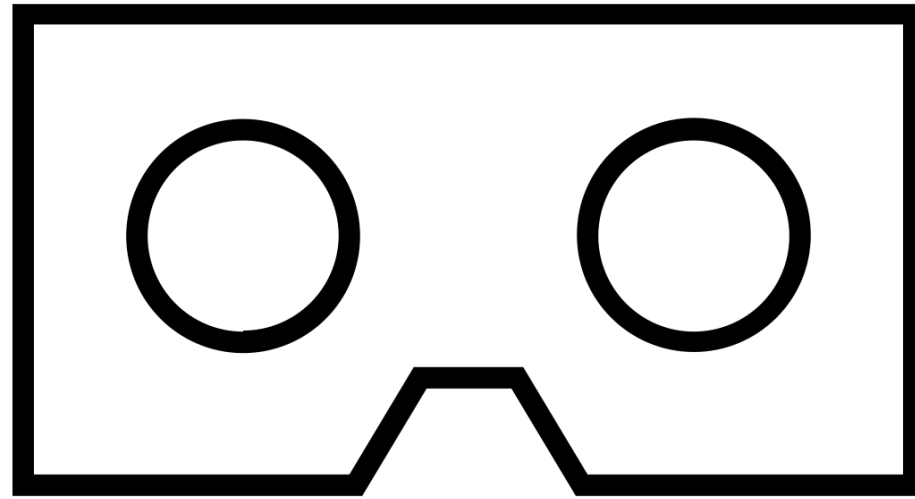


# Focus on Virtual Reality

---



Mark Sumner  
College of Agriculture and Life Sciences  
Virginia Tech

# AR, VR, and 360° Media in Extension

---

- Augmented Reality (AR)
- Virtual Reality (VR)
- 360° Photos and Videos

# What's your interest in VR?

# Google Expeditions

---



4-H'ers engage with virtual reality at the launch of the partnership between 4-H and Google.

Virginia 4-H is partnering with Google to bring computer science and modern technology to 4-H'ers across the state, giving Virginia youth more access to technology education, the latest equipment, and the opportunity to apply computer science to their fields of interest.

“Virginia 4-H and Google partner to bring computer science to youth across the commonwealth”, VCE

<https://vtnews.vt.edu/articles/2017/10/cals-4hgoogle.html>

# How to ...

---

- Capture 360° photos
- Produce a virtual tour viewable on a Google cardboard viewer

