

What is CamView?

CamView allows you to view the image from a video source (typically a WebCam) on your PC. In this respect its like thousands of other programs BUT CamView has one twist that we think makes it useful for some special applications - it has an on screen graticule so your image can be referenced to a fixed point.

Why did DTec create CamView?

Simple, whilst much of what DTec does is electronic - we also build lots of mechanical equipment as part of our research and development. To be truthful we're born modifiers so our workshops are full of machine tools to build the interesting components we sell and our own personal projects.

As a part of these engineering tasks, finding edges of materials, centers of holes etc are common requirements, and we just weren't that impressed with traditional mechanical or optical mechanisms. Our CNC milling machines are PC controlled - WebCams are cheap - so CamView was created !

It didn't take very long to create as its very simple - its been useful for us, so we're giving it away for personal use.

What do I need to run Camview?

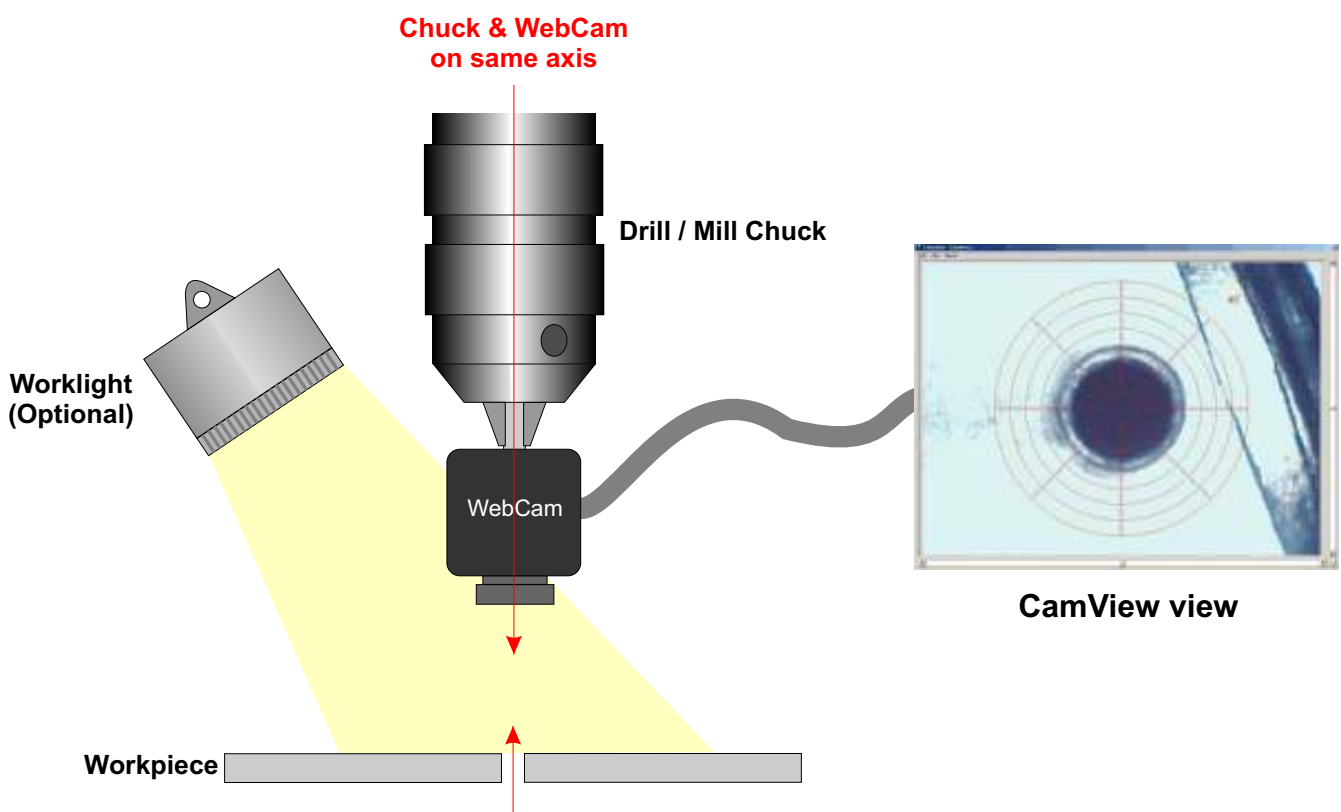
You must have a video source, for example a WebCam installed and working on your PC. Install the video device using whatever software came with it and check that it works using one of the sample applications usually supplied.

Once you have done that, install CamView by running the setup program supplied. That's it !

So What?

Yes - that's not very exciting, unless of course your trying to find the centre of a hole or edge of the work on a drill, lathe or milling machine. Make yourself a fixture to hold and align the centre of the WebCam with the centre of the spindle and now you have a "birds eye view" complete with graticule to find the holes centre or workpieces edge. Hints on making your own fixture are provided later on.....

