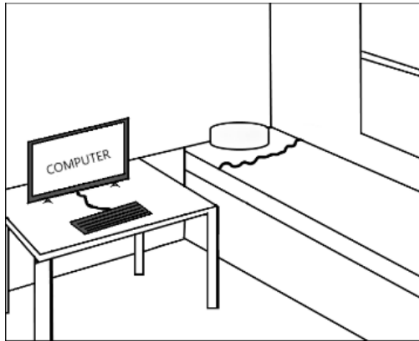
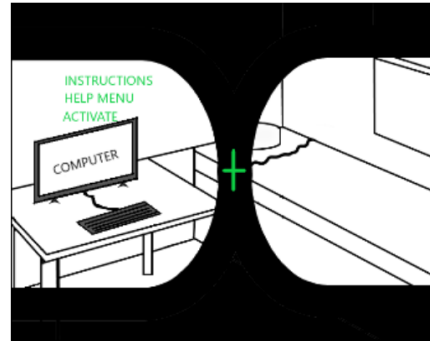


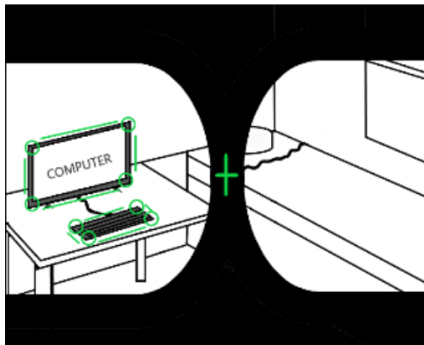
Experience Flow



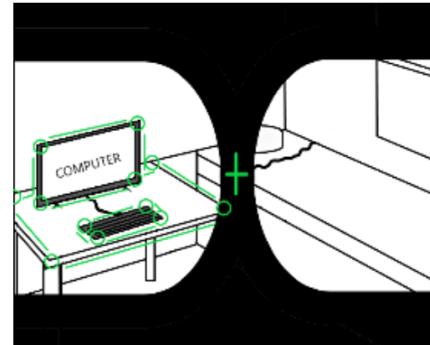
The user’s environment, study area would be the computer, distracting environment would be the window, bed, other sensory stimulations



User equips the VR headset, instructions display



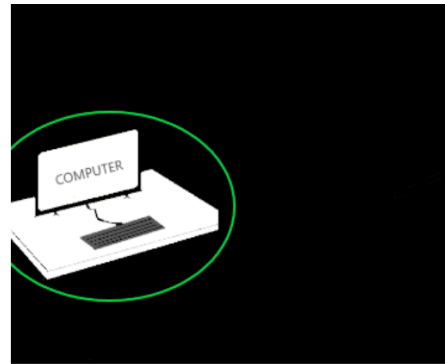
User traces an outline for what they want to be visible once the program activates, can be done with the crosshair or a physical controller



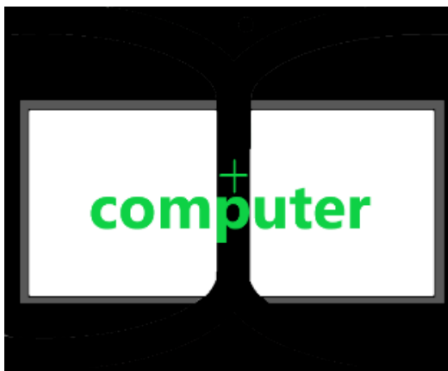
The user can also select the table, or nightstand, whatever they want to be visible.