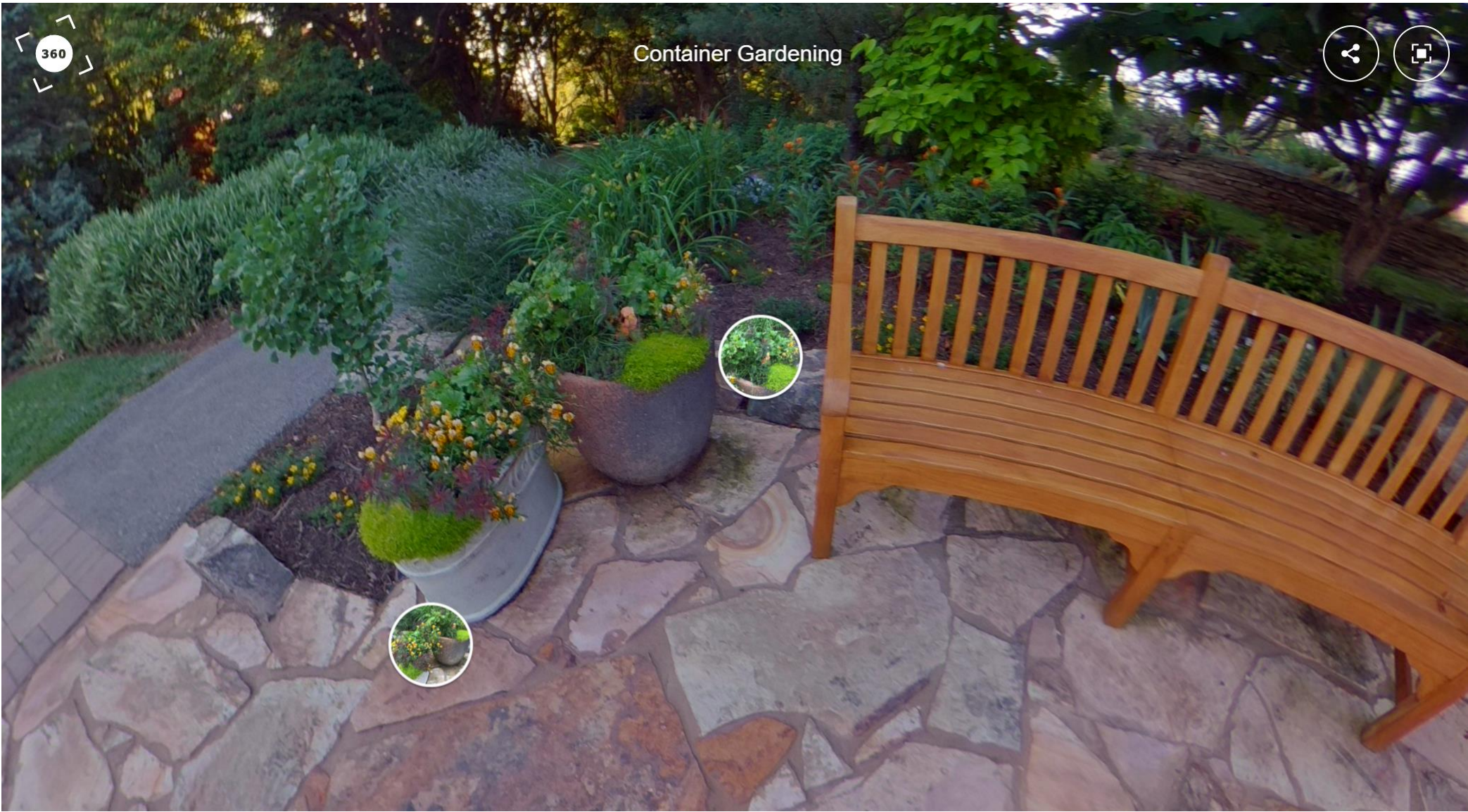
# Our Workflow

---



- Install the Ricoh Theta Basic app on your smartphone. <https://theta360.com/en/about/application/basic.html>
- Capture 360° photos. Position the **camera** as **upright** as possible.
- Shoot **landscape oriented** photos with your smartphone.
- Record **MP3** audio clips with the Zoom recorder.
- Transfer 360° photos and audio clips to the PC.
- If needed, trim audio clips with Audacity.
- View 360° photos with the desktop Ricoh Theta app.
- Select one or more 360° photos and upload to ThingLink. <https://www.thinglink.com>
- Create a tour by **tagging** a 360° photo to create hot spots for **photos, audio clips, links to different 360° scenes** , etc...
- Share the link to your tour.
- View tour on your smartphone with a Google cardboard viewer.





# VR Kit

---

- Ricoh Theta V 360 4K VR Camera
- Manfrotto VR PIXI EVO Kit
- Zoom H1n Audio Recorder



“RicoH THETA V 360 4K VR Camera”, B&H Photo

[https://www.bhphotovideo.com/c/product/1333693-REG/ricoh\\_theta\\_360\\_degree\\_camera.html](https://www.bhphotovideo.com/c/product/1333693-REG/ricoh_theta_360_degree_camera.html)



