

SatScan™ Collections

by smartdrive

A revolutionary new technology to capture large area objects at amazing digital resolution



Ideal for:

- ✓ *Natural History Collections*
- ✓ *Entomological Archives*
- ✓ *Botanical Archives*
- ✓ *Palaeontology*
- ✓ *Archaeology*
- ✓ *Earth Sciences*
- ✓ *Zoology*
- ✓ *Museums*
- ✓ *Private collectors*
- ✓ *Auction houses*
- ✓ *Manuscript Scanning*

Preserve your collections by scanning them at the highest possible resolution

Reduce future specimen handling and disturbance

Make your collections available digitally

Freeze the condition of your collection in time

Uniform scale throughout the whole image allows accurate measurements to be made over the whole image

A unique combination of automation equipment with state of the art software to provide automated capture and assembly of multiple fields of view to generate extremely high resolution images with huge a depth of field. Multiple fields are achieved by moving a head carrying cameras across a subject and taking digital images at precisely monitored positions. This information is passed over to the bespoke SatScan software, which proceeds to automatically stitch adjacent fields to produce a very high resolution output. The intelligent stitching algorithm is able to stitch adjacent fields accurately, even with very little visible data present within the images to produce an incredibly high resolution image over the whole sample area.



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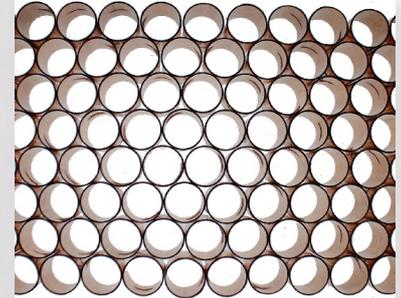
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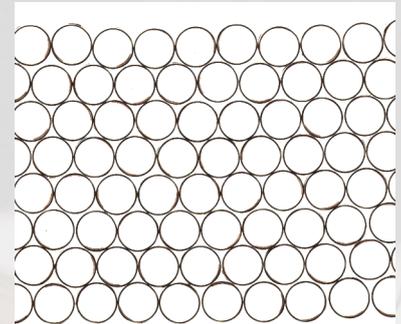
Ultra - High Resolution - Low Distortion

The unique blend of technologies utilised in SatScan Collections allows large collections to be imaged at resolutions far higher than any current standard digital camera is capable of achieving and without the many forms of associated artifacts and lens distortions that would otherwise be present. The images of the copper tubes to the right highlight this effect, the image taken with a conventional digital camera shows clear rings in the centre, but increasingly shows the tube walls towards the edges along with lens induced scale distortion; in the image produced by SatScan all the tubes are shown perpendicular with uniform scaling and no lens distortion. Another example is shown below; a sheet of 5x5mm squared paper has been imaged using a high quality 10Mp digital camera in macro mode and using SatScan. Barrel distortion is clearly visible in the conventional digital camera shot, but is not present in the SatScan version.

