Homework 13: User Manual

Team Code Name: \_\_\_\_\_Augmented Reality Simulator\_\_\_\_\_\_\_\_\_\_\_ Group No. \_\_5\_\_

User Manual Outline:

*Include this sheet as a cover page for your report*

* Brief (marketing-style) product description
* Product illustration annotated with callouts for each control/display
* Product setup instructions
* Product use instructions
* Product troubleshooting instructions

Evaluation:

|  |  |  |  |
| --- | --- | --- | --- |
| SEC | DESCRIPTION | MAX | SCORE |
| 1.0 | Product description | 20 |  |
| 2.0 | Product illustration | 20 |  |
| 3.0 | Product setup instructions | 20 |  |
| 4.0 | Product use instructions | 20 |  |
| 5.0 | Product troubleshooting instructions | 20 |  |
|  | TOTAL | 100 |  |

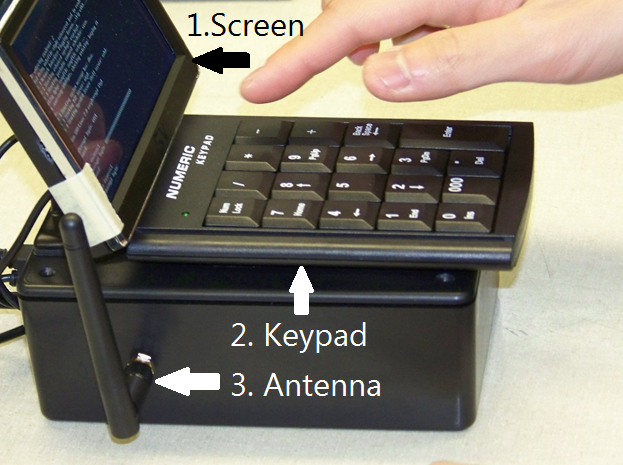
1. Product Description

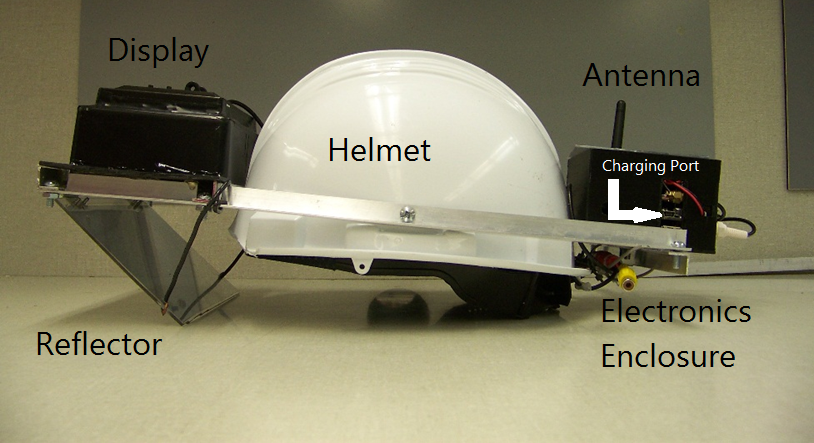
1.0 Product description

The Augmented Reality Simulator is a headset device that will immerse you into a virtual world on top of your own reality. The device features a partially reflective screen that maximizes your ability to see and be aware of your surroundings. The headset is adjustable for a perfect fit to your head and balances weight on the front and back for maximum comfort. The lithium ion battery supplies as much as 4hrs of battery life for maximum play time. A battery indicator and wireless signal indicator will let you know when your battery gets low and the quality of your wireless signal. A Central Control Unit communicates the state of the simulation wirelessly to the headset. The device is designed to run a variety of augmented reality simulations that you may choose and swap out.

The Augmented Reality Simulator comes built in with a Pacman simulation based on the popular 2d Pacman game. The simulation brings Pacman to a whole new level. You are Pacman as you physically run away from ghosts and hurry to collect all of the pellets in the maze. Be sure to make full use of your ability to look around on all axis by simply tilting your head as you normally would! To collect pellets, you must pass through them. Try not to run into the walls! If you collide with a ghost, then you will lose the round and you must try again. Good luck collecting pellets!

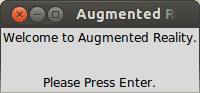
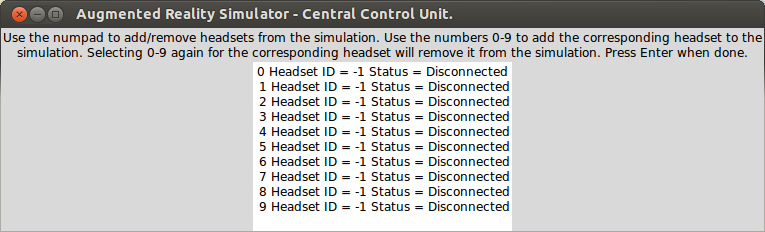
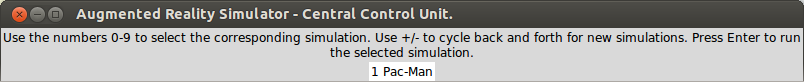
1. Illustration