# Working with the Camera

---



Power

Wi-Fi

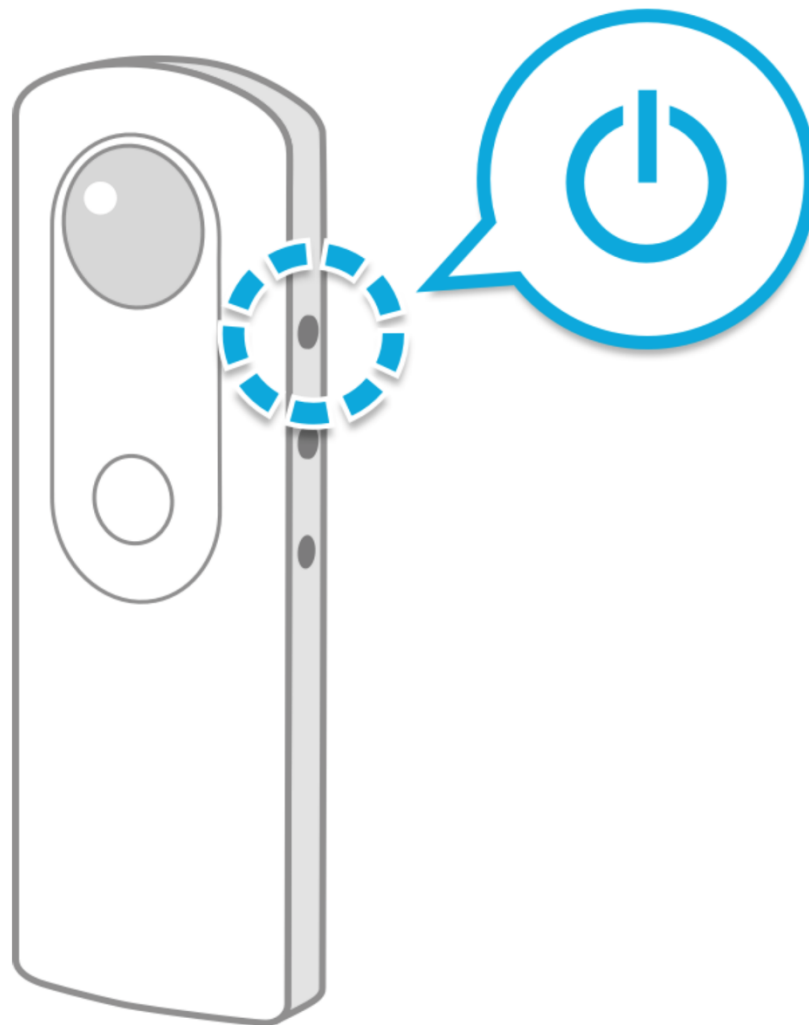
“Quick Reference Guide”, Ricoh Theta, <https://theta360.com/en/support/story/v/settings/>



## How to connect to THETA

1

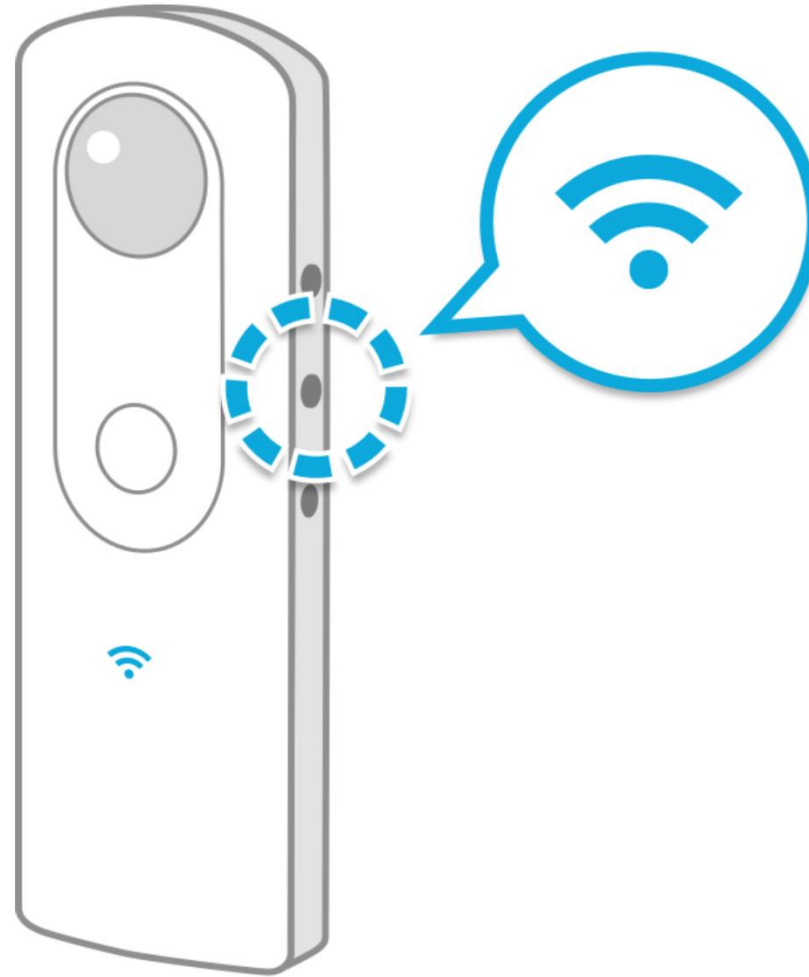
Press the power button on the camera to turn the power on.