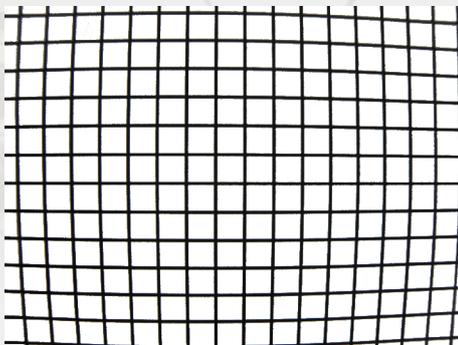
Parallax Issues



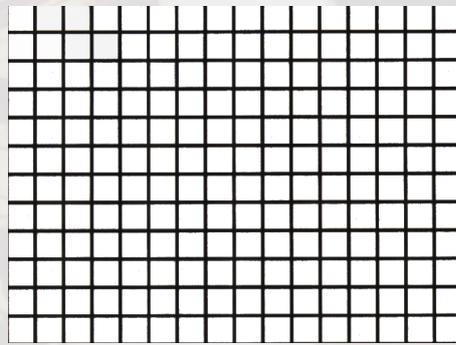
Tubes digital camera image



Tubes imaged using SatScan



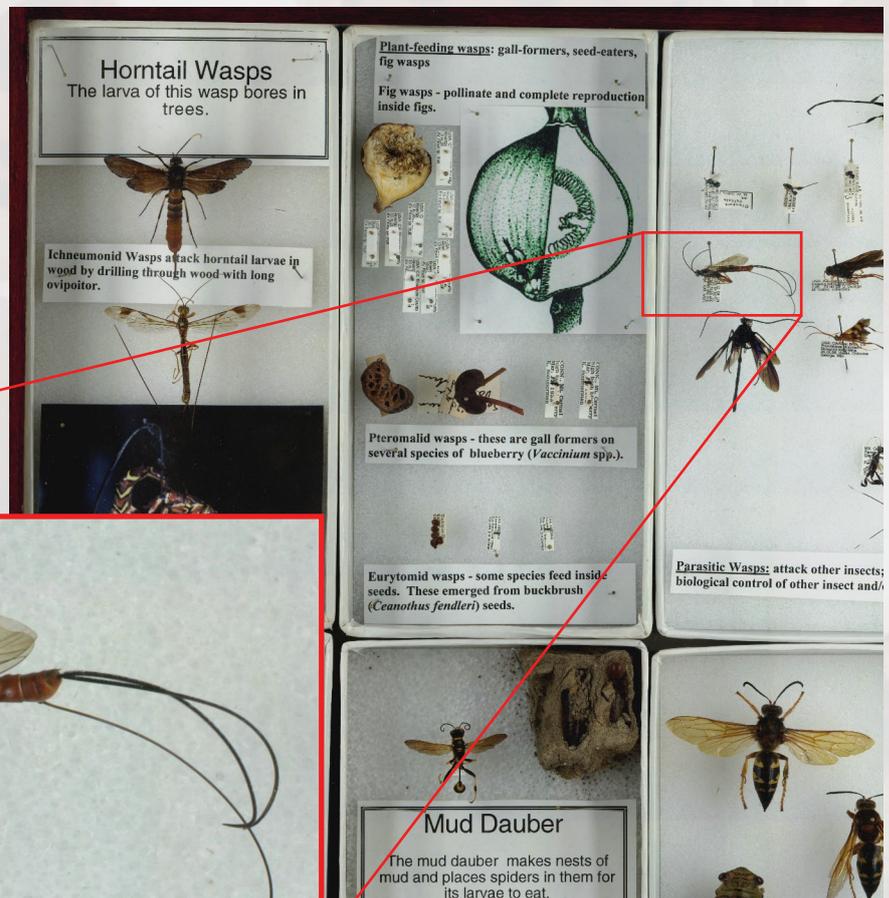
Squared Paper digital camera image



Squared Paper SatScan image

Whilst a certain amount of software correction can improve the effects of distortion and artifacts, it cannot fix the missing data; capturing the image correctly will always produce a more accurate result.

The example below is zoomed in from the larger image and clearly shows details, including the text on the specimen card, that would be missing in a conventional digital camera image due to lack of resolution. Because each image is taken from directly above we are also able to ensure that the specimens are not obscured by box sides and other specimens, which would be the case with conventional photography due to parallax effects.

