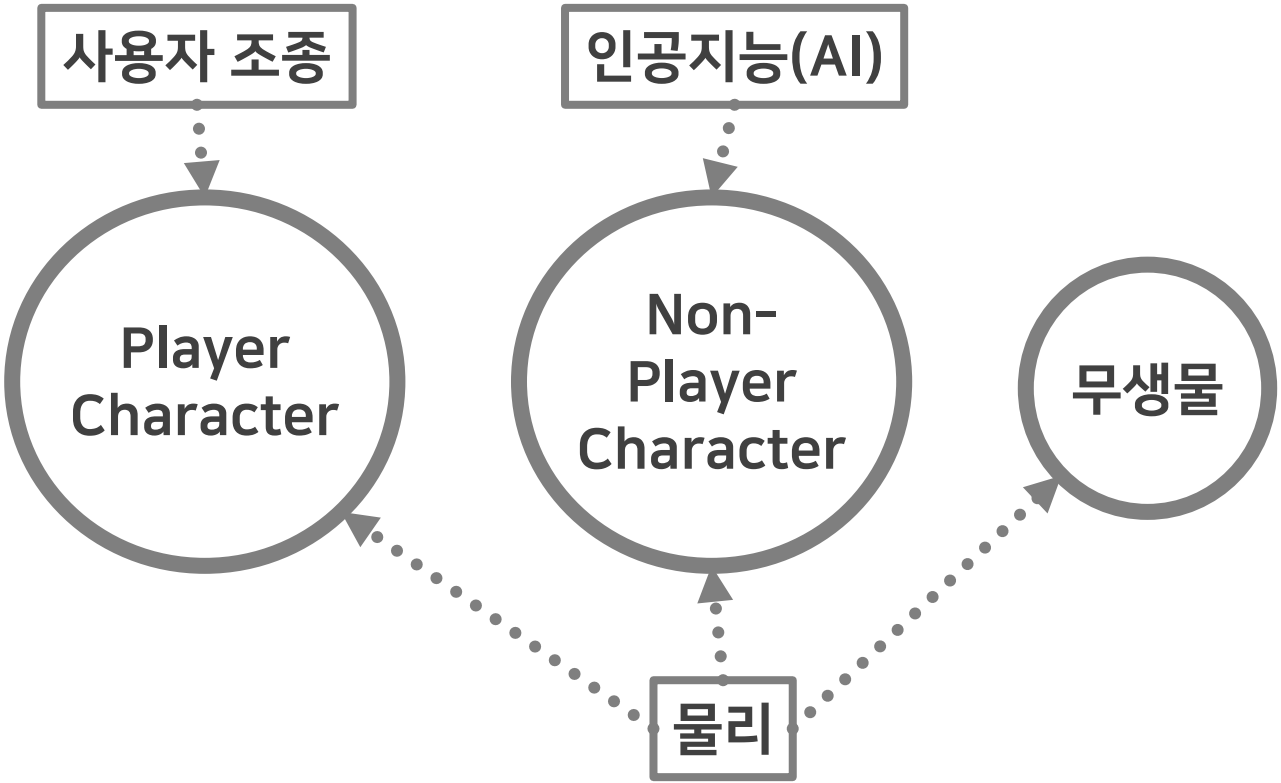
목차

- 게임 플레이 프레임워크
- Default Pawn 클래스
- Aircraft 조종 실습

LEC 07 복습

게임 객체의 제어



Pawn

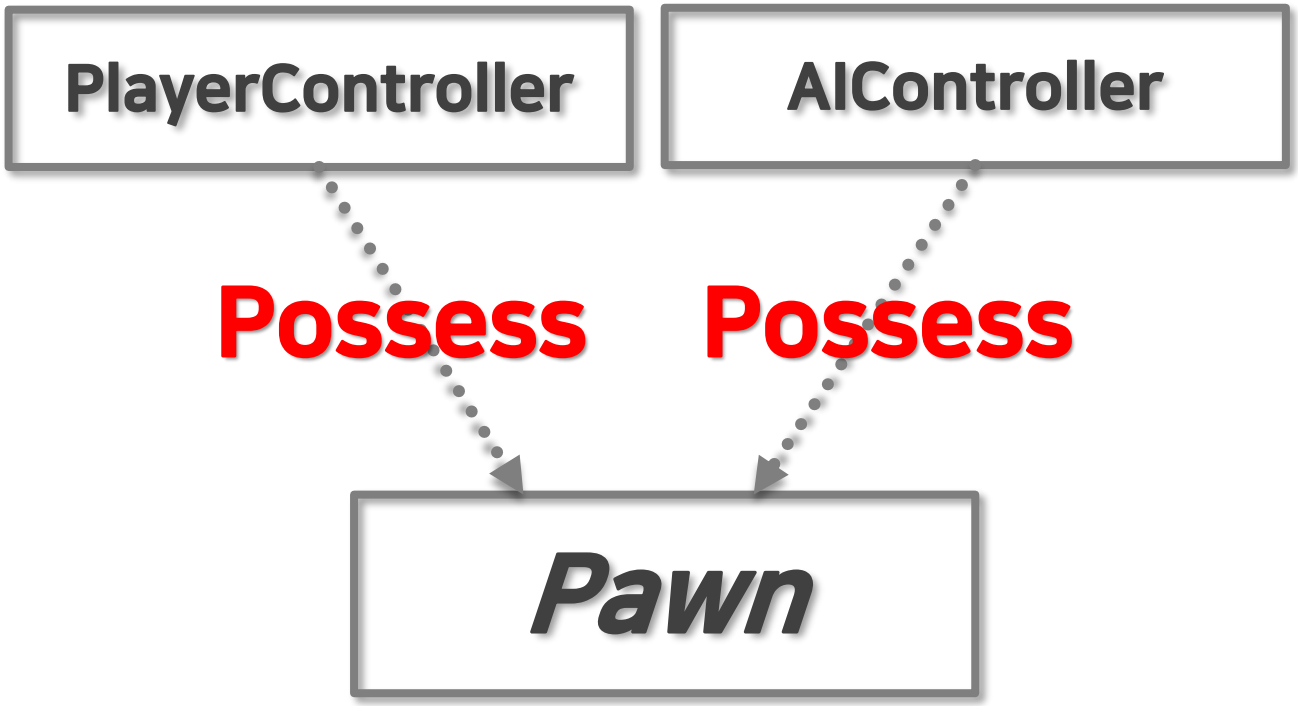
- 모든 게임 (Live) 객체들의 베이스 클래스.
  - Q: 모든 객체들의 베이스 클래스는??
- 플레이어, NPC, …
- 객체의 시각적, 물리적 표현을 담당.
- 객체들의 (비시각적,비물리적) 상태는?
  - Player : PlayerState 에 저장.
  - NPC: AIController 에 저장.

http://api.unrealengine.com/KOR/Gameplay/Framework/Pawn/index.html

PlayerController

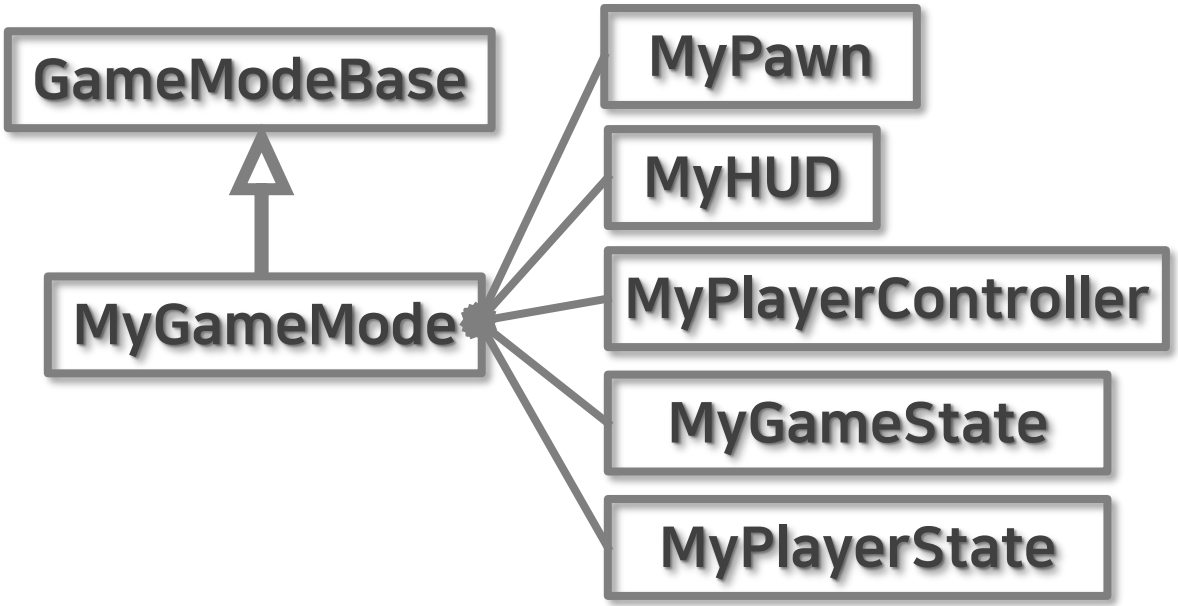
- 게임 플레이어와 게임 월드를 연결시키는 인터페이스.
- Pawn 뿐만 아니라, 카메라, HUD 도 제어.