## How to connect to THETA

- 2 Press the Wi-Fi button to turn the Wi-Fi function on.  
The Wi-Fi LED on the front of the device lights.



12:35 PM

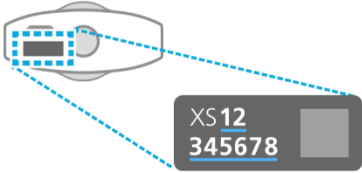
50%

How to connect to THETA

3

On the smartphone's Wi-Fi setting screen, select the camera's SSID and enter the password.

<How to connect with an SSID and password>



SSID:

THETA XS 12345678 .OSC

Password:

12345678

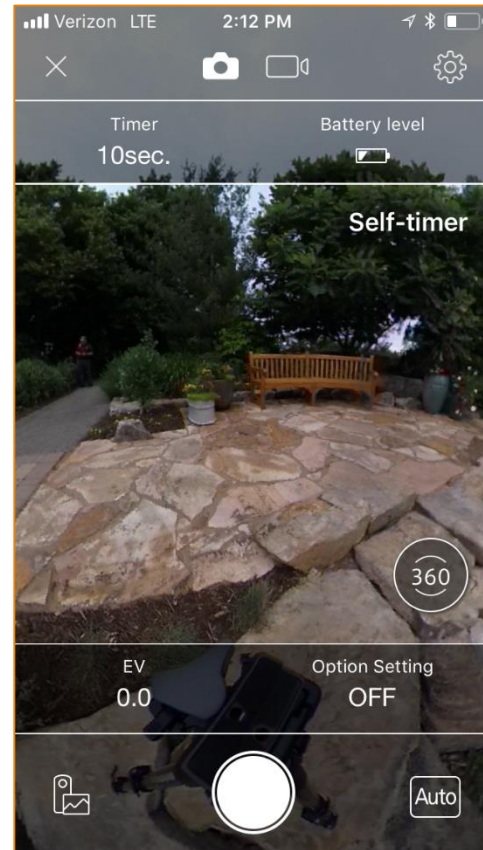
\*The serial number on the base of the device is the SSID and password.

\*The number written on the base of the device is the default password.

\*The number written in the figure above is an example.

# Ricoh Theta Basic App

---





# Placing the Camera

---

- Place the camera in a spot where you would want to stand and look around.
- Position the camera as **upright** as possible

“How The Associated Press Trains Its Journalists to Shoot in 360 Degrees”, Facebook Media

<https://media.fb.com/2017/01/05/how-the-associated-press-trains-its-journalists-to-shoot-in-360-degrees/>