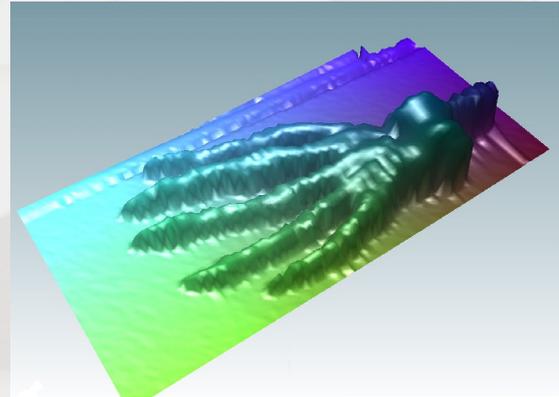




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Flexibility

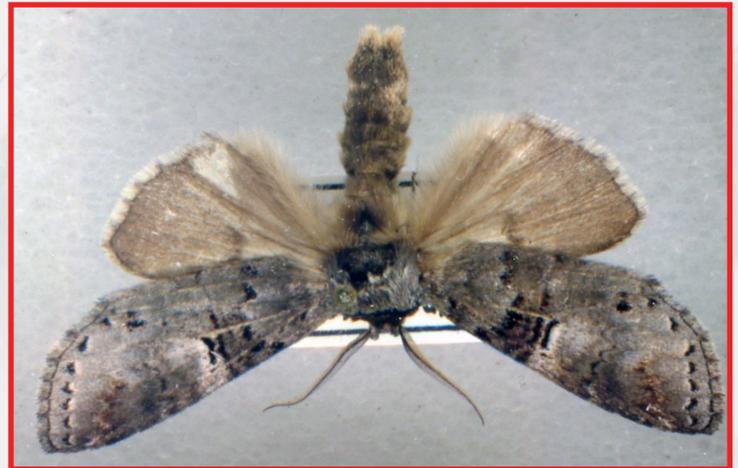
The flexible nature of the system hardware and software allows for many different customisations including automated load/unload of specimen trays, multi-spectral imaging (including IR & UV Fluorescence), laser profile measurement, scan area and illumination.



Highly 3 dimensional 37,000 year old bear paw from Romania scanned at relatively low magnification creating an image 7532 x 10515 pixels, also laser profiled at 750um resolution.



Single moth from a 500x500mm display case imaged in full at 1000 DPI

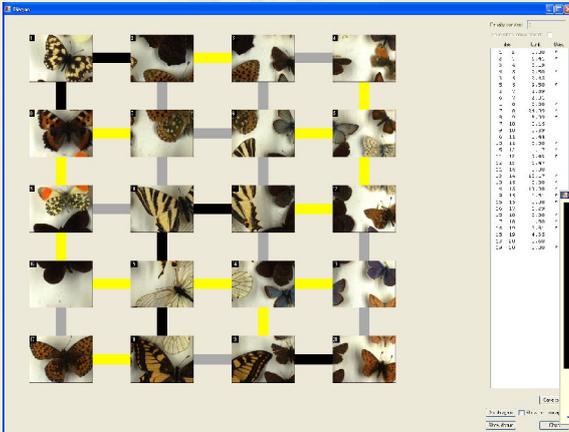


1mm Fossil zoomed in from imaged 500x500mm samples draw



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Software

SatScan is operated by an intuitive Windows® PC control package. Features are provided for preview scanning, camera control, illumination control, calibration and easy setting of regions of interest. Also included is the facility to analyse and manipulate the individual image tiles. Full software training is provided as part of the installation and commissioning of each SatScan system.



Customisation

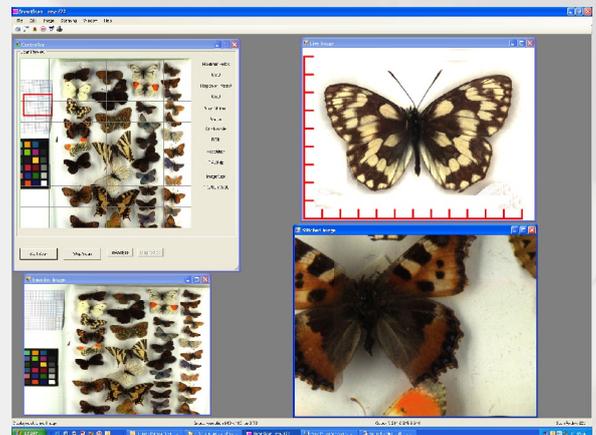
SatScan Collections has been designed from the outset for maximum flexibility. SatScan can be scaled to suit the individual customer requirements, along with a selection of lighting, cameras and lenses.

Standard Specifications:

Scan Area:	Up to 6mx6m
Image Size:	Up to 30Kx30K pixels (900 MegaPixels)
Working Distance:	600mm typically
Tile Size:	Zoom dependant
Spectra:	Visible Light
Visible Light Camera:	Basler A631fc
Illumination:	High Frequency Fluorescent (3400, 4300 or 6300K)
Measuring Laser:	Optional - 50um resolution
Scanning Time:	Dependant on zoom & target size

Minimum PC Requirements:

Operating System:	Windows XP Pro, Windows Vista
Processor:	Pentium® Core2Duo, 2GHz
RAM:	3GB
Hard disk space:	10GB free space
Data Ports	1x IEEE1394 Firewire port 1x USB or RS232



Simple Windows PC based user interface



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Web: www.collectionsimaging.com



From our Suffolk headquarters GT Vision supply Smartdrive automation and imaging solutions for science and industry. For over 25 years SD's pioneering research and development team has been at the leading edge of hardware and software design, this wealth of technical expertise is made available to you through user friendly award winning products. Whether you require standard solutions or bespoke implementations, working with us you'll be making all the right moves for stunning results.