언리얼 엔진 게임 플레이 프레임워크 – 지배(Possess) 구조

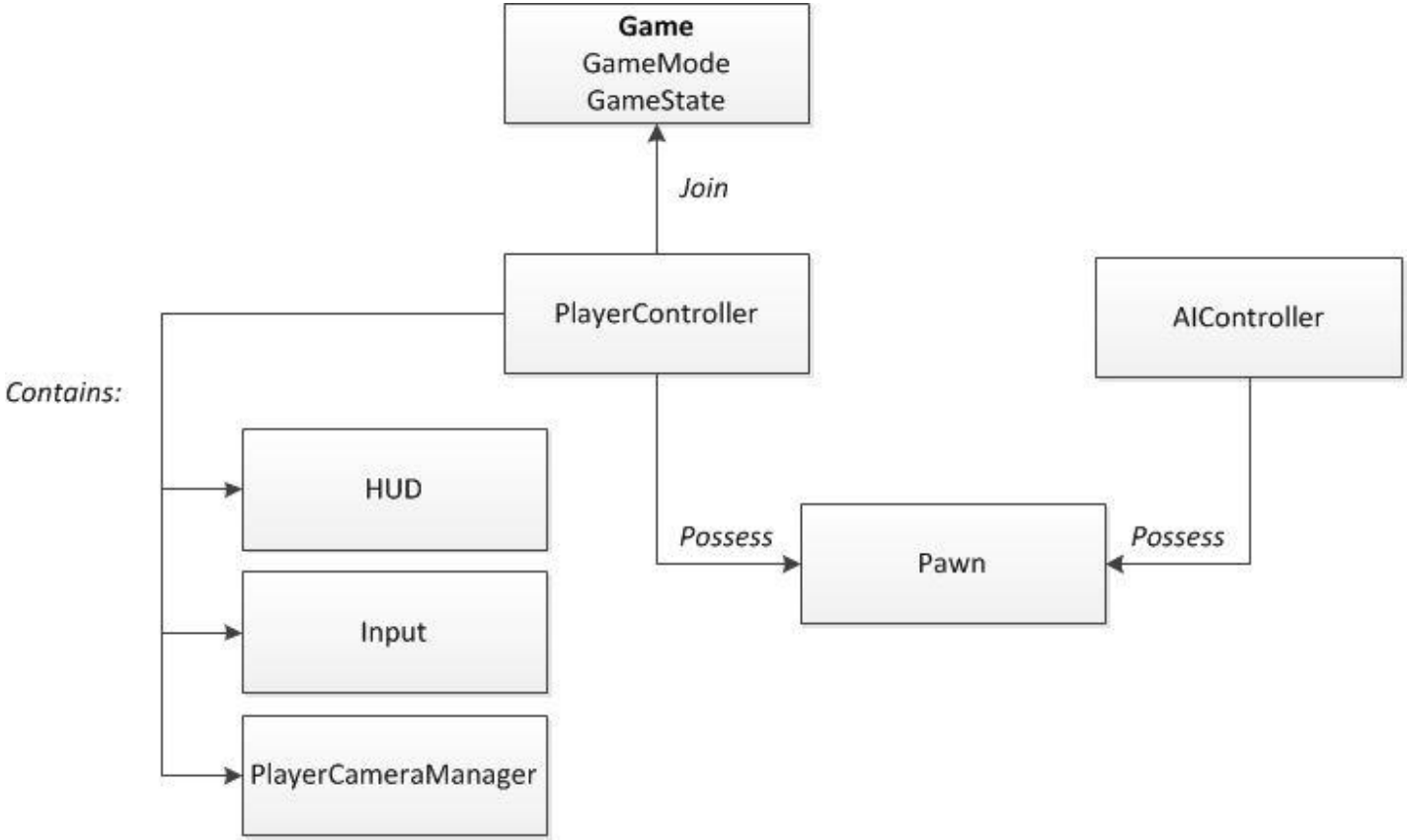


GameMode

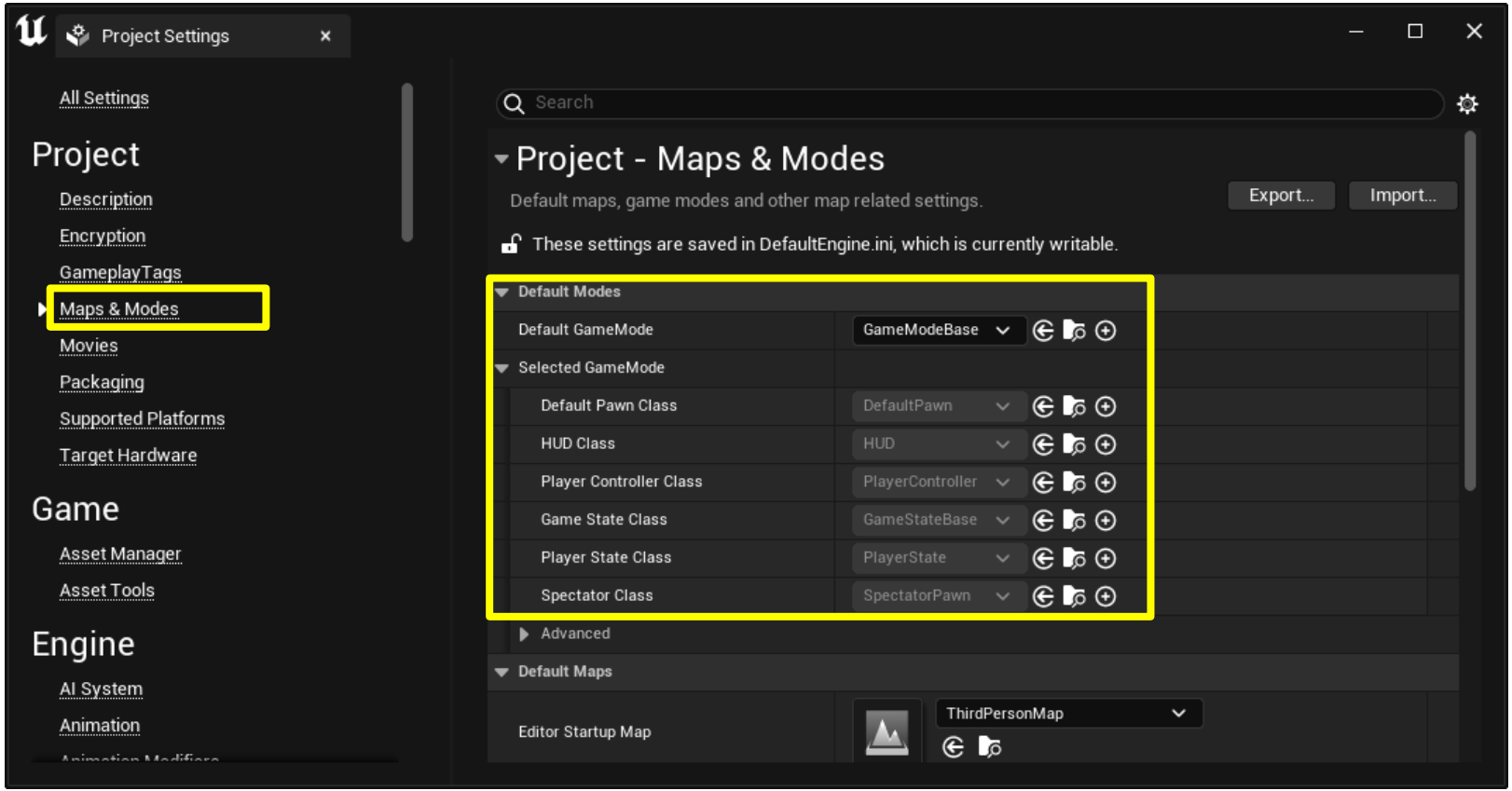
- GameModeBase의 자식 게임 모드를 만들어서, 독자적인 게임 모드 설정.



언리얼 엔진 핵심 클래스 관계도

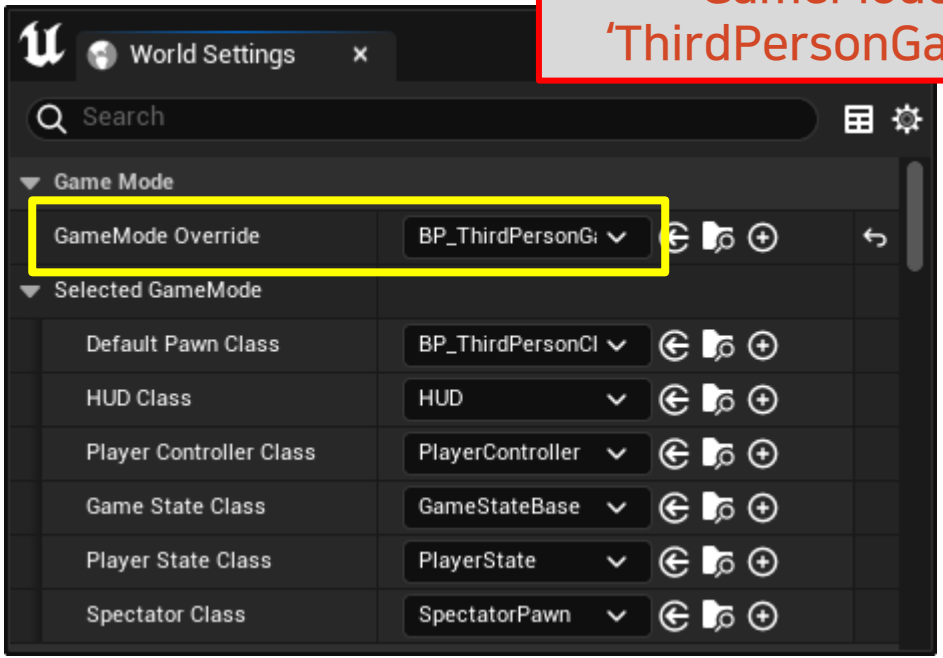


Project의 기본 게임 모드 설정



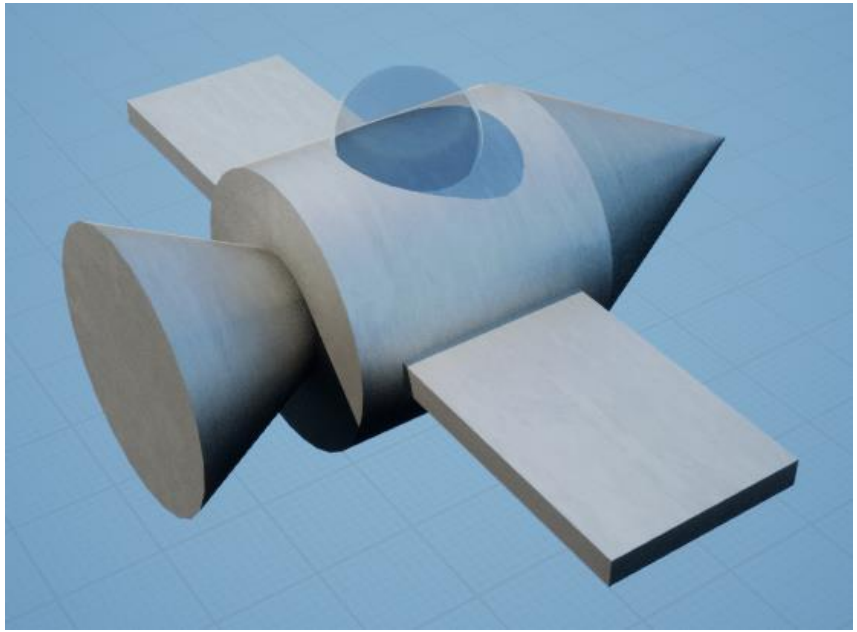
레벨별 게임 모드 설정 – World Settings 이용

GameMode Override 를
'ThirdPersonGameMode'로 설정.

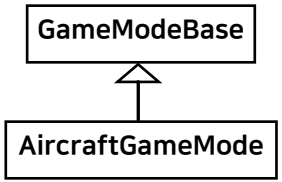


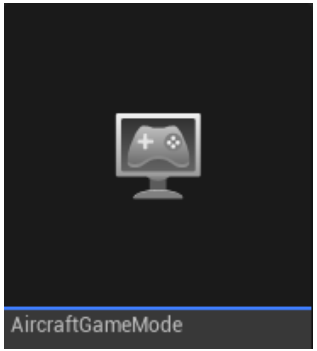
액터 머징으로 Aircraft 스태틱 메시 만들기

- Cube, Sphere, Cylinder, Cone 을 이용해서, 비행기 모양을 만듬.
- 액터 머징을 통해 단일 메시로 만듬. – SM_Aircraft



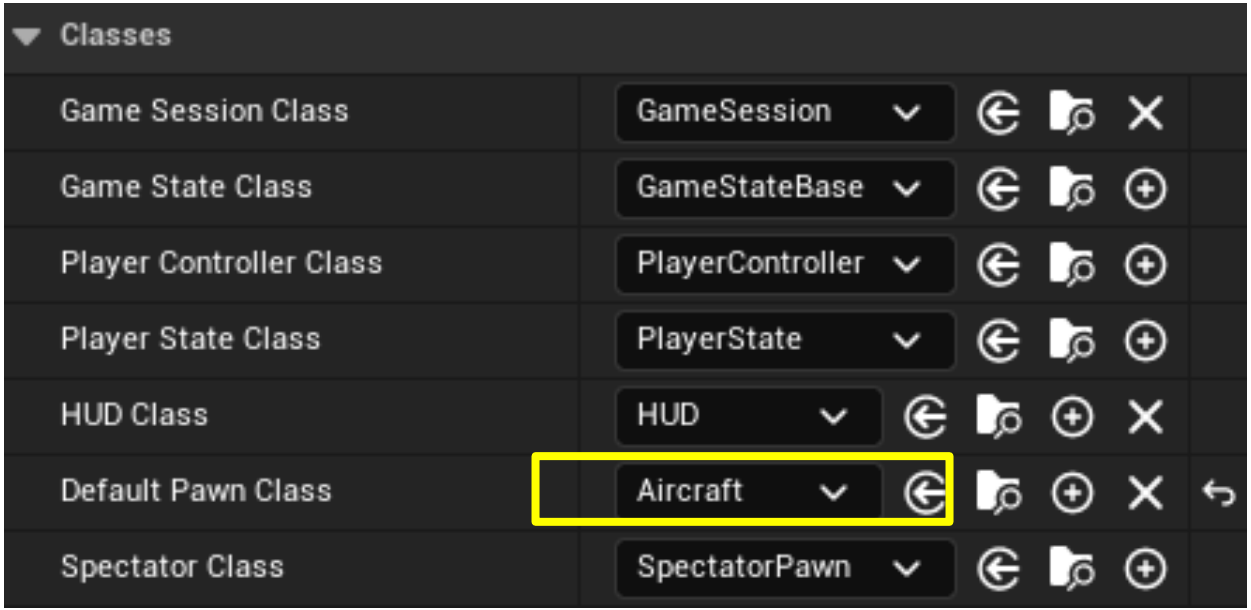
게임 모드 만들기 : Blueprint 클래스로 만듬.





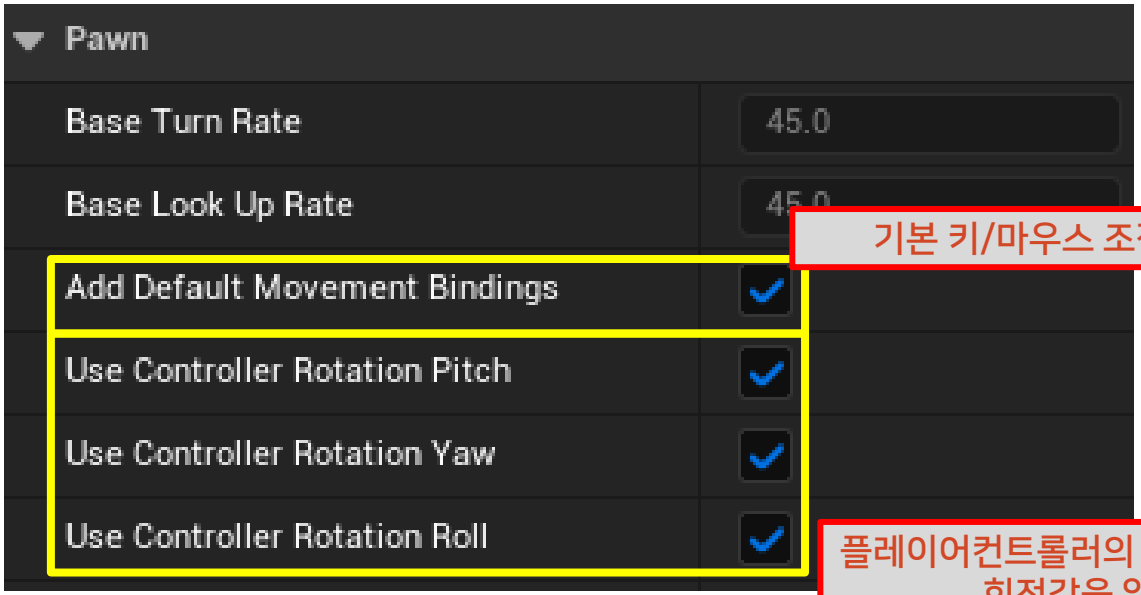
GameModeBase를 베이스클래스로
하는 블루프린트 클래스를 만듬.

AircraftGameMode



'Default Pawn Class'를
Aircraft 로 지정 !

