UE4에서 오큘러스 빌드하기

TOPICS

- What is Oculus
- Oculus SDK integration
- Oculus Basics
- Oculus Games
- Q&A

WHAT IS OCULUS

Crescent Bay

Gear VR

WHAT IS OCULUS

- 올해 말 프리오더
- 2016년 1분기 배송 시작
- 가격은 미정

CRESCENT BAY

- 90hz Low Persistence refresh rate
- 360도 트래킹
- 오디오 내장

GEAR VR

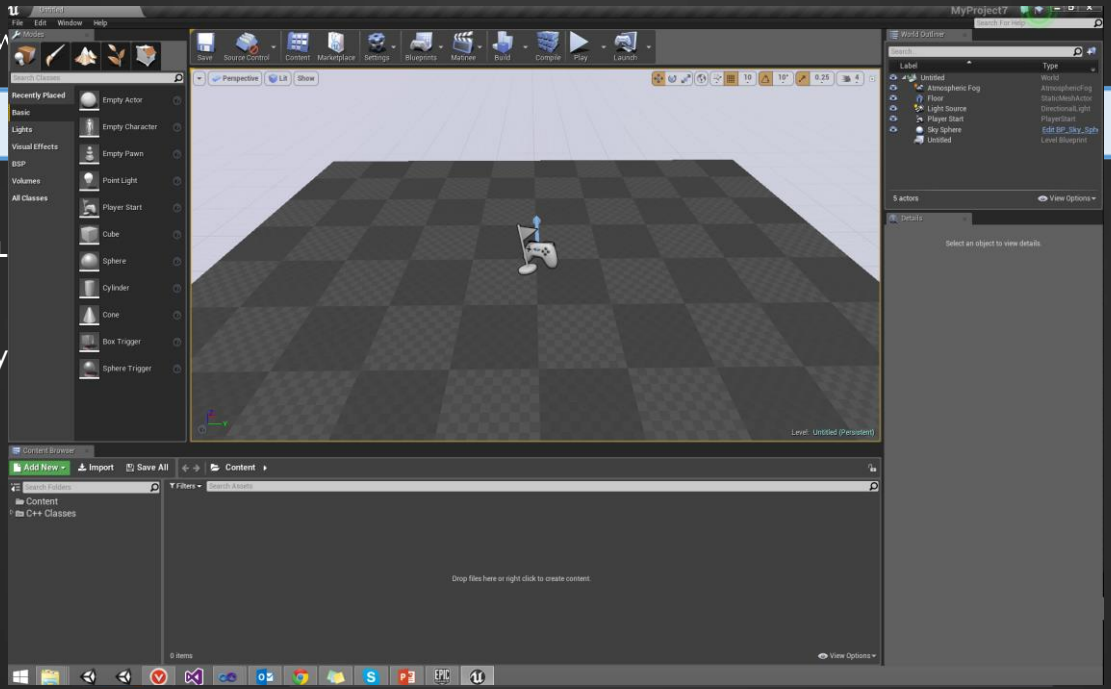
- 1440p OLED 스크린
- 60hz refresh Rate
- Samsung Galaxy Note4 and S6 지원
- Wireless

OCULUS SDK

Where OVR Softw

SDK 0.5.x부터 DLL
구조로 변경

wrapping lay
library(DLL)



Oculus SDK 세팅 스텝 (PC)

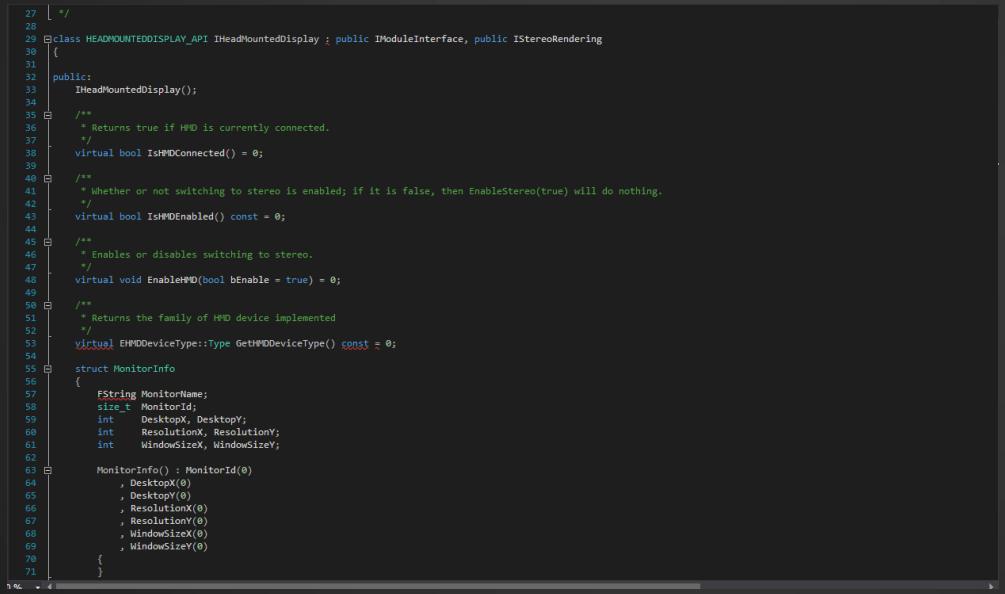
1. oculus runtime 설치
2. Windows->Plugins->Enable Oculus Rift Plugin
3. Win64용 패키지 익스포트
4. 풀스크린 전환: Alt + Enter