# Working with the Audio Recorder

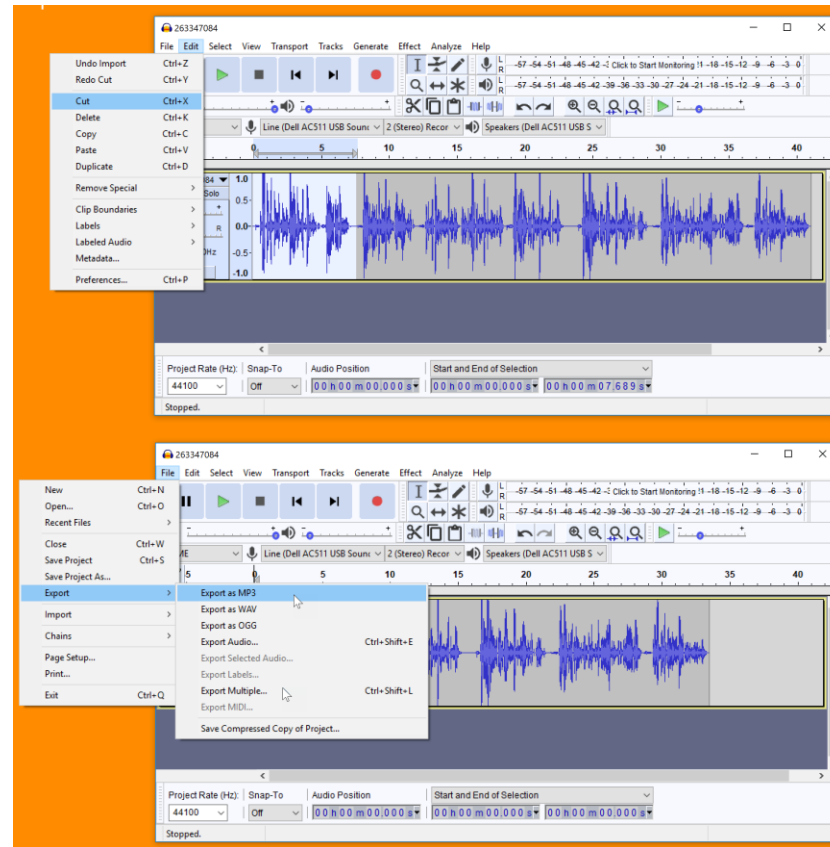
---



“H1n Operation Manual”, Zoom, [https://www.zoom-na.com/sites/default/files/products/downloads/pdfs/E\\_H1n.pdf](https://www.zoom-na.com/sites/default/files/products/downloads/pdfs/E_H1n.pdf)

# How to Trim Audio in Audacity

File > Cut



Export > Export as MP3

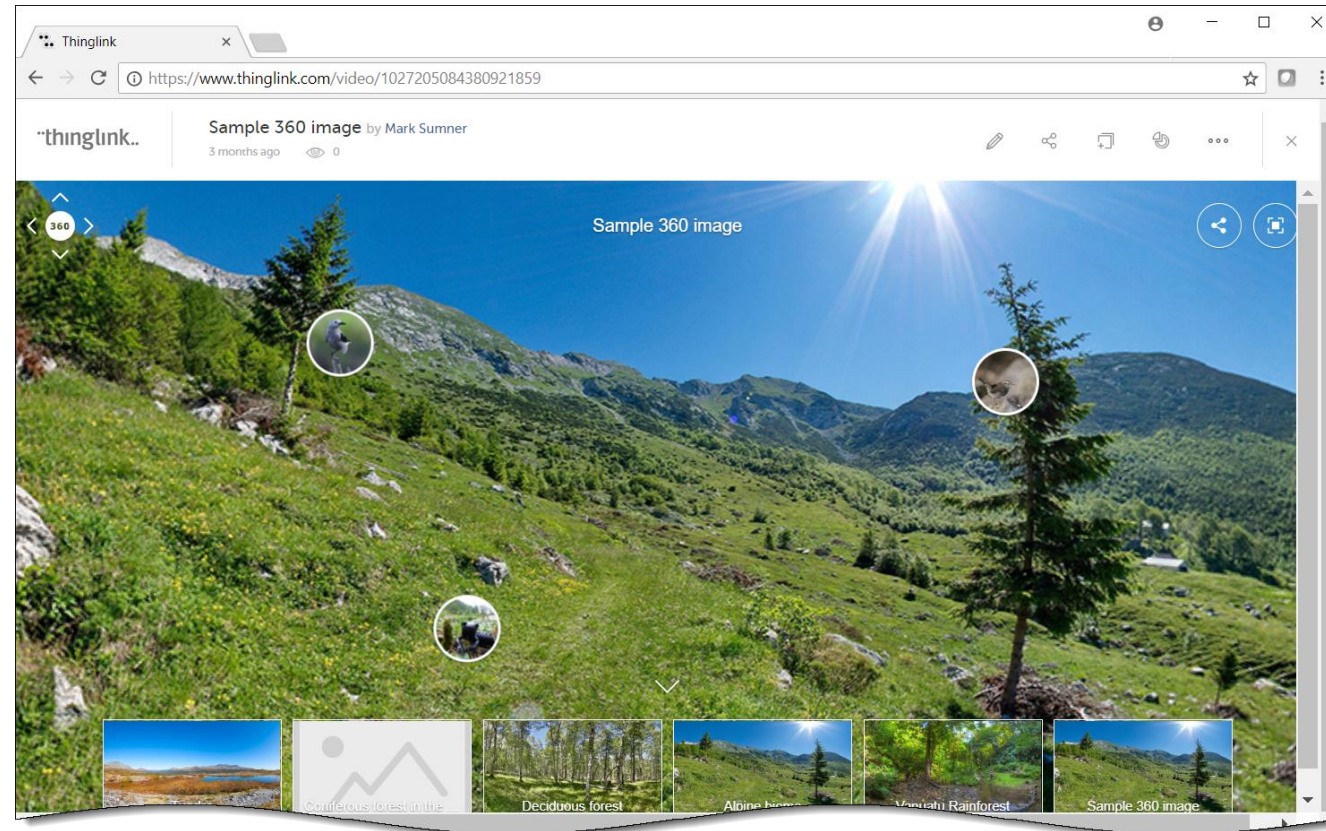
Audacity, <https://www.audacityteam.org/>