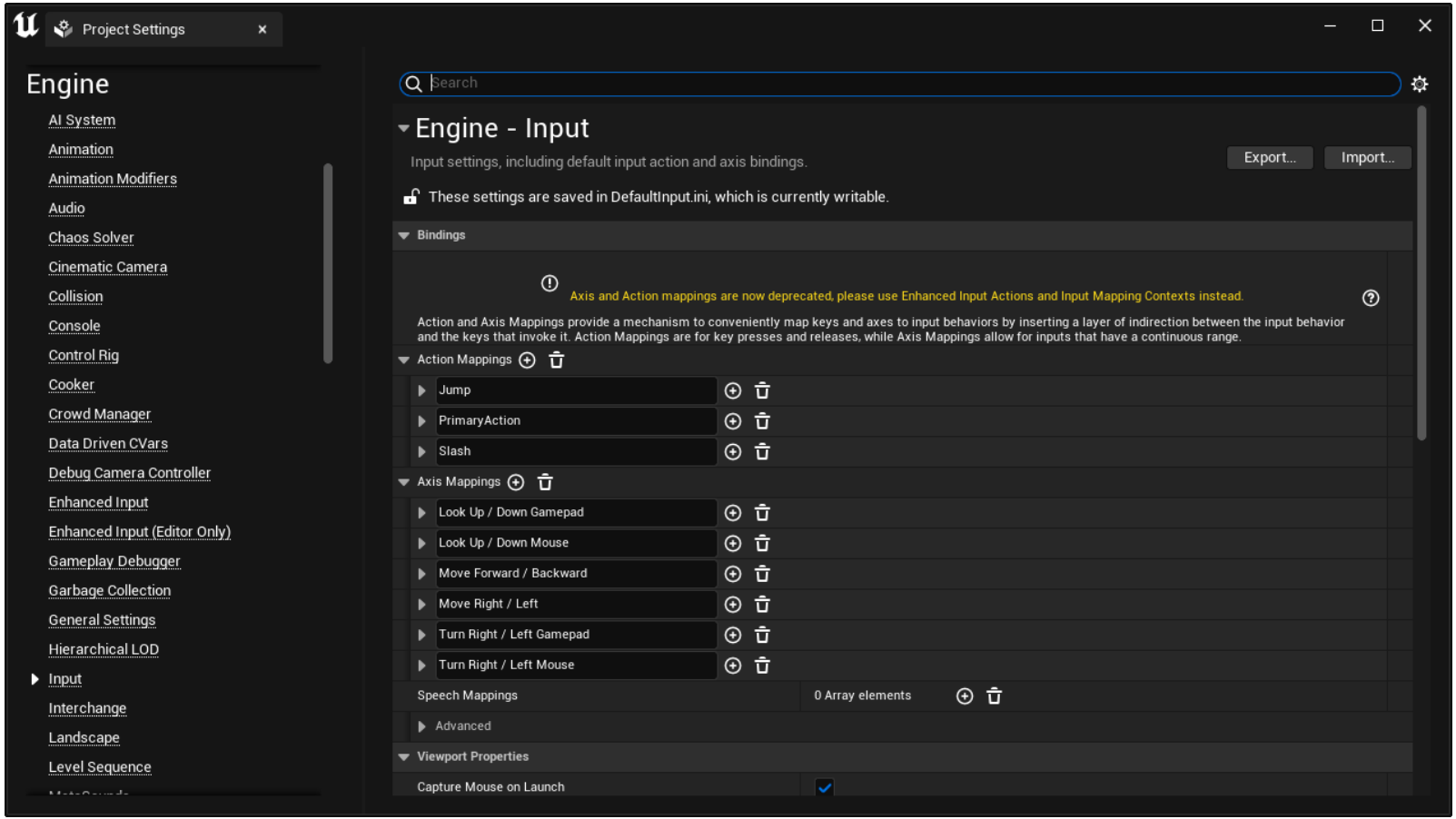
Aircraft Blueprint 의 Class Defaults 설정



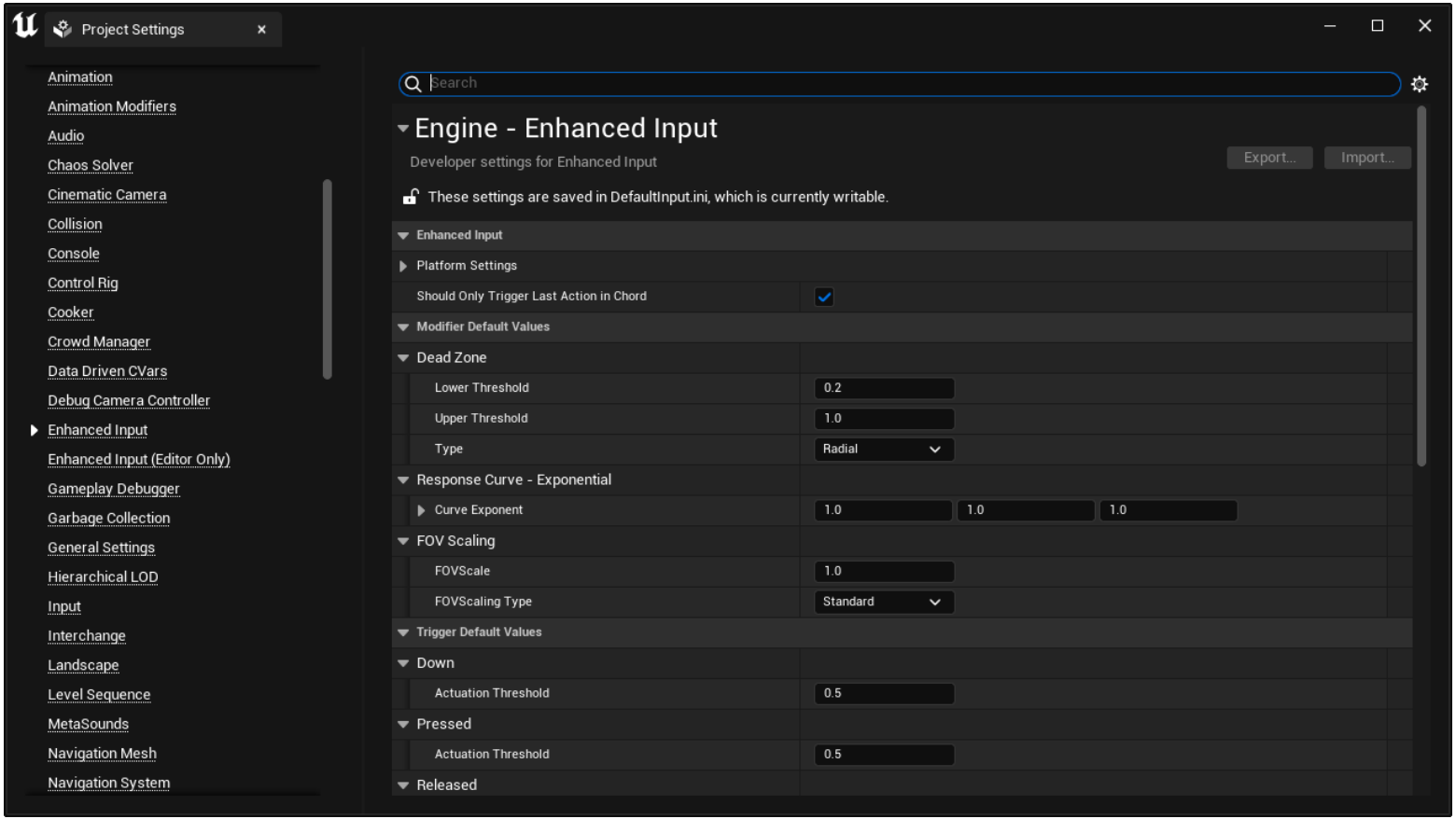
기본 키/마우스 조작 자동 적용

플레이어컨트롤러의 회전값과 Pawn의 회전값을 일치시킴.

언리얼 엔진 입력 시스템 – UE4

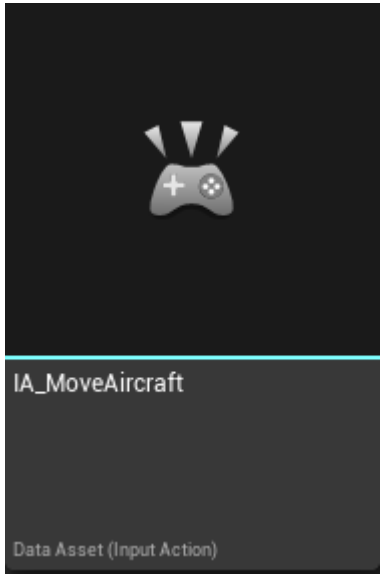


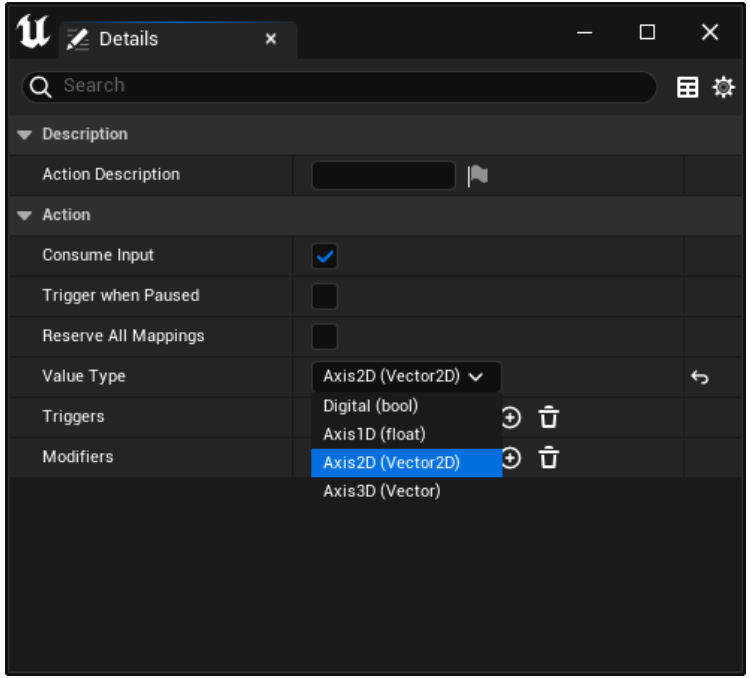
언리얼 엔진 입력 시스템 – UE5 – Enhanced Input



Input Action

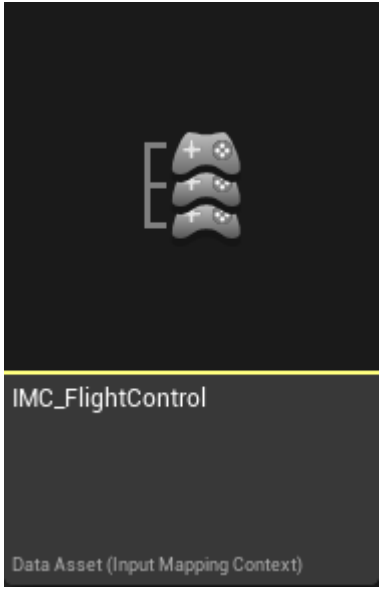
- 입력의 이름과 타입을 정의

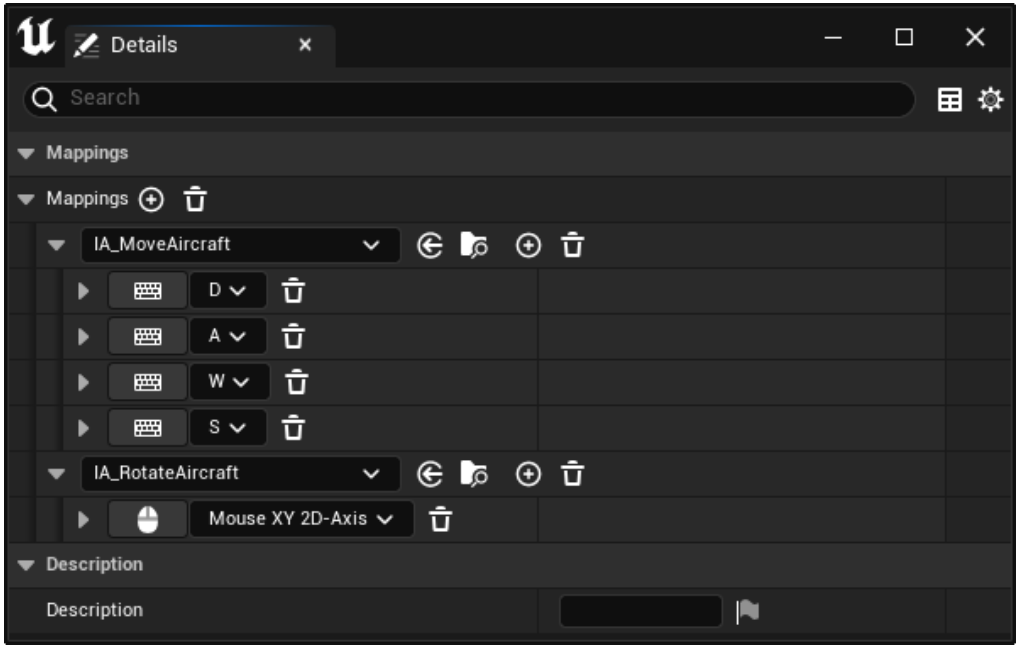


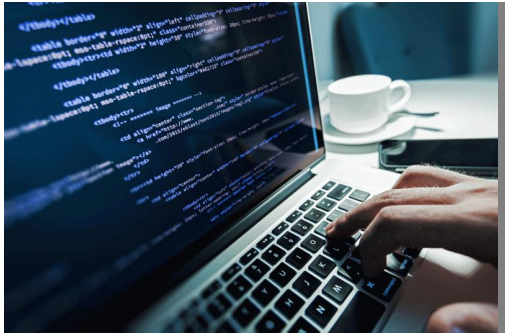


Input Mapping Context

- Input Action과 실제 입력(키보드, 마우스, 조이스틱)을 연결
- 입력 인가(Trigger) 조건을 설정
- 입력값을 추가 조정(Modifier)