Oculus SDK 세팅 스텝 (MOBILE)

1. Signature File 저장
    1. Download signature file on https://developer.oculus.com/osig/
    2. Save it to Epic Games\4.7\Engine\Build\Android\Java\assets
2. New Project(C++) 생성
3. Mobile/Tablet, Scalable 3D or 2D, No Starter Content
4. Windows->Plugins->Head Mounted Displays->Enable Gear VR Plugin
5. Edit->Project Settings->Android
6. “Configure AndroidManifest for deployment to Gear VR” 활성화
7. Android(ETC2) 패키지 익스포트

Oculus SDK in Unreal Engine w/ C++

IHeadMountedDisplay Class



```
 */
class HEADMOUNTEDDISPLAY_API IHeadMountedDisplay : public IModuleInterface, public IStereoRendering
{

public:
    IHeadMountedDisplay();

    /**
     * Returns true if HMD is currently connected.
     */
    virtual bool IsHMDConnected() = 0;

    /**
     * Whether or not switching to stereo is enabled; if it is false, then EnableStereo(true) will do nothing.
     */
    virtual bool IsHMDEnabled() const = 0;

    /**
     * Enables or disables switching to stereo.
     */
    virtual void EnableHMD(bool bEnable = true) = 0;

    /**
     * Returns the family of HMD device implemented
     */
    virtual EHMDDeviceType::Type GetHMDDeviceType() const = 0;

    struct MonitorInfo
    {
        FString MonitorName;
        size_t  MonitorId;
        int     DesktopX, DesktopY;
        int     ResolutionX, ResolutionY;
        int     WindowSizeX, WindowSizeY;

        MonitorInfo() : MonitorId(0)
            , DesktopX(0)
            , DesktopY(0)
            , ResolutionX(0)
            , ResolutionY(0)
            , WindowSizeX(0)
            , WindowSizeY(0)
        {
        }
```

Oculus SDK in Unreal Engine w/ Blueprint

- https://wiki.unrealengine.com/Oculus_Rift_Blueprint

Oculus Rift Blueprint

Overview

Blueprint makes several functions available for use with the Oculus Rift or other head mounted display.
Find them under ***Input > Head Mounted Display***.

Reference: \UnrealEngine\Engine\Source\Runtime\Engine\Classes\Kismet\HeadMountedDisplayFunctionLibrary.h
(Current as of version 4.7)

Methods

- Enable HMD

Oculus basics: performance

- On CrescentBay, must always hit 90 FPS
- On Gear VR, must always hit 60 FPS
- 프레임 레이트는 그래픽 퀄리티등 다른 어떤 게임요소보다 중요!

