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Virtual And Extended Realities  Year 2 Game Design

Extended Realities

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# Examples Of Use

## Mobile Games

Mobile VR/AR sees most of its use as an educational tool and as a plethora of exploration and educational apps.

### Educational

Examples

* Google Expeditions (iOS/Android)
  + Immersive trips to locations all over the world
* Discovery VR (iOS/Android)
  + Content from the Discovery Channel ranging from skydiving to swimming with sharks
* In Mind VR (iOS/Android)
  + Look through a brain with a mental disorder and alleviate troubled neurons

### games

Examples

* VR x-Racer (Android)
  + Tilt your head left and right to avoid buildings
    - Made for use with Google Carboard
* Pokemon GO (iOS/Android)
  + AR game where you capture pokemon

## Medical

### Educational

* Nanome (Vive/Rift/WMR)
  + Allows users to interact with a large range of supersized nano chemicals and proteins
* Becoming Homeless (Vive)
  + The user experiences a process of no longer being able to afford living in a home and ending on the street which can be used as an educational tool in a psychology classroom.

### Proffessional Practice

* Airway EX by Level Ex (iOS/Android)
  + An AR game aimed at medical professionals to practice a variety of throat procedures on patients in a safe and fun way.
    - Has an update to practice on COVID-19 cases
* VR HUD Navigation for First Responders (Oculus/Vive)
  + A practice navigation game for first responders to get navigate to injured people in an increasing dangerous environment and bring them to safety

# Physiological Restraints

## Google VR Box

* Must hold with at least one hand
* Only 1 button
* Huge range of quality from users’ phones
* Portable
* Cheap

# HUD And UI Design In VR Games

HUD and UI design are incredibly important in VR more than any other platform as (if don’t incorrectly) can be incredibly confusing, make the software almost impossible to use, and even cause great discomfort to the user.

Here are some general use tips when designing UI and HUD in VR.

* Typically, all HUD elements need to be in 3d space
* Draw UI over everything as little as possible

### External UI

* Visible to everyone
* Conceptually easier for rendering
  + No conflict between depth and occlusion

### Internal UI

* Visible only to player
* Don’t want too close to screen otherwise you can cause depth discomfort
* Don’t attach large UI to camera

# Haptic Feedback

Hapitc Feedback (commonly known as Haptics) Is the use of touch to communicate with users. Incredibly important in VR to increase users sense of presence in the space.  
There are 3 catagories of Haptic Systems:

* Graspable
* Wearable
* Touchable

These are used in a variety of ways in multiple industries from games and medical to theme parks and military.

## Examples of Haptic Feedback:

* Touch
  + Controller/Phone Vibrations
  + Wearable gloves
* Audio
  + Mid Air Haptics
    - Sound waves to vibrate the air

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