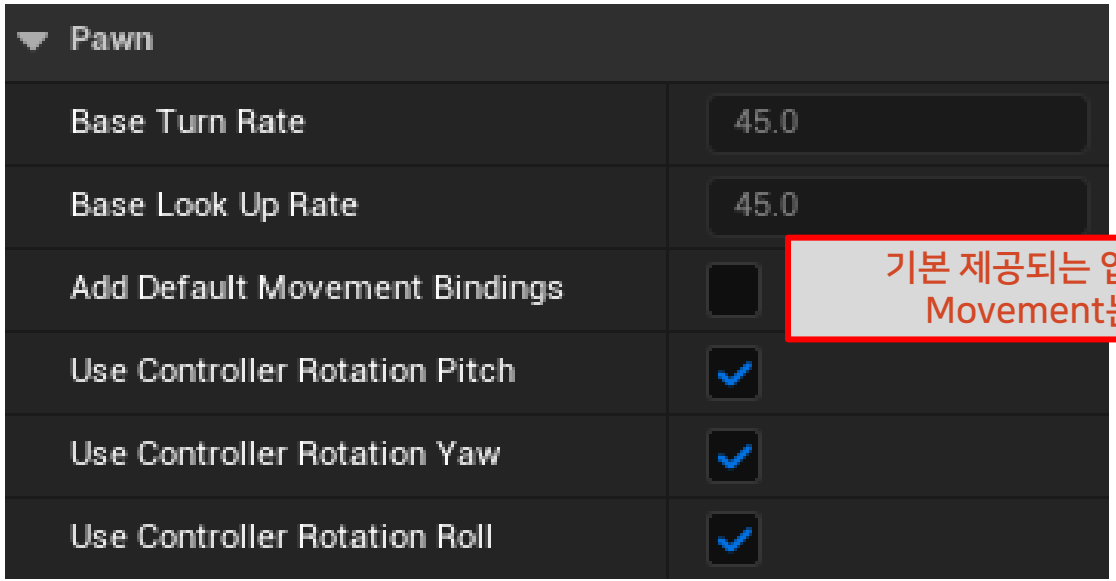




실습 LAB

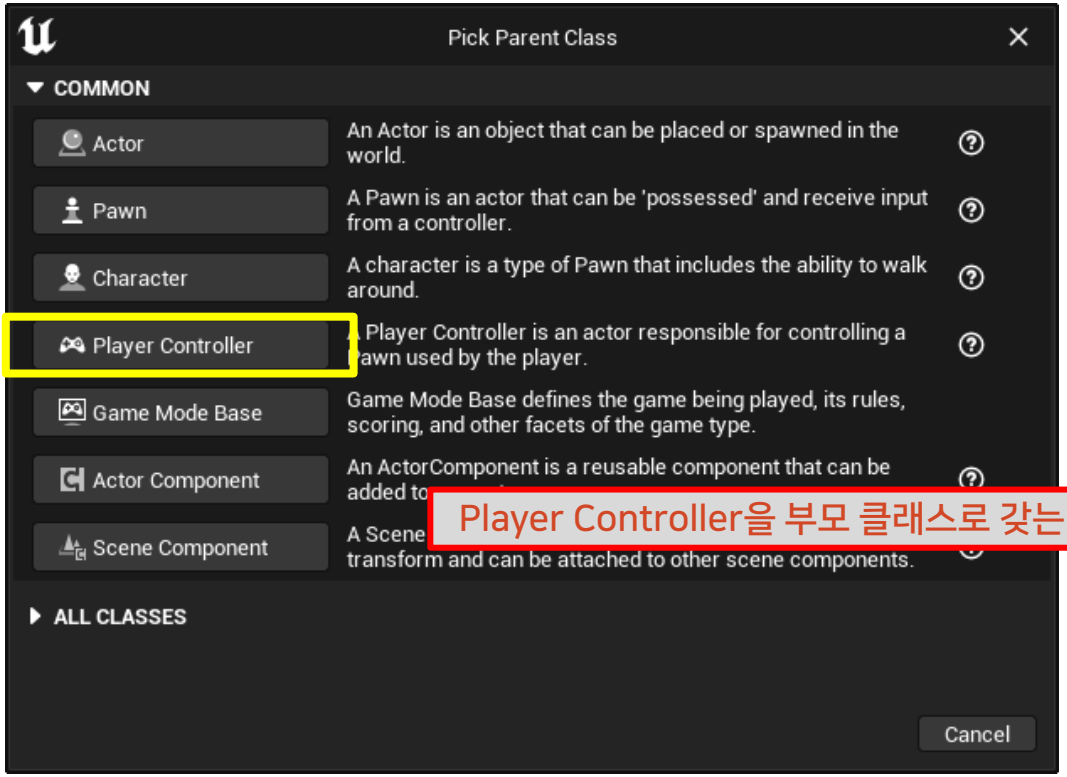
비행기 이동 처리

Aircraft 블루프린트의 Class Defaults



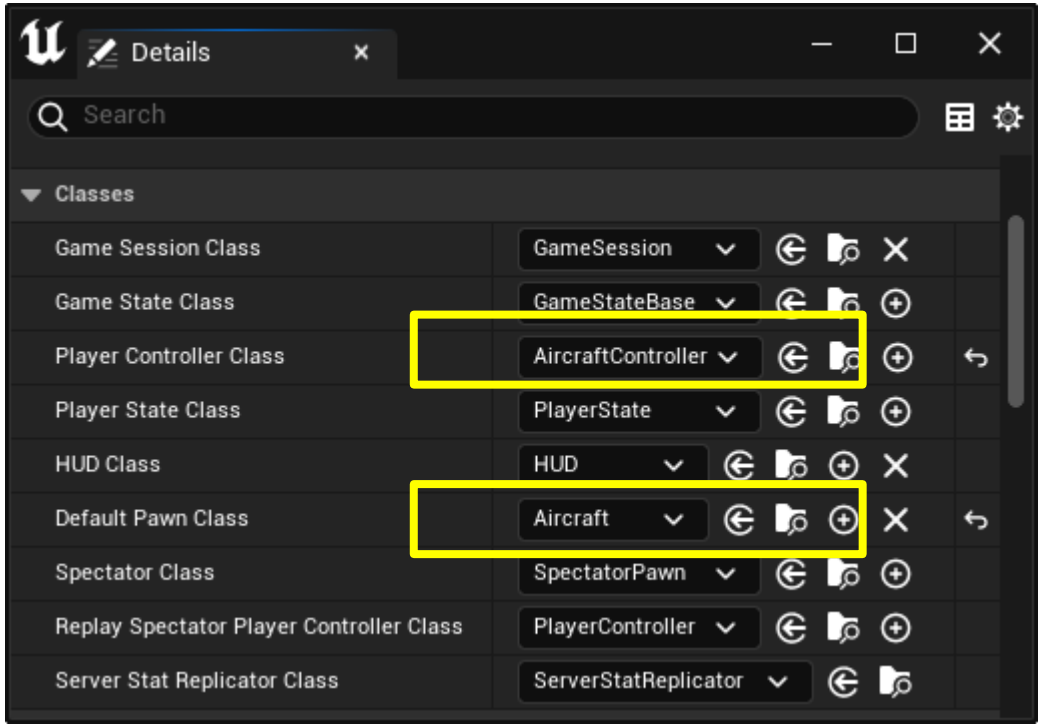
기본 제공되는 입력값을 활용한
Movement는 하지 않음.

플레이어 컨트롤러 Aircraft Controller 만들기

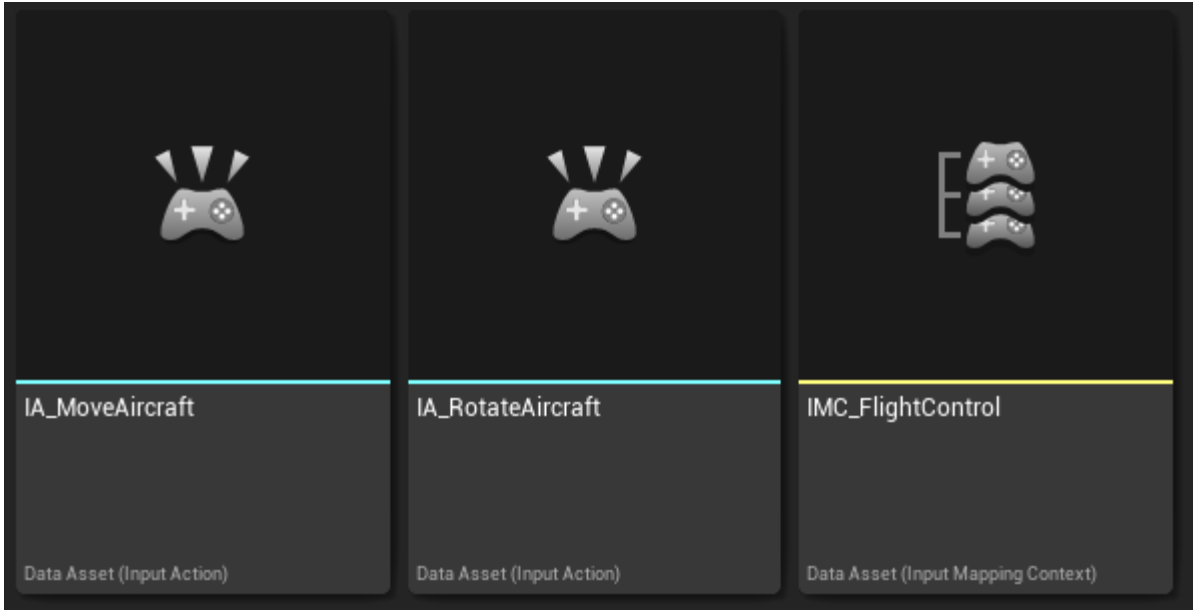


Player Controller을 부모 클래스로 갖는 블루프린트를 만들기

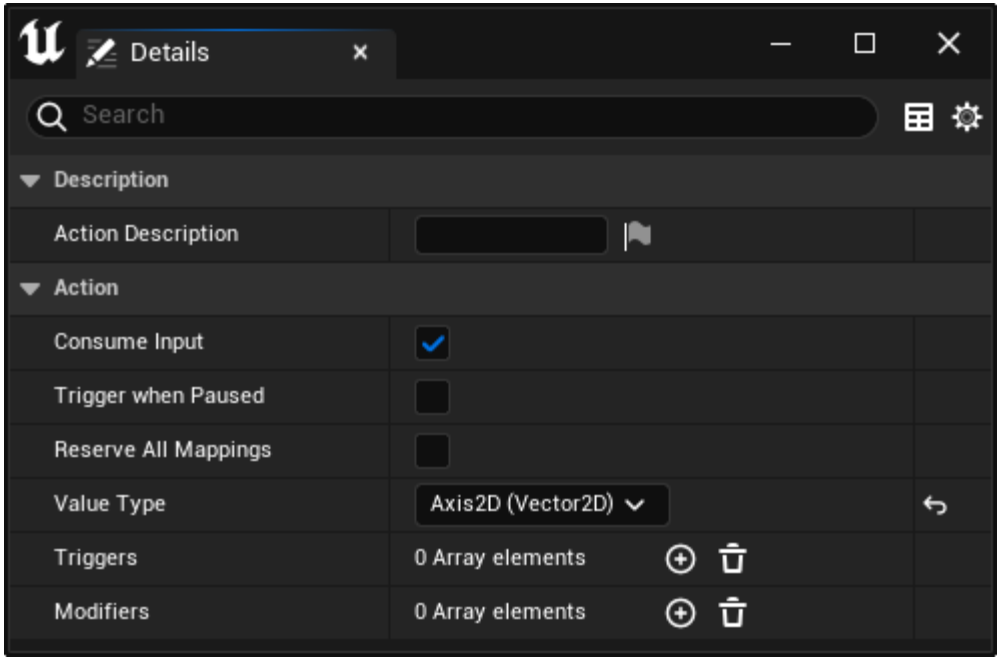
Aircraft Game Mode



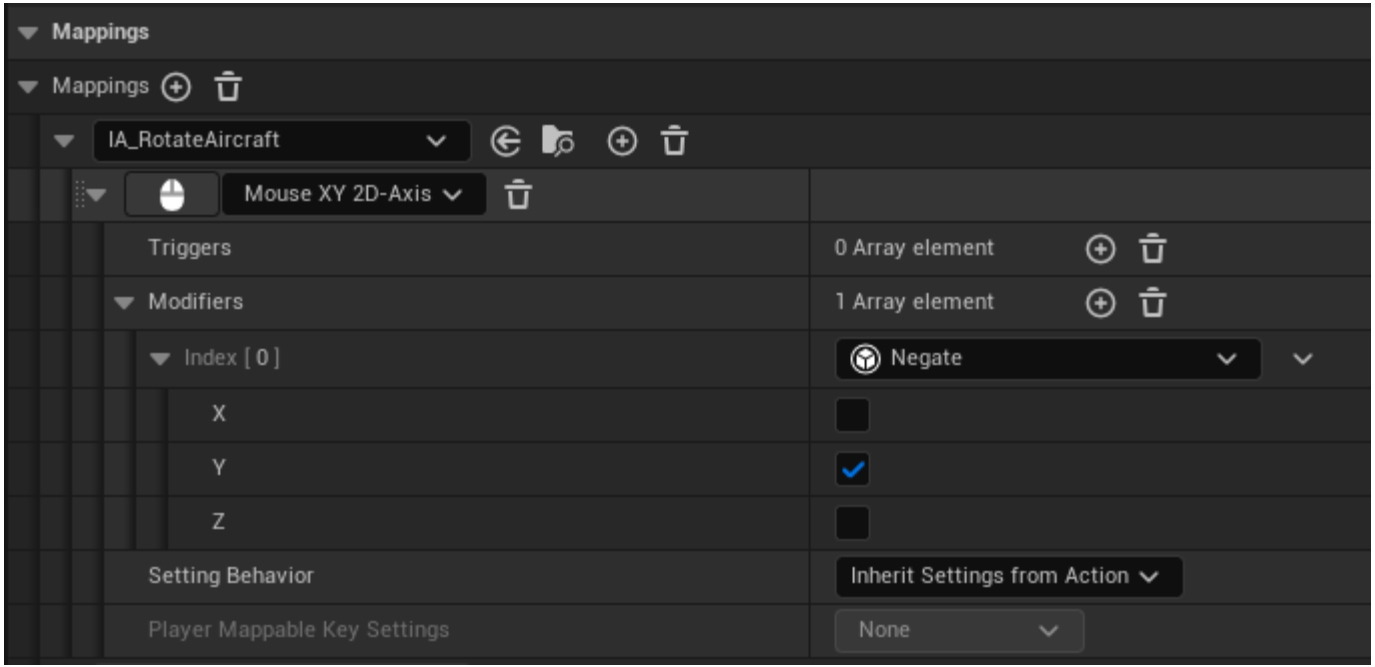
입력 설정


IA_MoveAircraft
Data Asset (Input Action)
IA_RotateAircraft
Data Asset (Input Action)
IMC_FlightControl
Data Asset (Input Mapping Context)

