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What is LavaRNd?

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LavaCan™

A LavaCan is the LavaRNd's reference implementation of a [chaotic source](#) of data. Its purpose is to encapsulate a Charge Coupled Device (CCD) in such a way that the CCD solely measures background noise energy levels in a space completely devoid of light. This previous statement is key in that one can envision many forms in which encapsulating a CCD might occur.

In addition to meeting the goal of encapsulating a CCD in darkness, our LavaCan has been designed to meet additional criteria:

- compact - occupies minimal surface area
- cost - inexpensive (< \$30 US)
- construction - made from off the shelf parts
- portability - travels well with a laptop

So, now let's deconstruct the LavaCan from the outside in

The LavaCan prevents light from reaching the CCD



(click on any image to enlarge)

The first image was produced by the good folks of [Mtn. View Tap Plastics](#) as a result of our discussions regarding need. This drawing can be taken to any Tap Plastics store to have a LavaCan built.

Images 2 and 3 provide a different perspective of the components within the LavaCan. Note that the top lid is actually two disks, one slightly smaller than the other. These two disks, when glued together, form a nice edge lid for the can. The 3rd disk floats free within the can and is turned 180 degrees from the orientation of the top lid. These two lids oriented properly serves to block the light that would otherwise come into the LavaCan by way of slots in the disks.

The other major component that you can see in the images is a webcam. The dimensions (in inches, sorry!) of the LavaCan are specific to the particular webcam chosen. We use the [Logitech QuickCam 3000 Pro](#) webcam, also known as the Philips 730 webcam. If your camera is a different size, then you will need to adjust the can measurements accordingly.

Why are we using a webcam? We do so for 3 reasons:

- Keeps construction costs down - we need not design a manufacturing process with regard to placing a CCD chip in an appropriate housing
- most webcams have, at their heart, a CCD chip
- readily available and inexpensive consumer item

Let's walk through the process of constructing a LavaCan now that we have examined its components.

Piecing together a LavaCan



(click on any image to enlarge)

These images illustrate the following steps of the construction process:

1. Remove webcam from its package
2. Remove the stand and lens cover
3. Place webcam into the base camera down
4. Ensure that the webcam is centered and seated
5. Ensuring the cable sits within the slit, place the inner lid on top of the webcam
6. Orienting the slit of the top lid in the opposite direction, close the can
7. "Here be chaotic data!"

We have concluded providing you with the information that you need to build a LavaCan. If you are interested in looking at the insides of our reference webcam, check out the following images and accompanying commentary.

Breaking your webcam is not recommended

Children under the age of 127 will undoubtedly try this at home and wind up buying a second webcam. :-)

Viewing the CCD inside the Logitech QuickCam 3000 Pro webcam



(click on any image to enlarge)

The best view of the CCD can be seen by clicking on the right hand image above.

... and the best way to use your webcam is to not open it up in the first place! :-)

What is next?

- [LavaRnd supported webcams](#)
- [LavaRnd Digital Blender](#)
- [How good is LavaRnd?](#)
- [LavaRnd demos](#) - fun, statistical and other information