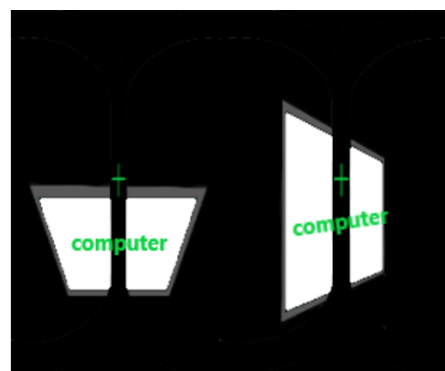
The selected study area is now the only thing visible



The selected area does not have to just be a computer screen or a book, it can be an entire location



First person view of the app in action



How a change in viewpoint or perspective looks

Study Focuser – Area and app setup

Group #20

Experience Interactions

Our VR application is not designed for locomotion. Ideally, the user will be sitting down while using it. Since its main purpose is to block out environmental information, the user will find it difficult to navigate their environment.

The main object that will be manipulated by the user is an opaque sphere placed around the user's location. This sphere is intended to block out environmental information, and is fixed to the world. The way the user interacts with this sphere is by using the controllers to trace out a "visible zone": a subsection of the sphere's surface that will not block out the environment. While holding a button, the user will trace the area on the sphere that they wish the "visible zone" to be, and may press a separate button to begin and end the blocking of the environment.

We expect the audience of this application to have enough computer skills to set up a PC-based VR headset. We believe this control scheme to be intuitive enough for even novice VR users, as the tracing mechanism works very intuitively: trace what you want to see, and you will

see it. The number of controls is also small, requiring a single controller and two buttons. This makes the learning curve of the application gentler.

Target VR Platform

We will be targeting the HTC Vive Pro (a PC-based VR system) for our VR experience. The Vive Pro has full head tracking capabilities. This system also includes two handheld controllers, both with full tracking support. The tracking mechanism utilizes both IMUs and light-based sensors placed around the room. The controllers include several buttons and a touchpad. The Vive Pro headset also includes two front-facing cameras used to display the user's real-world surroundings on the headset display.

The key reason that we are targeting the Vive Pro is due to the front-facing cameras on the headset. Since our application deals with mixed reality, we need to be able to display the user's surroundings to the user. Accurate head tracking is also necessary, since the application is intended to be used for extended periods of time. Controller buttons are required so the user may select, enable, and disable the "visible zone." Controller tracking support is necessary in order to let the user trace the "visible zone."

The side effect that we foresee being the most troublesome is head fatigue. Since this application uses a VR headset and encourages extended use periods, the added weight of the VR headset on the user will cause their neck to become fatigued quicker than it would normally. The application may also be used in situations where the user is looking downwards (e.g. towards their desk), which would induce more strain on the user's neck. Additionally, the hardware and software must sufficiently protect the user from VR sickness to maximize the application's benefits.

User Assistance

Upon placing the VR headset on and starting the application through the computer, the user will be greeted by a main title screen. If the user is familiar with the app they may start immediately with the first option, if they have never used the app before there are instructions included which will walk them through a step by step process on what to do, what to expect and how it will work. These instructions will be a slide show that the user can pause and go back and forth between slides if they need to. On the main screen there will also be a help option for frequently asked questions and an email for them if they have more complex questions or problems. There will also be a health and safety option on the main menu that outlines any concerns the user may have when using the app.

The user will have a controller/mouse for the use of selecting the options on the title screen and for tracing out the "visible zone" due to the application being PC-VR based, but there is also the ability for the user to select the area they want to trace with a built in crosshair that can be activated if for whatever reason the user can't use a controller. This will work by guiding

the fixed crosshair over the area the user wants to trace and keeping it steady for a second or two, this will highlight an area and points that can connect with each other. This may not make it into the final product, but it is another option for the user experience. The handheld device that comes with The Vive Pro can be used to trace, but if one is not available a computer mouse may be used.

Because the drastic change from a visible world to one that is mostly blacked out may be an uneasy and startling experience, the activation of the applications visible zone will slowly darken then unselected surrounding to ease the user into the experience. It's possible with some testing that the user may be able to select their own color palette instead of having an entirely grey and black surrounding.

If the user wishes to end the experience there is an option in the top right hand corner that they can use to go back to the title screen or shut the program off. This will also slowly reveal the world back to the user like a fade in instead of immediately shutting off the blacked out space. This way instead of throwing the user back to the real world they'll be eased back in.