# Planning for a Photo Shoot

---

- Where do you want to place the camera?
- What elements (hot spots) do you want viewers to explore in your scene?
- What photos will you need to annotate your scene?
- Do you want to include any sound clips?

# ThingLink



ThingLink, <https://www.thinglink.com/>

# Working with ThingLink

---

## Optimizing ThingLink for Virtual Reality (VR) Viewing

- **Settings > Upload Audio:** Add an ambient background audio track to your tour.
- Add an **Image** tag to display a photo with an audio clip.
- Use the **Tour** tag to link to different 360° scenes within your tour.

“Browser 360/VR”, ThingLink, <https://support.thinglink.com/articles/360-vr>





ADD TAG

[SHOW HELP VIDEO](#)

SETTINGS

SAVE & EXIT

# Google Cardboard

---



Unofficial Cardboard

<https://www.unofficialcardboard.com/>



# Review

---

- Ricoh Theta V - <https://theta360.com/en/about/theta/v.html>
- Audacity (with LAME MP3 encoder) - <https://www.audacityteam.org/>
- Thinglink - <https://www.thinglink.com/>
- Unofficial Cardboard - <https://www.unofficialcardboard.com/>

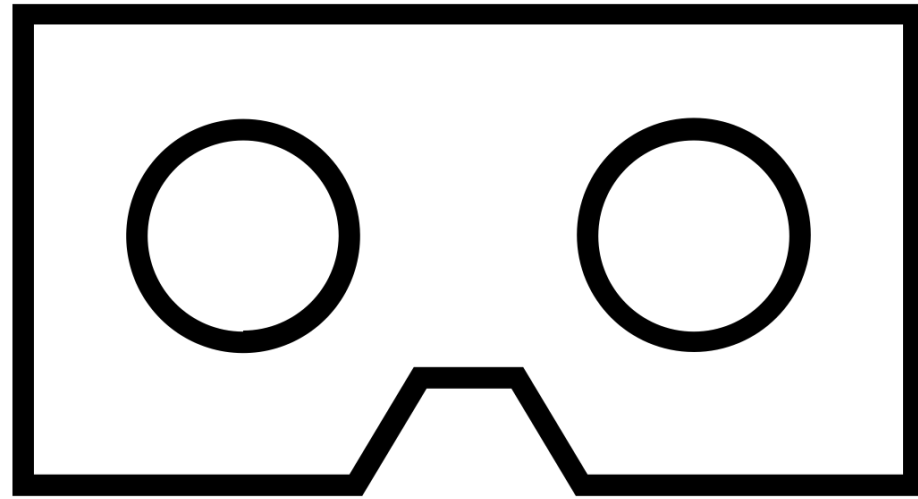
# Shopping List

---

- Ricoh Theta V 360 4K VR Camera, \$396.99
- Lowepro Tahoe 25 II Bag, \$11.95
- Manfrotto VR PIXI EVO Kit, \$89.99
- Zoom H1n Audio Recorder, \$119.99
- Audacity, free
- ThinkLink (Premium Teacher Subscription), \$35 per year

# More About Virtual Reality

---



“Virtual Reality”, American Library Association  
<http://www.ala.org/tools/future/trends/virtualreality>

# Mark Sumner

---

CALS-IT

College of Agriculture and Life Sciences

Virginia tech

sumnerm@vt.edu