IA_MoveAircraft, IA_RotateAircraft

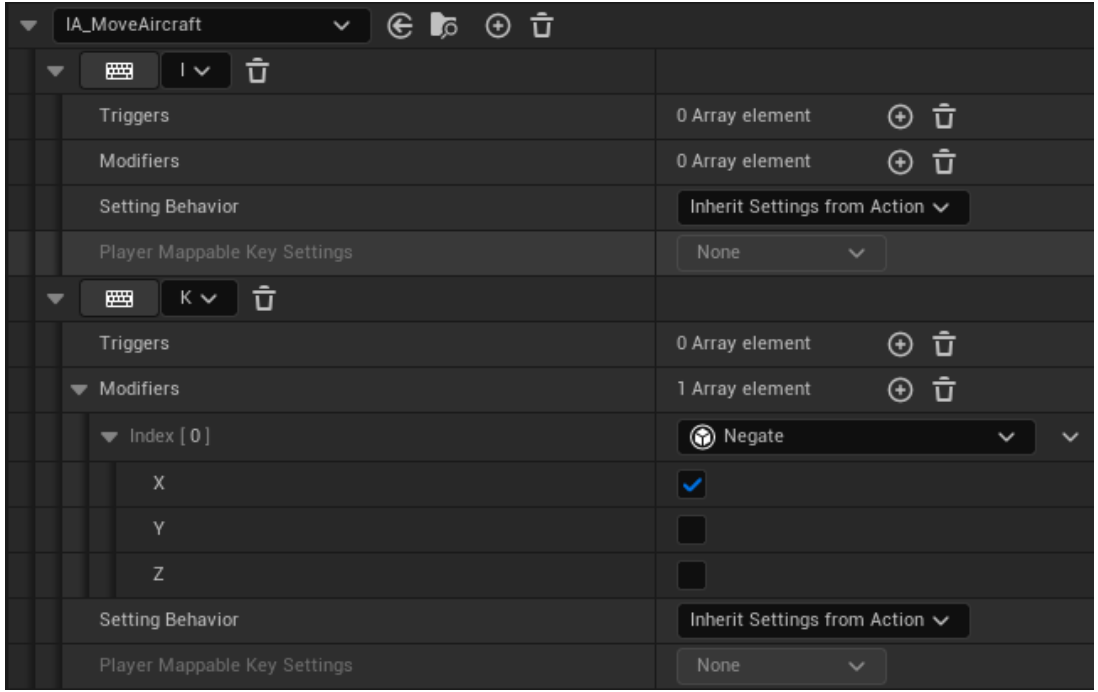


IMC_FlightControl – Yaw 회전, Pitch 회전

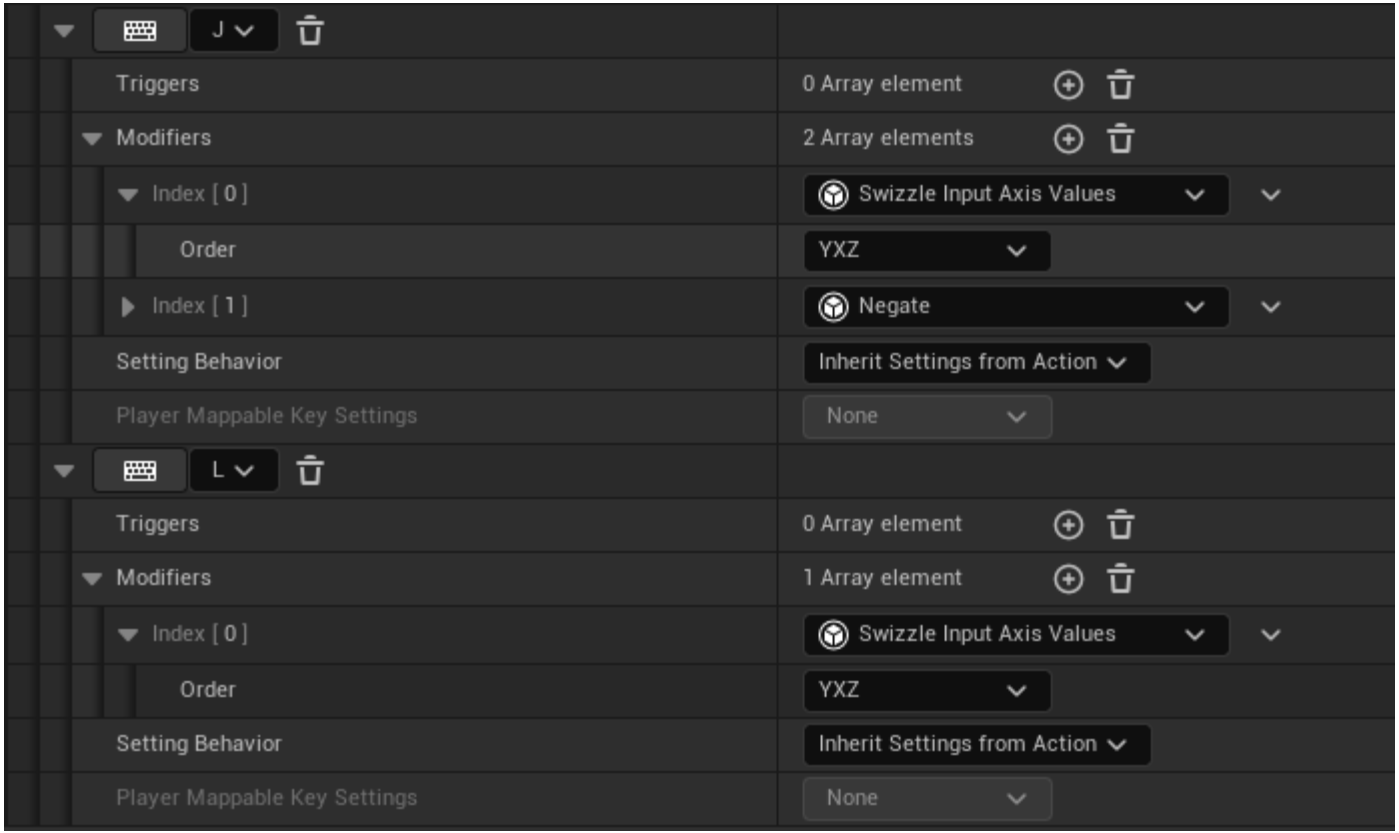


IMC_FlightControl I,K – 전후 이동

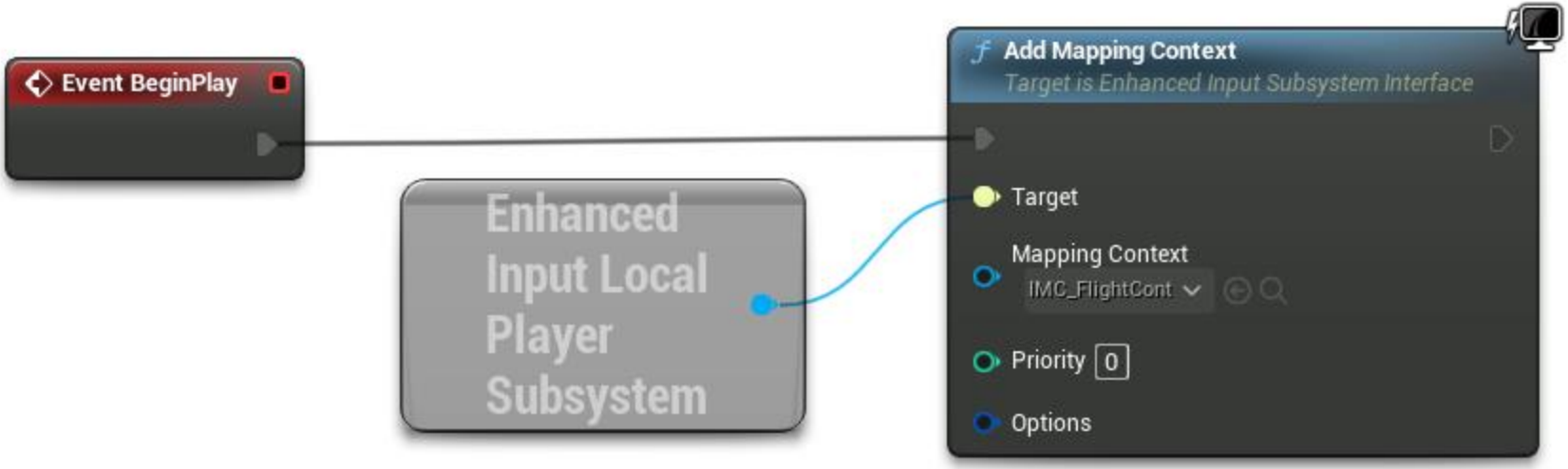
키보드 입력은 기본적으로 조이스틱의 X 축 입력을 대신한다.