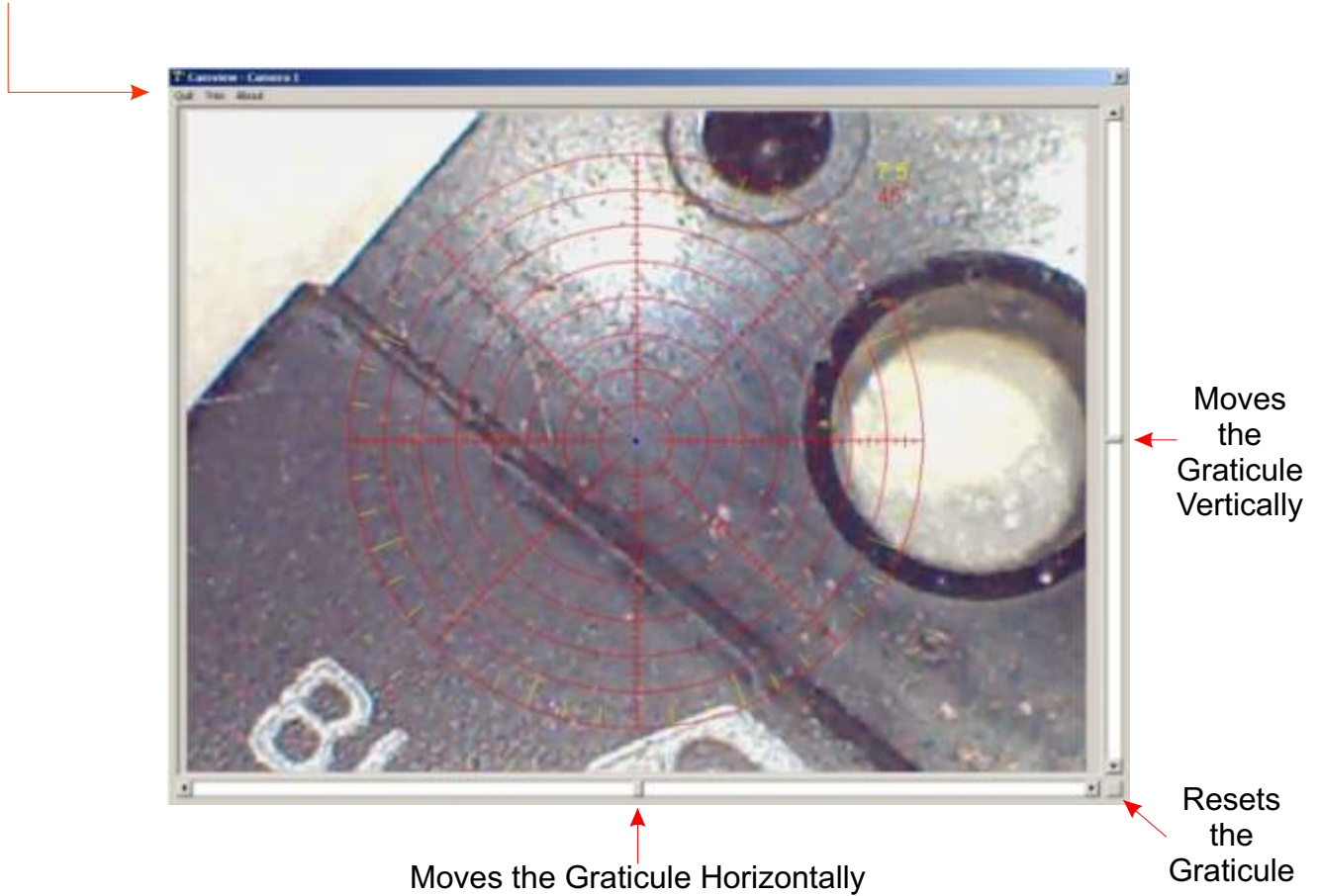
Unlike mechanical centre finders or wigglers there's no calculation to be done - what you see is the true edge or centre.



Using CamView

CamView menu has very few functions - its designed to be straightforward.

- 1/ Quit - Closes Camview
- 2/ Trim - Allows the video source and graticule to be selected / moved
- 3/ About - self explanatory.



The Horizontal and Vertical Scroll Bars allow the on screen graticule to be moved as required. The changes made using these scrollbars are not saved when CamView is closed. Use the Trim Menu to make permanent changes to Graticule position.

The Centre button immediately moves the graticule to the programs default (middle of screen in X & Y).

Angle and Range Rings

The Graticule has both Range Rings and angular lines.

Given that the camera will not be a precise or constant distance from the workpiece the range rings do not represent any specific distance. Their major use is to assist in centring of circles, the ticks on the X and Y axis may also be of assistance. Lighting can be important when locating an edge or hole - shadows in the wrong place can make location quite difficult. A WebCam with inbuilt lighting really helps in this regard.

The angular lines are really only designed to provide a general indication. They should not be used for absolute angle measurements as the WebCam may not be exactly square to the machine axis.

Using CamView - Continued

The Trim Menu allows settings to be defined for three windows video sources.