Oculus basic: run without gear vr

1. device Settings -> Application manager -> Gear VR Service 선택

2. “Manage storage“ 선택

3. "VR Service Version" 여섯번 이상 클릭

4. 설치된 앱들을 스캔하며, 그 중 만약 시그니처 파일을 가진 앱이 있으면 개발자 인증이 됨

Keyword in Oculus

Comfortable

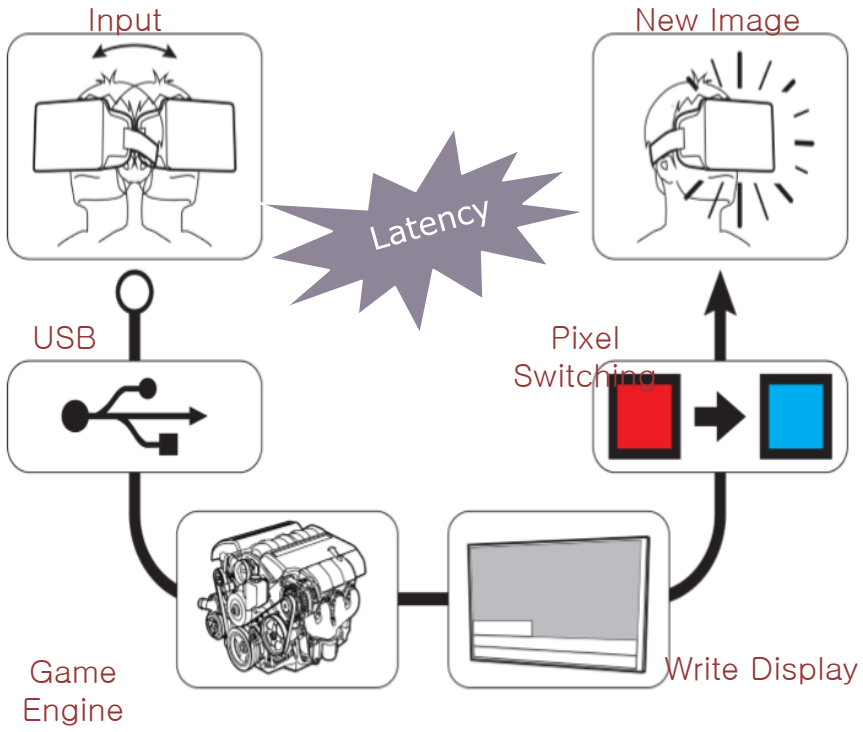
Immersive

Oculus basics: Input Options

- **Mouse + keyboard**
  - 유저들이 볼 수 없지만, 다양한 인풋 가능
- **Gamepads**
  - 직관적인 컨트롤이 가능하지만, 제한된 인풋
- **Touchpad**
  - 스와이프(Swipe), 탭(tap gestures)
- **Motion-sensing “wand” controllers**
  - Razer Hydra, WiiMote, PS Move
- **Body-motion cameras**
  - Leap, Kinect, SoftKinetic

Oculus basics: latency

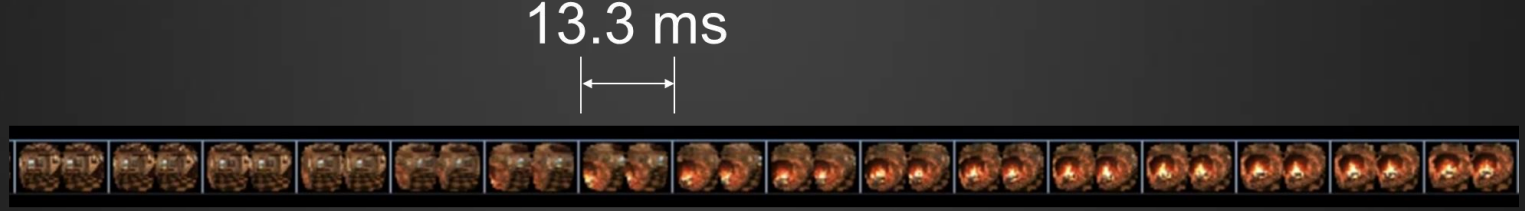
- Motion-to-photon delay
- Multiple stages
  - Motion
  - Sensor delay
  - Processing & fusion
  - Rendering
  - Scanout
  - Transmission
  - Pixel change time
  - Pixel persistence



Oculus basics: timewarp

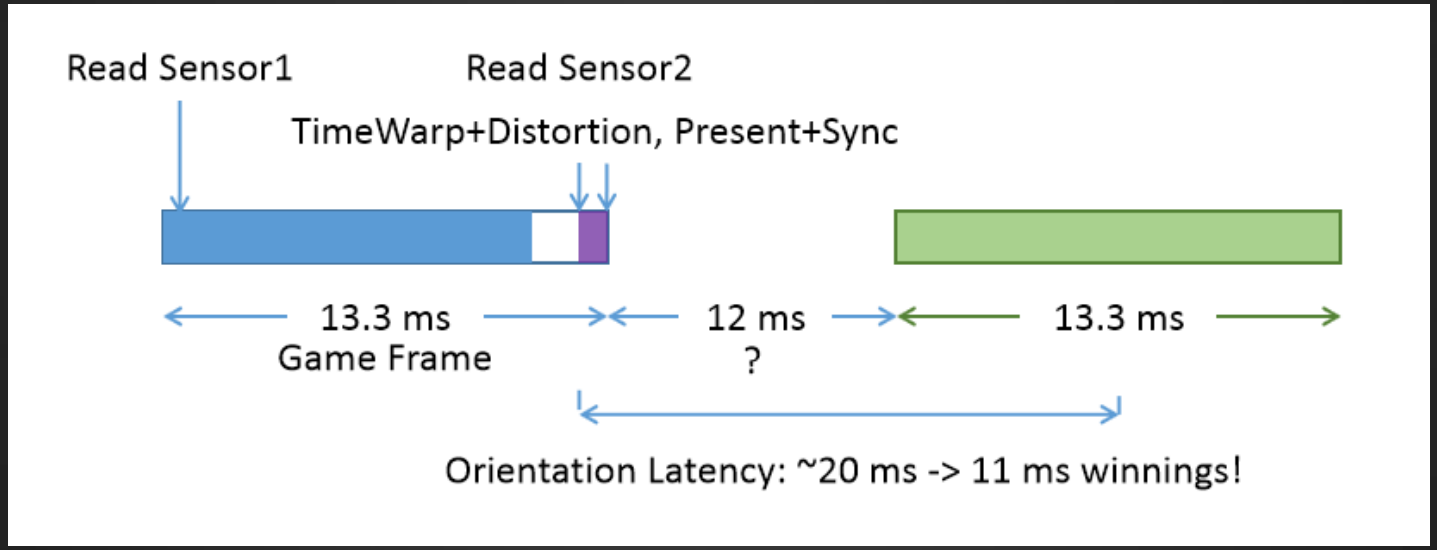
Any other way to apply sensor before the end of the frame?

TimeWarp – Projected rendering - Pioneered by John



75 FPS

Oculus basics: timewarp



Oculus Games

Oculus Games

Q & A