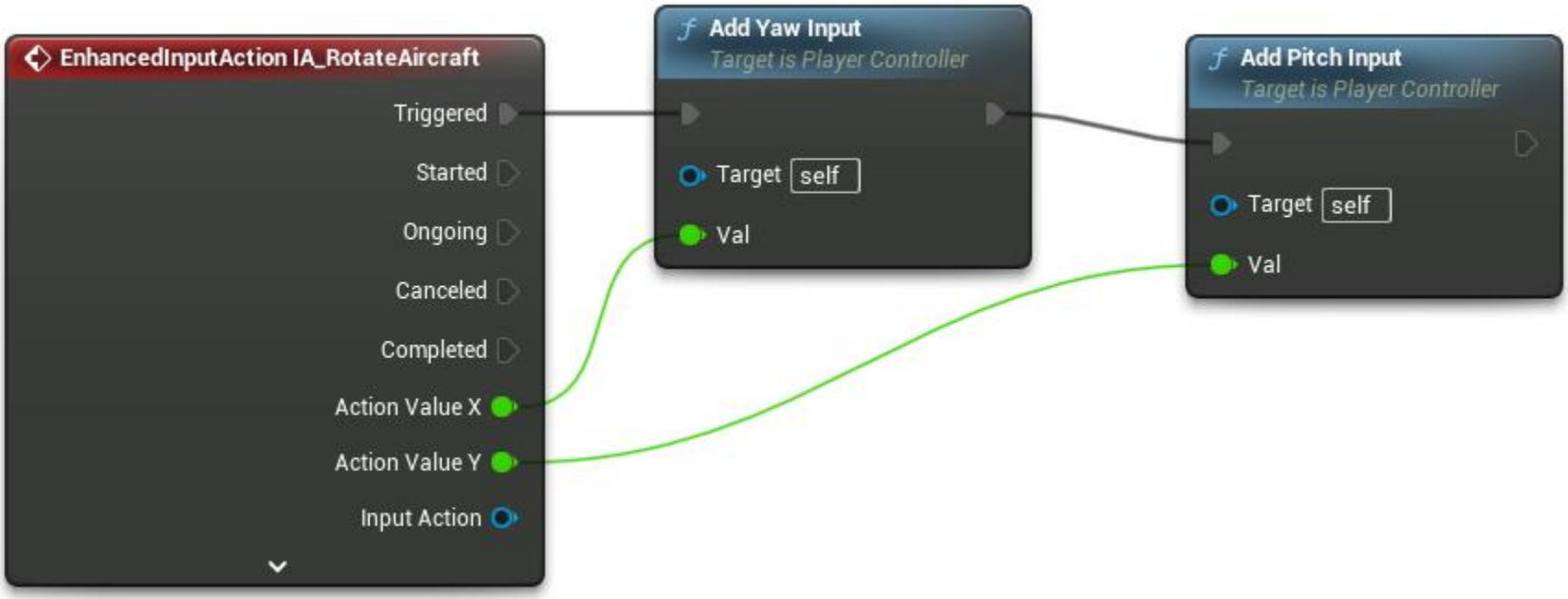
IMC_FlightControl J,L – 좌우 이동



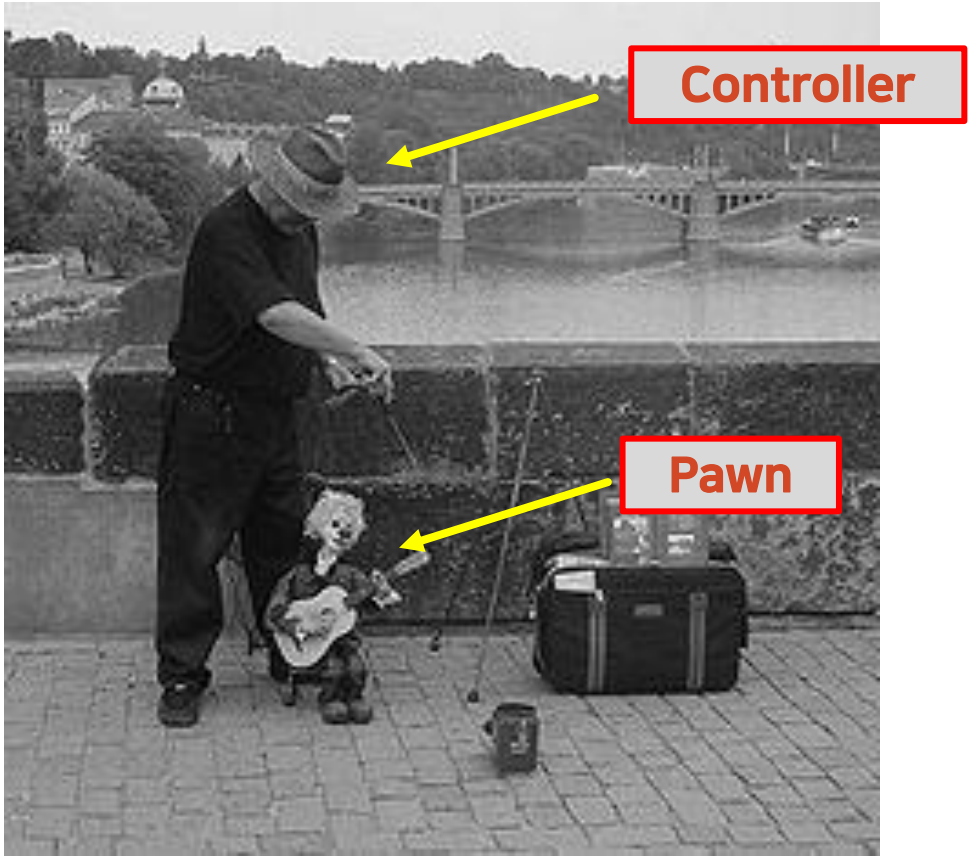
AircraftController – 입력 시스템 연결



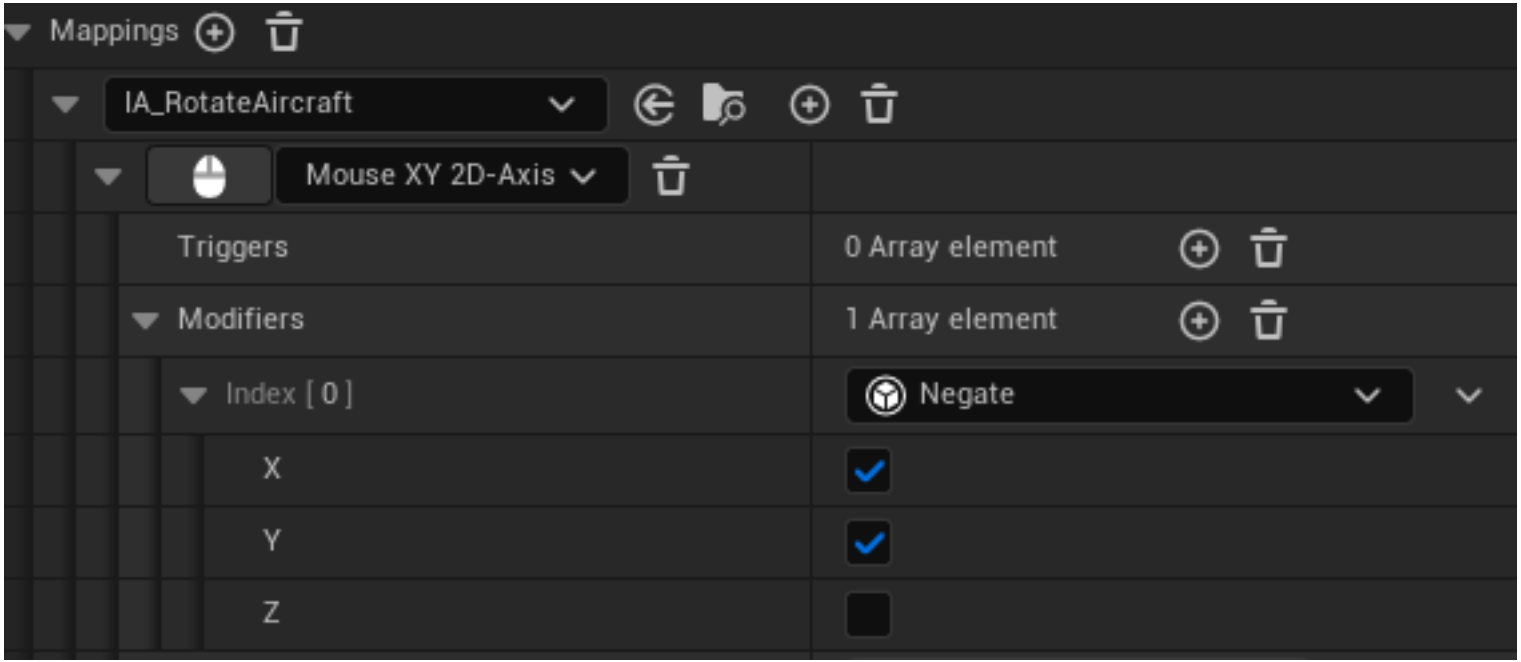
AircraftController – 회전



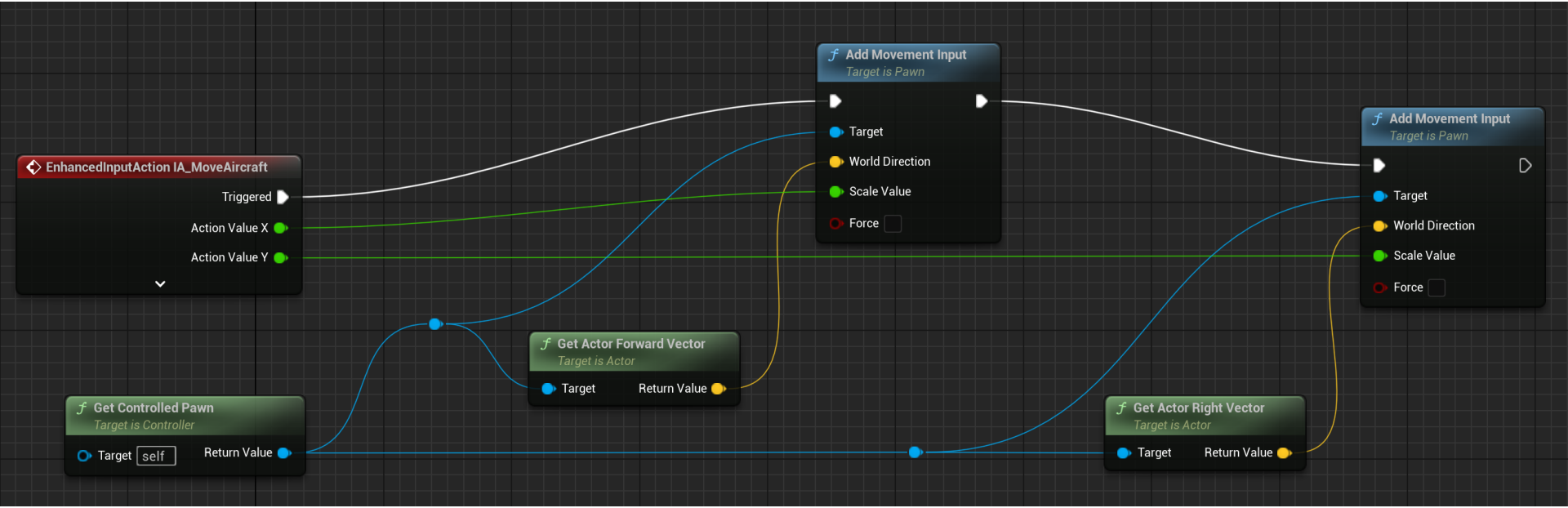
회전 – Controller 를 회전한다!

