

Morphological Chart

Display	Motion sense	Controls	Easily maneuverable	Connection to Unreal Engine
iPad	Positional data	Completely software integrated controls and camera options	Wireless with built-in wifi connection	Virtual camera plugin
VR headset	Ultrasonic sensors	Wireless controller connection	Wireless with Bluetooth connection	Bluetooth connection
LCD monitor	Capacitive displacement sensor	Wifi connected to display	Wireless using wifi antenna	Connection through wifi network
CRT monitor	Hall effect sensor	Bluetooth connection to display	Long wired connection	Directly wired plugin
LED monitor	Tomographic sensor	Wifi connection directly to unreal	Body connection	Mirrored connection with unreal engine

Total of 76 ideas (which is fine)

High Fidelity Ideas

1. Side-gripped system with a combination of controls accessed through hardware and software.
2. Under-handled system
3. Body mounted system on

Medium Fidelity Ideas

1. Glove controlled controller
- 2.

Controller/Hardware Ideas

- 3 DOF monitor-controller
- 2 DOF monitor-controller
- 1 DOF monitor-controller
- Fixed head mount with separate controls
- Widgets on front of controller
- Widgets on side of controller
- Widgets on back of controller

- Plastic hollow camera what has the same placement of camera functions minus the weight
- Rolling mount for the controller to move with
- Mount that attaches to the body and the controller is accessed from over the head
- Virtual Reality headset that immerses the user completely into the virtual free space
- Helmet head mount
- Front body waist mount
- Combination of tactile and integrated software controls
- All movement and options controlled by tactile controls
- Haptic feedback gloves that has sensors and able to determine the type of widget
- Touch screen monitor with body mount
- Over head wire connected mount
- Silicone base for cover
- Flexible middle section to get tablet out
- Middle break slide to open
- Top slit to slide tablet in
- One side pops open to slide tablet out
- Create a button system that will access menus for feature selection allowing the user to select the specific option from a drop down menu
- Create a tablet body harness that pairs up with handheld controllers to operate as the camera and controllers
- Use a touchscreen as the main receptor for all controls and inputs to the camera
- Build a heads up display for viewing CGI spaces as a filmmaker
- Microsoft HoloLens display with tactile controller.
- Charging aspect in case for controller
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Handle Ideas

- Handle and the controller is separated. Controls are a similar layout of an electric skateboard.
- Cross bar grips with controls on handles
- T-bar grips with controls on handles
- Handles coming from bottom of controller
- U shaped side handles
- T shaped side handles
- Handles coming from top of controller
- Adjustable sliding handles on the side
- Swivel handle controls (used to move perspective in 3D landscape)
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Connection Ideas

- Hanging connections on controller
- Connection from tablet to screen for viewing
- Wireless connection using an antenna
- Connect unreal with bluetooth

- Connect unreal with wifi
- Connect unreal with wired connection
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Software Ideas

- Full software control systems
- Main system using iPad that can connect an iPhone to the scene to control certain aspects such as focus. Much similar to how physical cameras are controlled.
- Implement a help section including FAQ for troubleshooting and inquiries about device usage
- Create a system using controls similar to the Xbox Kinect to simulate camera controls
- Build blueprints in UE4 for film production to be implemented in a virtual camera.
- Simulate a viewfinder
- Create a livestream feed that takes footage and plants it into the CGI world.
- Collaborate with the team at UE4 to implement filming applications and functionality directly to the platform
- Create an app interface for tablet machine connection
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Concepts

- Mountable tablet with adjustable stand and controls connected at the bottom. Controls have a wired connection to tablet and the entire controller has a wireless connection to unreal engine
- Voice activated controls
- Switch video game controls for iPad
- Layout of gameboy
- Augmented reality that partially immerses the user into virtual free space
- Positional data using spatial learning
- Bluetooth viewfinder attached to the head to represent looking through a camera lenses
- Use of joysticks as main method of moving throughout generated landscape
- Hand motions (such as pinch or slide) to control movement within landscape
- Have a team of programmers listen to the director's demands and simulate the wanted action directly on Virtual Machine.
- Create a machine that can run the software used for 3D digital creation and simultaneously simulate film production
- Have a camera crew that uses virtual controllers to film a CGI shot
- Create an education program to teach cinematographers new methods and techniques for filming in virtual space.
- Provide a service that will manufacture custom film equipment tailored to the wants and needs of the customer. (Film director/producer)
- Build a neural transmitter that sends signals directly from the user's mind to the virtual camera

- Creating an induced lucid dream virtual reality that transports the cinematographer into the virtual 3D space to film as if in a real environment
- Animate the entire film process and using facial scanners and other realistic scanners to upload the real world elements.
- Build an entirely new machine that uses one screen for running UE4 another as a virtual camera portal, and a third as a director's viewing station complete with all detachable/modifiable controls and a space to work in 3D with.
- Microsoft hololens display
- Bluetooth visual display
- Use Iphone to have as an external display that would connected to hardware.
- Place display on a gimbal to remain stable and viewable while moving.



