

Side-note,

I managed to discover a non-scientific light-spectrometer for \$67. It is capable of detecting the 300-800nm range.

<http://chriswesley.org/spectrometer.htm?ref=DIYLightSpectrometerDescription5>

Using a Webcam for UV Detection

Webcams may be an inexpensive alternative to a UV-detecting sensor. Webcams are often fitted with a UV/IR blocking lens. This can be removed so that the UV/IR spectrums can be imaged.

1. This developer, however, noted that webcams are often not strong enough to detect the UV spectrum. This was indicated by UV-shielding sunglasses showing up as transparent when imaged. The author ended up using a modified DSLR camera, the [Canon rebel t3i](#).
<http://mark-shu.blogspot.com/2015/08/hack-normal-camera-into-uv-camera.html>
2. Secondly, an IR filter is necessary to properly image the UV spectrum since “IR light has a lower wavelength than visible light and is therefore refracted/reflected at a slightly different angle. This means that the focal plane is at a different distance compared to visible light. You will get focusing problems without an IR filter.”
<https://stargazerslounge.com/topic/77467-spc880-webcam-and-iruv-filter-which-one/?do=findComment&comment=755446>
 - a. Two UV bandpass filters were widely recommended (for photography).
 - i. <http://www.uvoptics.com/index.php?SEUGen2> (mainly for scientific applications)
 - ii. [https://www.baader-planetarium.com/en/filters/baader-u-filter-\(venus-and-uv-350nm\).html](https://www.baader-planetarium.com/en/filters/baader-u-filter-(venus-and-uv-350nm).html)
 - b. The author in [2], however, used the below filters:
 - i. [BP 324 UV bandpass filter](#)
 - ii. [SP 510 IR block filter](#)
 - c. The [Hoya UL300](#) or the [PECA 900](#) in conjunction with a 700nm+ IR-blocking filter seem like good options as well.
3. Some types of glass lenses also absorb the UV spectrum, so fused quartz, quartz, or fluorite lenses are recommended.
https://en.wikipedia.org/wiki/Ultraviolet_photography#Reflected_UV_photography
 - a. An inexpensive lens is the [Cannon EF 50mm](#). A non STM (non-stepper-motor) version can be purchased even second-hand for less.
4. For testing in the lab, a few webcams are proposed below. Even though the author in [1] was not able to get his webcam to work, these may.
 - a. [Microsoft Lifecam HD-3000](#) webcam. Shown to work in this video:
<https://youtu.be/6s47DhT2D7I?t=482>

- b. [Microsoft Lifecam Cinema](#). A higher-end webcam than the Lifecam HD-3000.
- 5. This guide demonstrates how to remove the UV/IR filter from webcams.
<http://www.ufos-aliens.co.uk/infraredwebcam.htm>