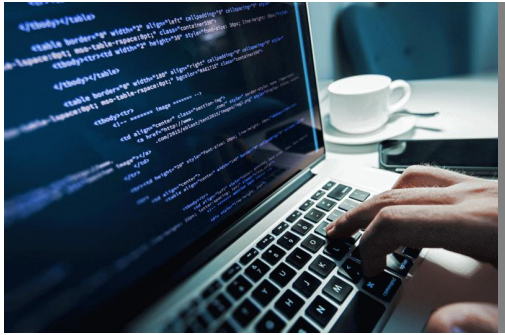


회전 방향의 수정 – Modifier 를 이용



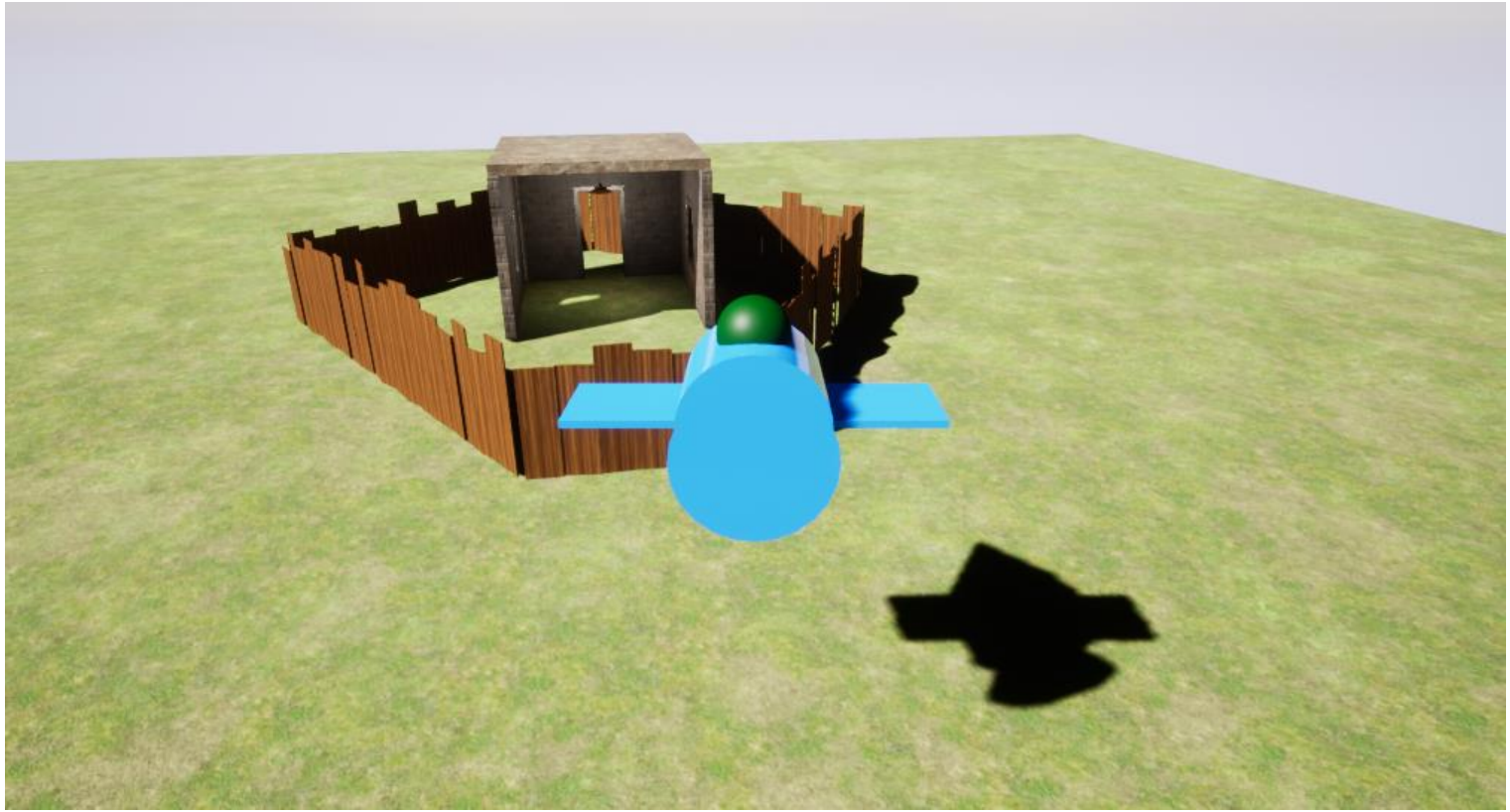
AircraftController – 이동



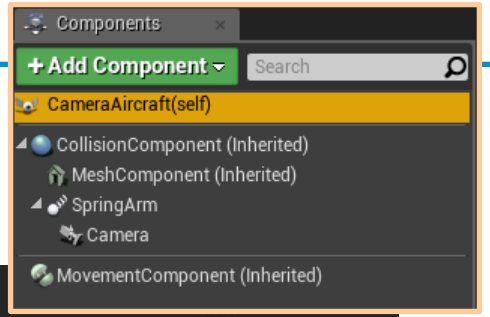


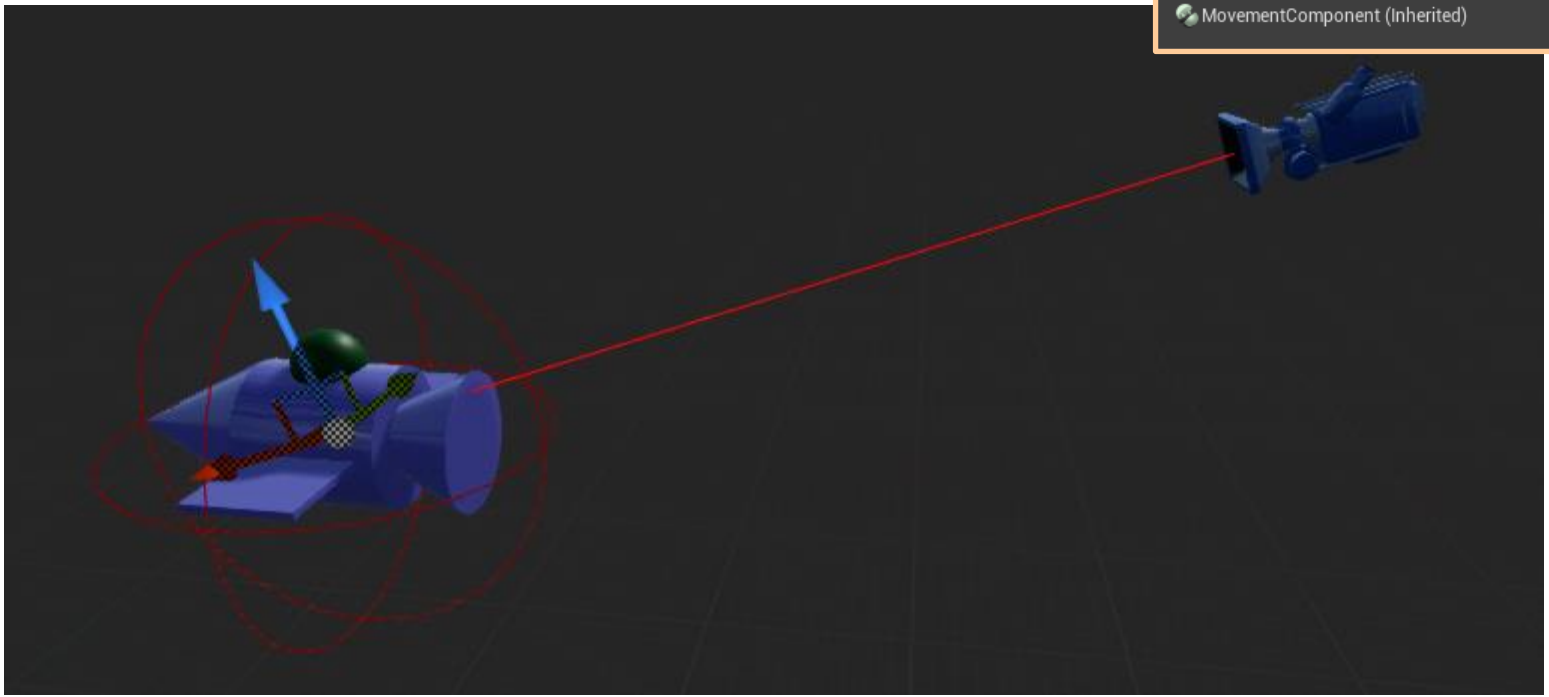
실습 LAB

3인칭 시점 이동 카메라 구현

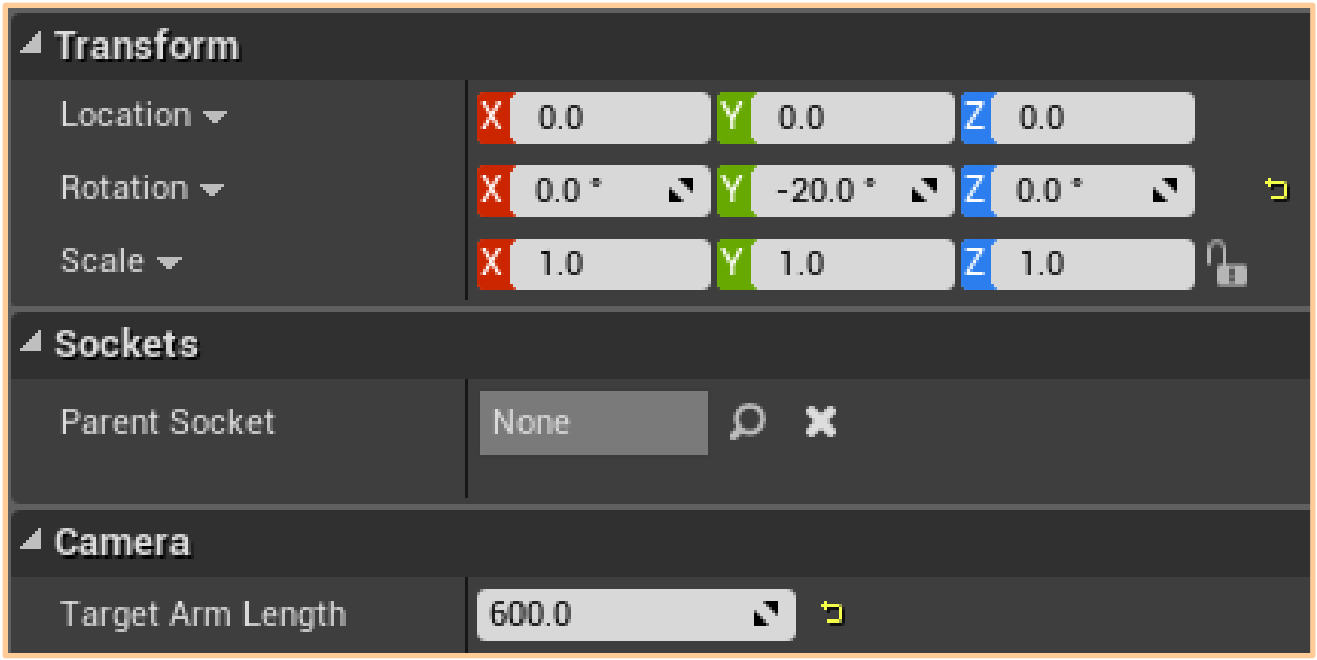


CameraAircraft 블루프린트



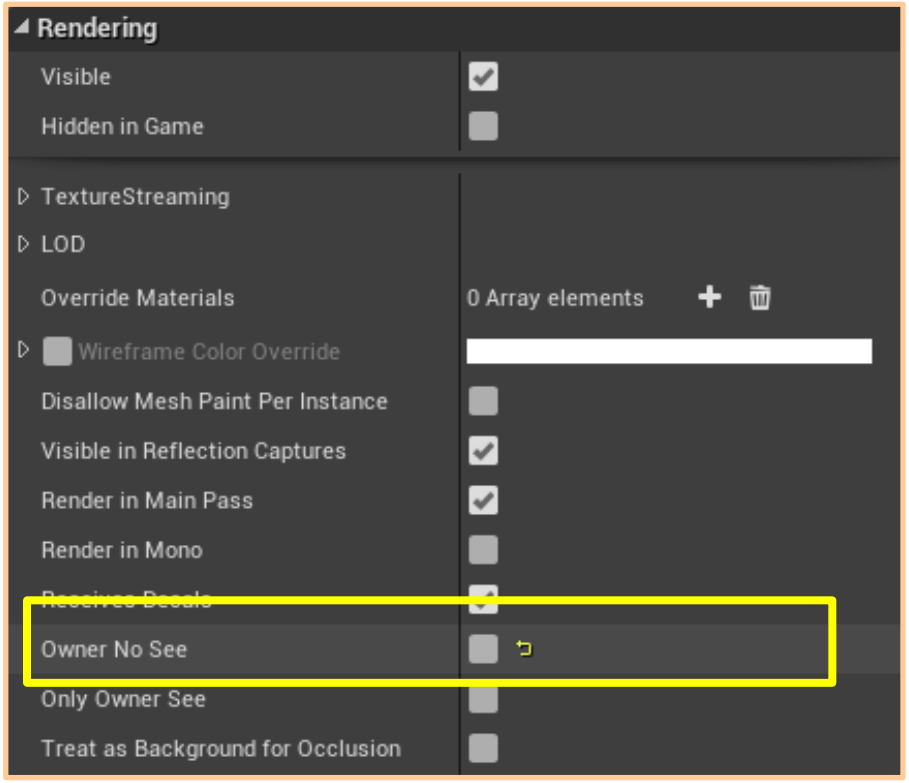


SpringArm

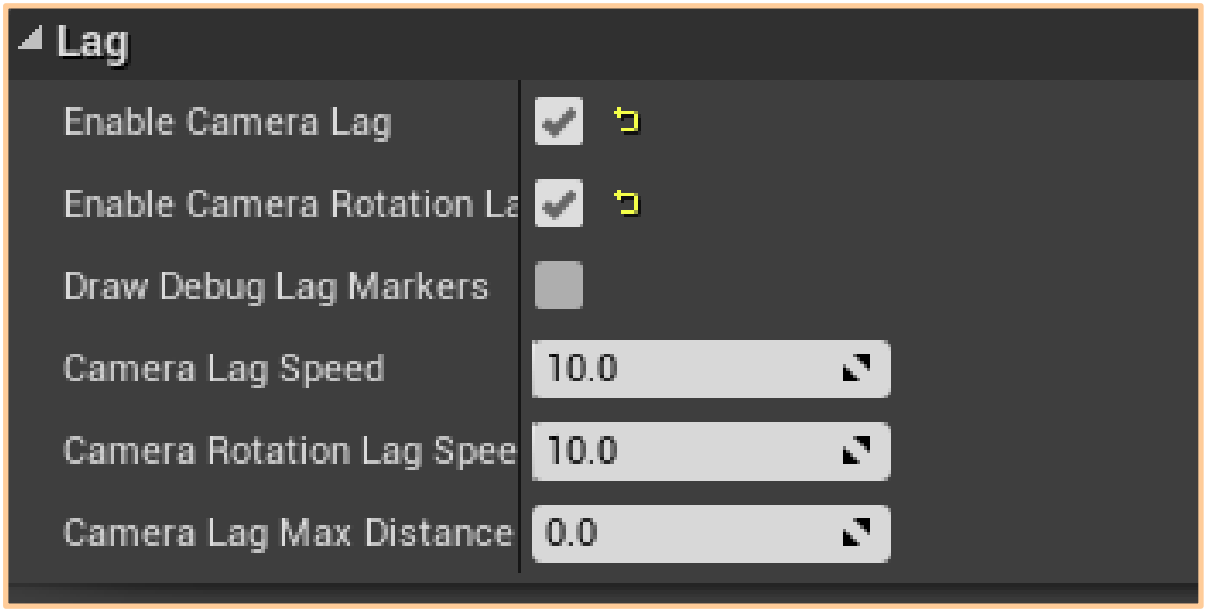

Transform
Location
X 0.0
Y 0.0
Z 0.0
Rotation
X 0.0 °
Y -20.0 °
Z 0.0 °
Scale
X 1.0
Y 1.0
Z 1.0
Sockets
Parent Socket
None
Camera
Target Arm Length
600.0

Aircraft Mesh 의 옵션

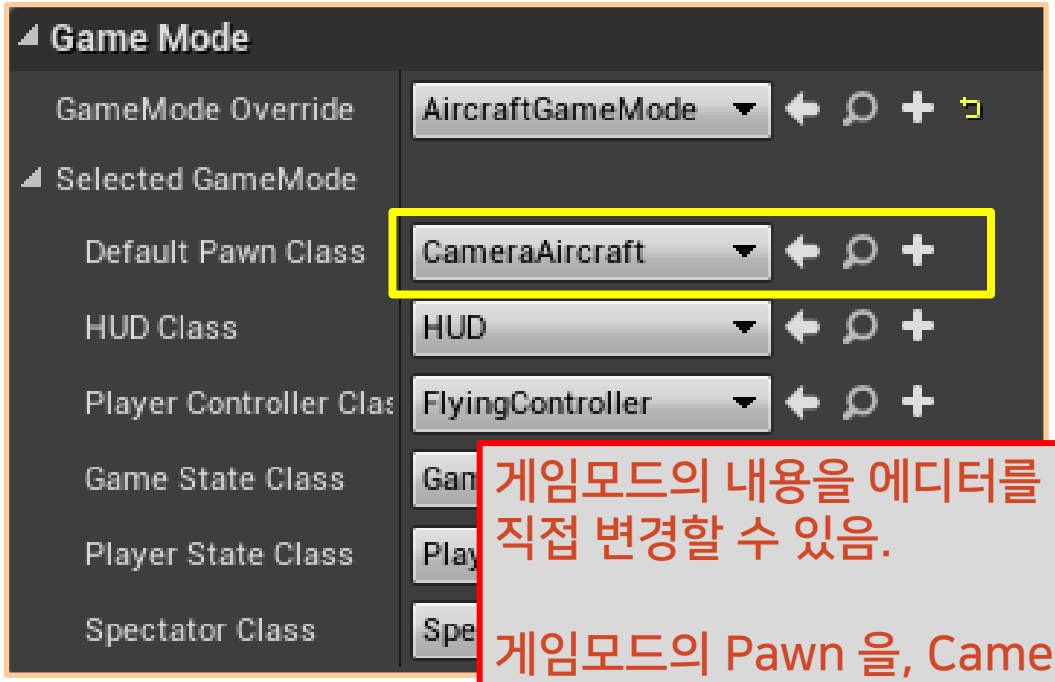
- **Owner No See : 자신의 몸을 보이지 않게 하는 옵션**



Camera Lag 옵션



게임 모드 설정

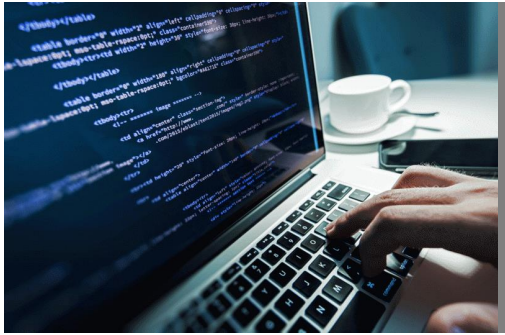


게임모드의 내용을 에디터를 따로 열지 않고도, 직접 변경할 수 있음.

게임모드의 Pawn 을, CameraAircraft로 설정

기존 외부 카메라 비활성화

외부 고정 카메라가 Player Controller 에 자동연결되지 않도록 설정해야 함.
Player Controller는 Pawn에 담긴 카메라를 기본적으로 이용함.