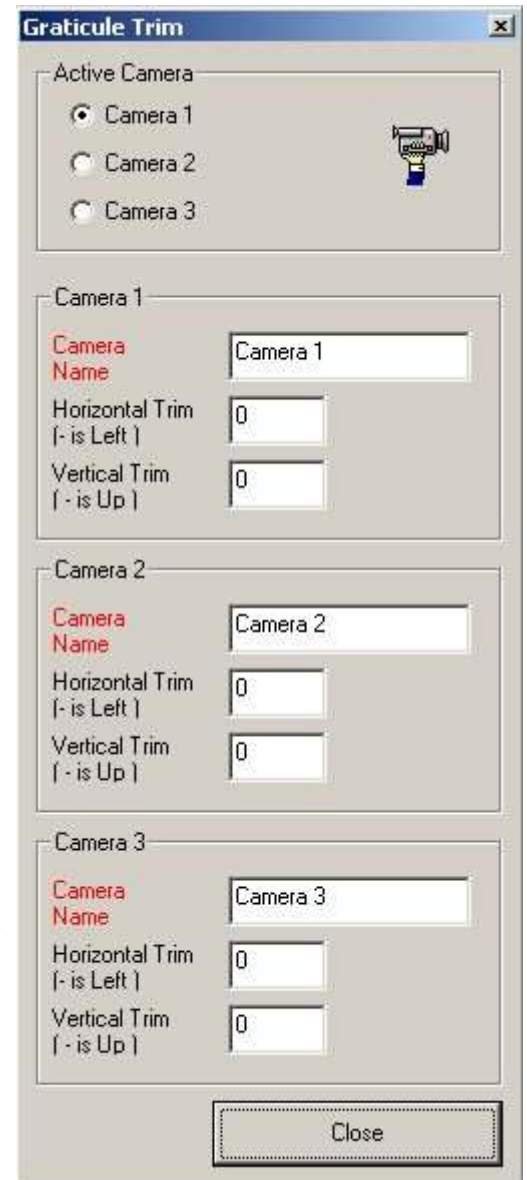
Obviously this requires that three devices have been installed and are operating on you PC

The Active Camera are has three “radio buttons” allowing dynamic switching between video sources.

Each Device can be individually named and custom Graticule positions defined and stored.

Note : a negative number in the Horizontal or Vertical Trims moves the Graticule Left or Up and conversely positive numbers Down or Right.

These Settings are saved when you close the Graticule Trim window and will be available when CamView is run again.



First Time Startup

When CamView is run for the first time - no custom user settings are available.

An onscreen warning will be displayed - this is normal, simply close CamView and reopen for normal operation.

If the video Window is all grey, your video source is not operating correctly - exit CamView and refer to the installation material supplied with your WebCam.

Tips for Making your WebCam fixture

Accuracy

Its somewhat important to get the optical centre of your WebCam in line with the mechanical centre of your drill, lathe or mills spindle if your going to use it to centre workpieces or locate edges. Errors can be corrected by rotating the camera 180 Degrees and "splitting the difference" but its not the ideal approach so a little accuracy initially really pays off.

Don' t assume the actual imaging chip is exactly inline with the centre of the lens, WebCams are cheap and are rarely accurately assembled. Allow for some movement for calibration in your jig.

Focus

You can usually screw the WebCams lens out quite a bit, allowing you to focus on very close objects.

Ours are set to around 10mm and at that distance you get quite a detailed view. As the WebCams resolution is limited it's a bit pixelated but still VERY useful.

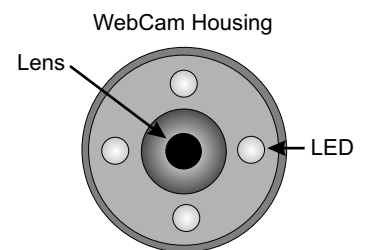
We needed to add a small washer between the lens and the body as when it was screwed out it ended up a bit loose - the washer allows it to be tightened at the focal length you want.

Lighting

The WebCams we have tried have auto exposure control making them quite easy to use, however sometimes extra light is a bonus. Some WebCams have inbuilt LED's but if not you can always add your own or use an external worklight.

Don't get too carried away with the LED's at a distance of 10mm you don't need a floodlight ! Its also better to have a number of LED's around the lens instead of a single one as this minimises shadows.

You can power the LED's from the USB wiring as long as you don't exceed the USB current limit for your port.



SAFETY WARNINGS - VERY IMPORTANT

In normal use the WebCam may be mounted in a machine spindle that can rotate. If the spindle is started with the WebCam still mounted - bad things will occur.

The WebCam lead could "flail" around resulting in personal injury.

The WebCam / Fixture may fly apart with a risk of personal injury.

The WebCam lead will become wrapped around the spindle resulting in damage to the camera and / or the PC.

We recommend that the Emergency Stop on your machine is activated during the use of the Camera or the power is positively isolated from the motor.

Hope CamView is as much use to you as its been to us - enjoy !

Ross McLean

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