Power Switch

1. Keypad – Use the keypad to interact with the Central Control Unit.
2. Screen – Use the screen to receive feedback from the Central Control Unit.
3. Antenna – The antenna is used to communicate with the headset. Do not remove.
4. Helmet – The helmet provides a secure mounting framework and comes with an adjustable strap.
5. Display – The display projects the image seen on the reflector.
6. Reflector – Reflects the image from the display.
7. Antenna – The headset antenna is used to communicate with the Central Control Unit.
8. Charging port – Plug a USB cable in the charging port and the computer to charge the headset’s battery. A battery charging LED will turn on.
9. Electronics Enclosure – The black box at the back of the headset containing the GPS and other important electronic devices.
10. Power Switch – Turn power on for headset device.
11. Product Setup Instructions

* Find a location to play:
  + Find a location outside to play, preferably a big open field with a building nearby that has an outlet on the outside. If necessary, acquire a long extension cord that can stretch into the field.
* Turn on the Devices:
  + Plug the Central Control Unit in to turn it on. Flip the switch on the back of the headset to turn it on as well. Wait until there is a red flashing light on the board in the back of the headset. This indicates that the Global Positioning System is ready.
* Initial Configuration:
  + Wait for a screen on the Central Control Unit that looks like the following:
  + Press “Enter” on the numeric pad to continue to the next screen that looks like the following:
  + Wait for the Central Control Unit to detect a headset. If no headset is detected, please refer to the troubleshooting section. When the Central Control Unit detects a headset, press “0” to select the headset. Multiple headsets are not currently supported. You may continue by pressing “Enter” on the numeric pad.
  + Press “1” on the numeric keypad to initialize the Pac-Man simulation. The plus and minus keys only work when there are more simulations than can be displayed on one screen. Press “Enter” to continue or “Backspace” to go back to the previous screen and re-select your headset.
  + The next screen will start your simulation which will appear on the headset. You may press “Backspace” at any time to quit the simulation and return to the headset selection screen.

1. Product Use Instructions
   1. Looking Around

To see the Pacman maze around you, simply turn or tilt your head in the desired direction and the display in front of your eyes will update to include what is visible in the virtual environment in the direction you are looking.

* 1. Moving

To make an object become larger and closer to you, simply walk towards that object. To make an object become farther away, walk away from the object. You may walk in any direction. Note that walking towards an object will not work indoors; it must be done outdoors because GPS will not work indoors.

* 1. Interacting with Objects

The only way to interact with virtual objects is to walk towards them until they seem to be so close that you could touch them. Because the objects are virtual, you may go through them. The Pacman simulation does not make use of the ability of the user to interact with objects. When you pass through a pellet, it will remain in its location. DO NOT walk into real objects. Always make sure the object being walked through is virtual before proceeding.

WARNING: DO NOT USE THE HEADSET IF YOU HAVE A HISTORY OF EPILEPSY.

DO NOT CONTINUE USE OF DEVICE IF IT CAUSES VISUAL DISCOMFORT.

5.0 Product Troubleshooting Instructions

Problem: Headset display is blank.

Potential Solutions: Try flipping the switch on the back of the headset to turn on the power. If this does not work, then make sure that the battery is charged.

Problem: The headset does not respond to the CCU.

Potential Solutions: The maximum range for the CCU to communicate with the headset is approximately 200 meters. If the headset does not respond to the CCU as expected, try moving the headset closer to the CCU. Ensure that all antennas are oriented pointing upwards. If possible, elevate the CCU.

Problem: Objects do not move closer or farther away when walking towards them or away from them.

Potential Solutions: GPS will not work indoors. Go outdoors and wait for a blinking red light in the Electronics Enclosure. If this still does not work, then the atmospheric conditions may be interfering with the GPS.

Problem: Objects on the screen are hard to see.

Potential Solutions: If the objects are too hard to see, then there may be too much light polluting the display. Either play later in the evening or earlier in the morning to avoid light from the sun washing out the image.

Problem: No objects are moving. A static screen is being displayed.

Potential Solutions: Occasionally the device may “lock up”. This may be due to a variety of reasons. If this occurs, turn the headset off. Remove the SD card from the headset, ensure that it is seated, and turn the headset back on.

Problem: The CCU display is black.

Potential Solutions: Make sure that the CCU is plugged into an outlet and that the outlet is powered.

Problem: The CCU display flashes and then comes back.

Potential Solutions: This is a problem with the power provided to the display. The device will continue to function despite the display inconvenience.

Problem: The display for the headset is spinning or moves in an unexpected fashion

Potential Solutions: This may be due to a variety of reasons. If this occurs, turn the headset off. Remove the SD card from the headset, ensure that it is seated, and turn the headset back on.