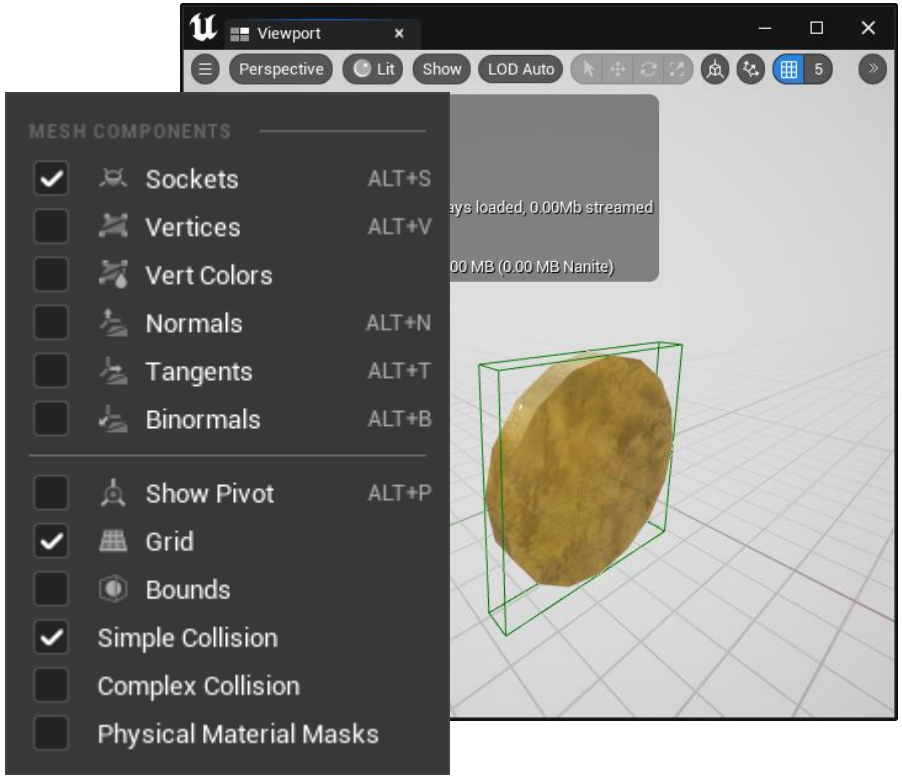


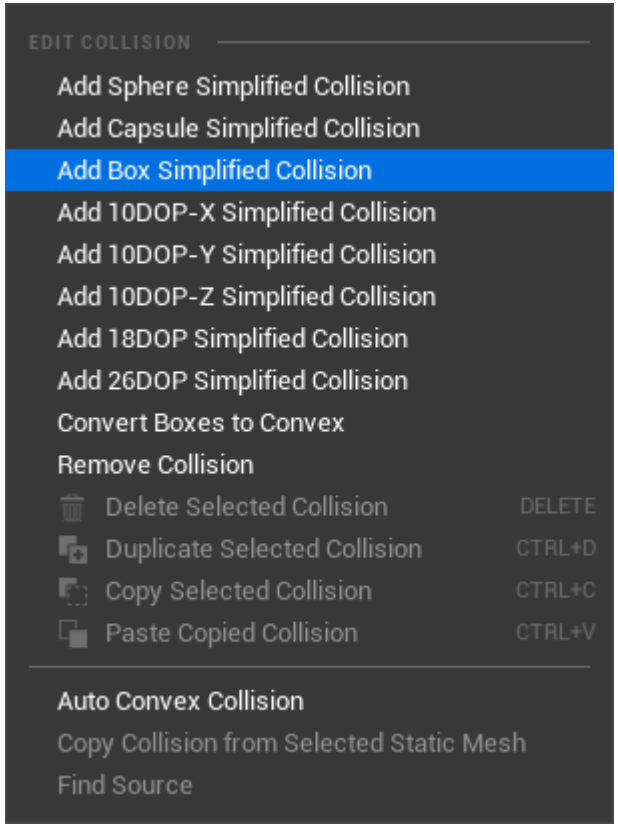
실습 LAB

코인 폭탄 투하

CoinBomb 블루프린트

Coin 메쉬의 collision box 확인

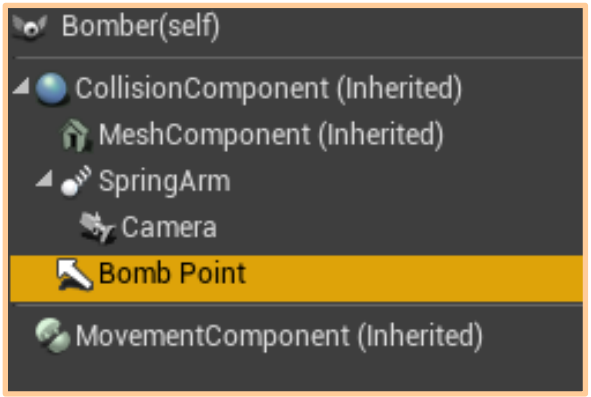


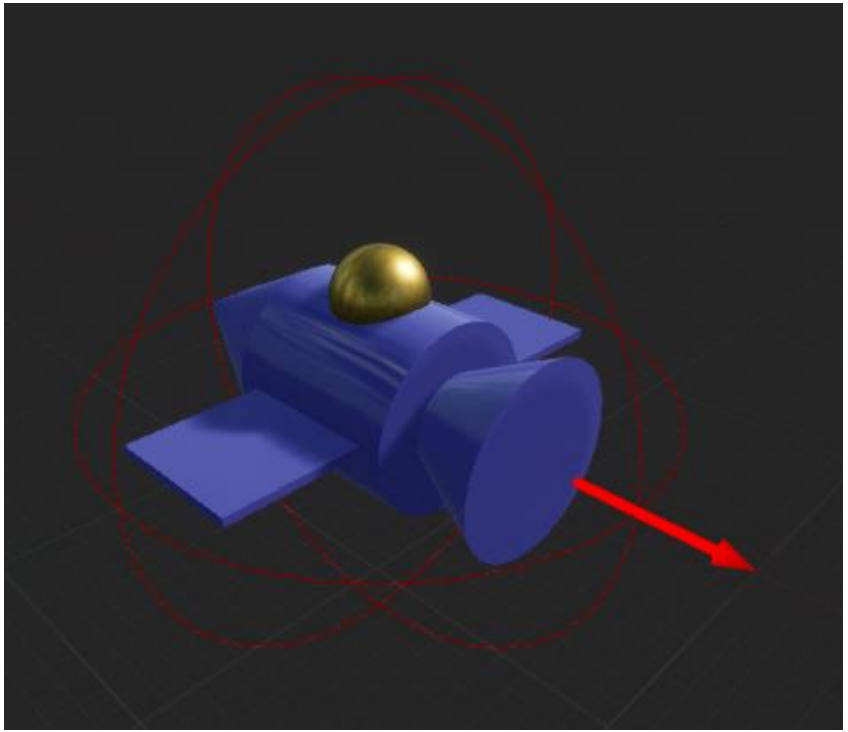


Coliision 이 설정되어 있지 않으면, 물리 시뮬레이션이 되지 않음.

Bomber 블루프린트

- 코인 생성 위치를 지정하기 위한 “Bomb Point” 화살표 컴포넌트 추가



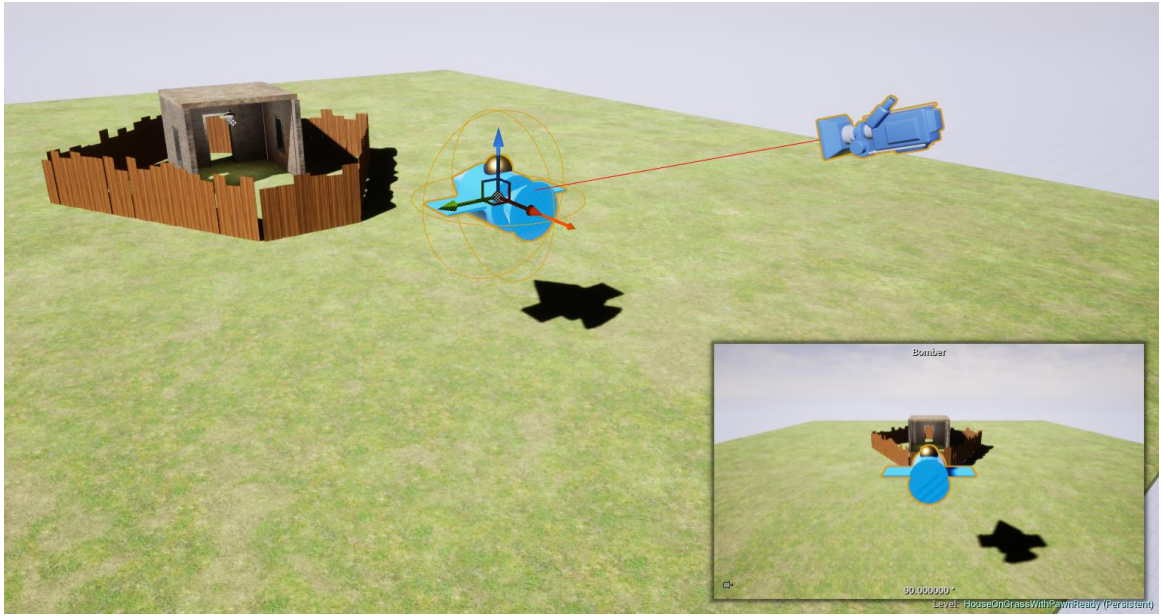


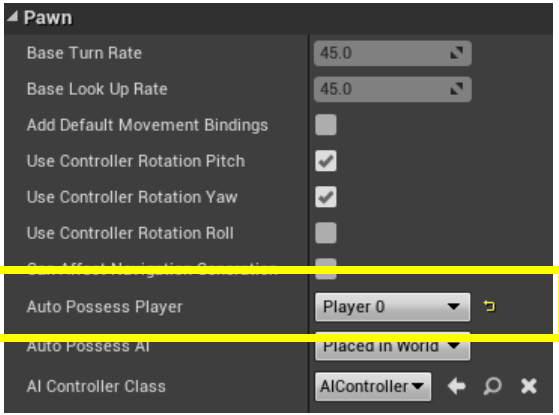
IA_FireCoin 입력에 따른 코인 폭탄 생성

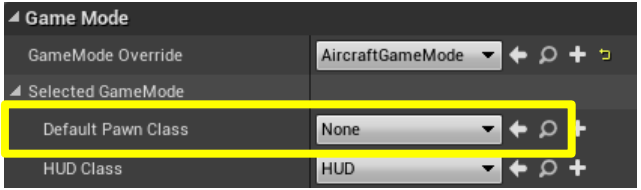
SpawnActor From Class 를 활용하여, 원하는 블루프린트 클래스의 액터를 생성할 수 있음.

Pawn의 변경에 따라, Game Mode 를 바꾸는 것이 번거로우면?

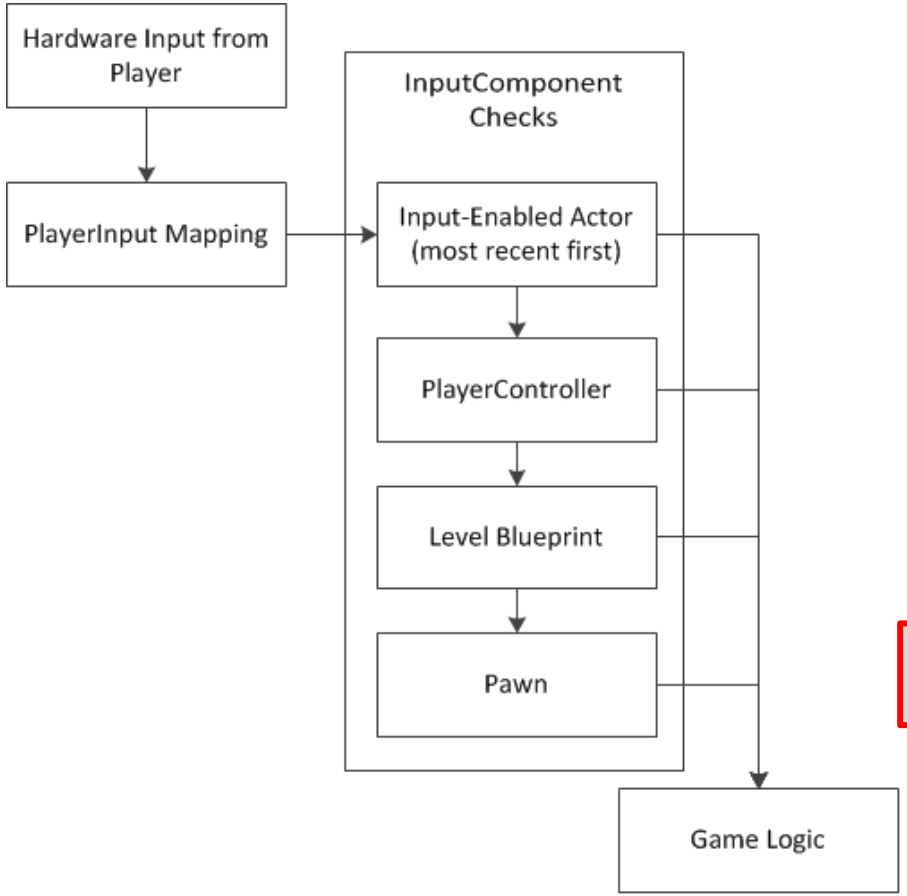
- Level 에 직접 Pawn 를 배치하고, PlayerController에 소유 설정



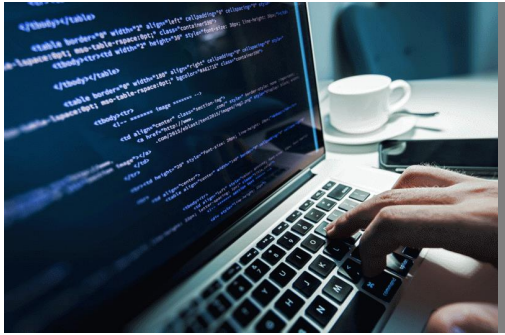




Input Processing Procedure



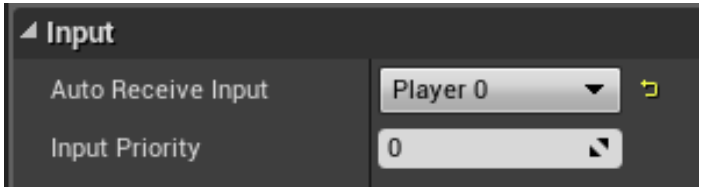
Pawn은 “Possess”되지 않으면,
입력을 아예 받지 못함.



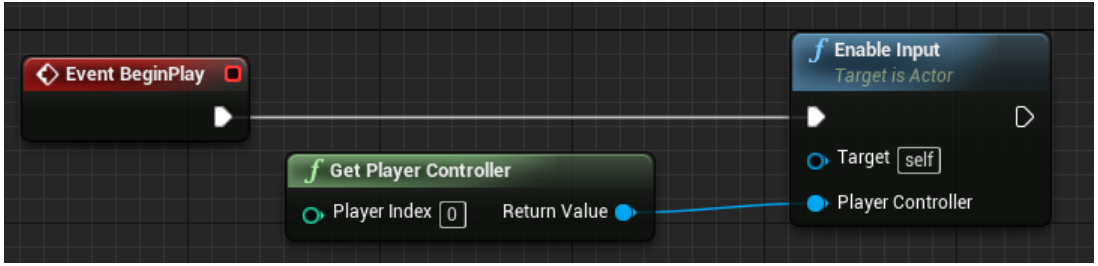
실습 LAB

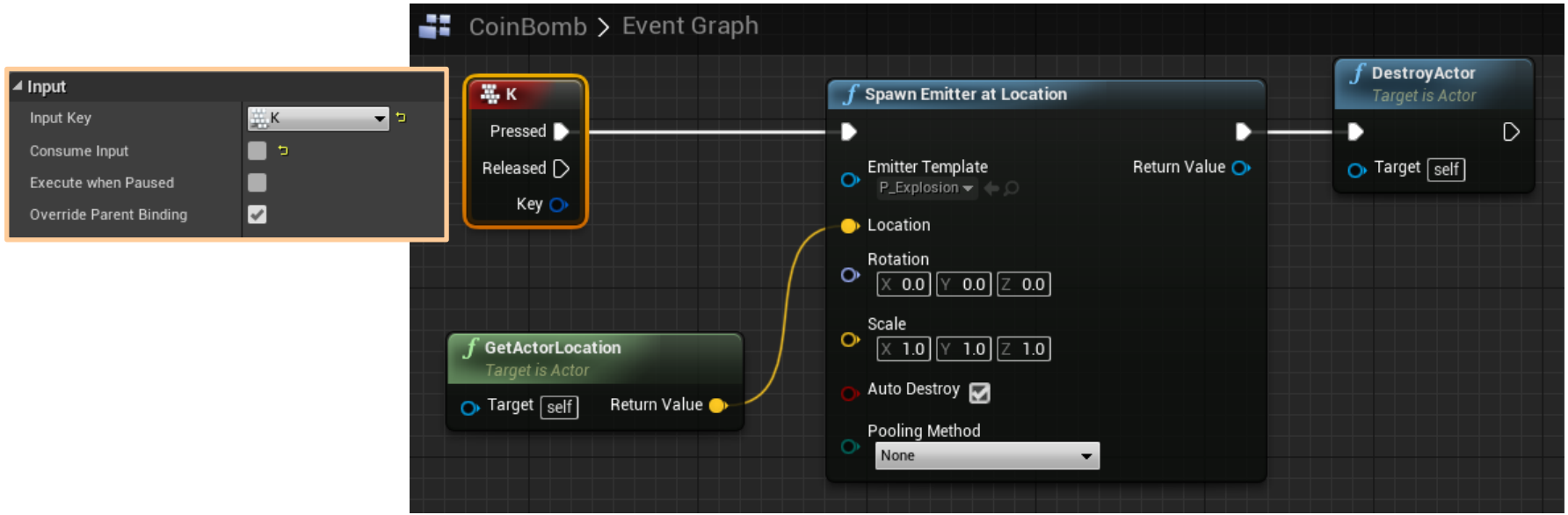
코인 제거

Player Pawn이 아닌 액터가 입력을 받아들이게 설정



OR




Input
Input Key
K
Consume Input
Execute when Paused
Override Parent Binding
CoinBomb > Event Graph
K
Pressed
Released
Key
Spawn Emitter at Location
Emitter Template
P_Explosion
Return Value
Location
Rotation
X 0.0
Y 0.0
Z 0.0
Scale
X 1.0
Y 1.0
Z 1.0
Auto Destroy
Pooling Method
None
DestroyActor
Target is Actor
Target
self
GetActorLocation
Target is Actor
Target
self
Return Value