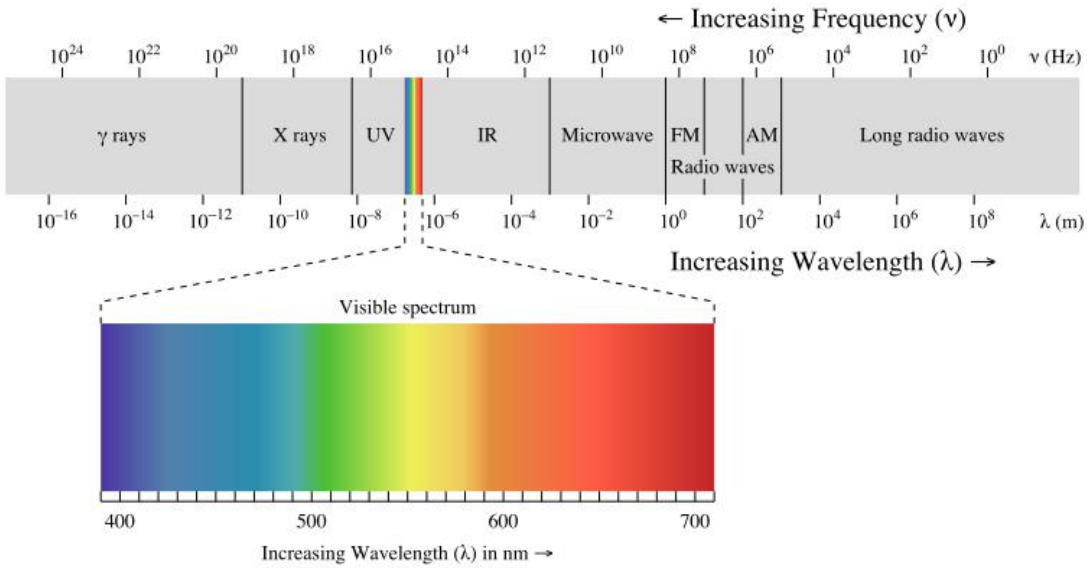
How does a night vision camera work?

A night vision camera is a device that allows you to see in the dark. But how is that possible? It's very simple. The light that you are able to see is electromagnetic radiation. You are only able to see a very small part of the electromagnetic spectrum.



That part that you are able to see is called "Visible Spectrum". There are many types of radiation as you can see in the image above (image source is Wikipedia) but part of it is the infrared radiation. Infrared is a very low energetic radiation and it is widely used in night vision cameras.

Basically the concept is simple – A night vision camera is a device that emits infrared "light" and is capable of detecting it in a camera. The only difference between a night vision camera and a camera that is taking a film of an environment that is being lighted by a normal lamp is that you can't see the infrared "light" with your eyes but you can with your infrared camera. This provides you the chance to see in the dark.

In the image above you are able to see an infrared LED that is an Infrared "Light" Emitting Diode. These LED's are widely used in remote controls for TVs, DVD players, etc… When you point your remote control to your TV and press a button your infrared LED with "light".

You perhaps may try this by yourself. What is very interesting is that your digital photo camera detects infrared radiation emitted in these frequencies. Try it yourself:

1 – Turn on your photo camera device

2 – Point your remote control to camera

3 – Press and hold button in your remote control

4 – Watch your control's infrared light in your camera's display

Now you were able to see your infrared LED emitting infrared "light" through your camera's display. This is the same concept that a night vision device uses.

Now if want you are able to create your very own night vision camera! You just need to "light" 15 infrared LED's that you can buy in an electronics store, attach them to your photo/movie camera and then look through the screen during night. It's simple as that. All those LED's will light the room when you are and the machine will detect the infrared light.

In the picture on the left you are able to see my own infrared LED emitting infrared radiation.

The infrared radiation also has a lot of other uses. For example it is used in thermal vision devices or in heat sources.

This article has been written by **Miguel Pedroso**.

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Note: Not every digital camera detects infrared radiation. Some of them filter it. But usually the digital cameras that you can find in the market detect infrared.

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