



Tested: Synology VS360HD

Field Notes: Implementing Biometrics

Softly Softly: Drop the 'IP' tag

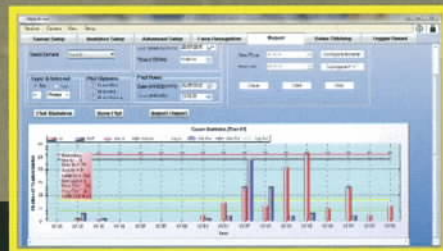
Under the Skin: Latest Developments



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Troublesome Twilight?

Benchmark looks at low light performance

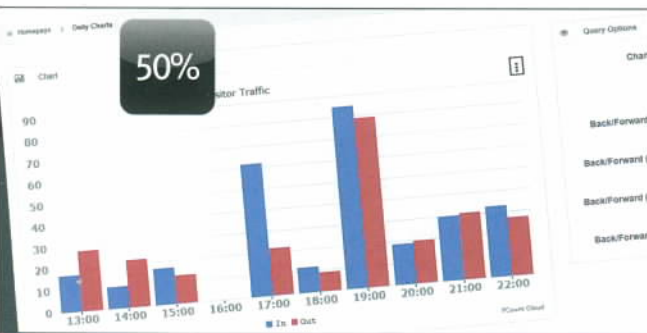


Innovation: Benchmark Awards Winners

Tested: People Counting (Part 2)

Group Test: People Counting Apps – Part 2

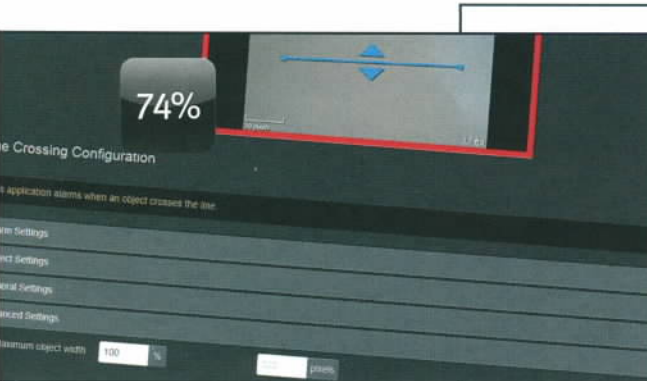
As cameras are designed with increasing levels of processing power, so the use of onboard applications is expected to turn from a trickle to a deluge. The approach makes sense, allowing installers and integrators to 'customise' camera functionality dependent upon the needs of any given site. Business Intelligence applications can elevate a security system into a solution that assists with site management, thus adding value. Here Benchmark looks at the options for people counting.



3Y Teknoloji: PCount

PCount is a dedicated people counting application from 3Y Teknoloji. The application can deliver bi-directional counting. PCount is only available for the Axis Camera Application Platform, and cameras are mounted above the counting area. Mounting height is 2.5-10 metres, and minimum illumination is 80 lux.

The App is basic, which is good because there is no user manual. We did contact the 3Y Teknoloji support team to see if we could obtain one, but never received any response. The App does not handle data; this is done via the 3Y Teknoloji cloud server. For us, the server was not contactable on one occasion, which meant no count data at all.

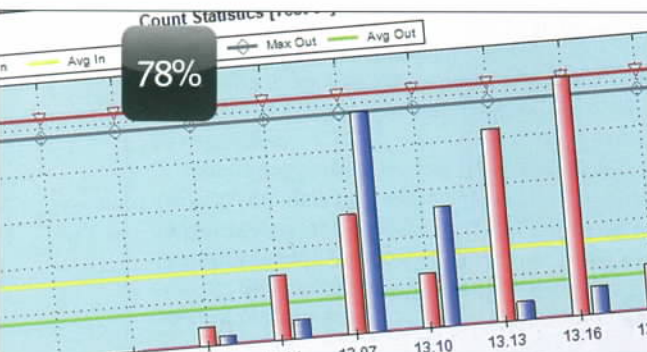


IntuVision: Line Crossing

IntuVision does not offer a dedicated option for counting. In order to achieve people counting you need to deploy a line crossing App on the edge device, and then deploy a server-based version of IntuVision VA, which implements the counting.

The App is compatible with the Axis Camera Application Platform, as well as Cisco and Samsung Techwin cameras. We did experience a number of issues with both the App and the IntuVision VA program, and IntuVision is currently undergoing something of a transition with regard to its software offerings.

Most of the management of the solution resides in the PC program, with the App simply sending events via the Axis Action Rule feature.



AllGoSystems: AllGoVision

AllGoVision is a video analytics package which delivers people counting functionality. It also delivers a wider range of video analytics options and as such does require the use of two Apps simultaneously, along with server-based software packages.

The Apps are compatible with the Axis Camera Application Platform and ISD cameras. To run the Apps, the user will also require a number of other software programs – a database and database configuration tool, a management GUI and an alarm handling package – to be deployed on a server. Reporting options do allow a good degree of customisation including minute-by-minute analysis if required.

People counting offers a wide range of benefits. Whilst much emphasis is placed upon the retail sector, applications are varied and include tracking footfall, assessing efficiency in businesses and managing occupancy in line with licensing and/or site policies. With regard to issues such as licensing, compliance is a significant issue, and the implementation of people counting illustrates that this is being taken seriously.

Accuracy figures vary per system and are generally indicative of a worst-case scenario. With intelligent and careful installation, accuracy levels can be increased. For example, accuracy will be boosted if separate portals are used for access and egress, and if counting takes place at pinch-points. If an attempt is made to count in a wide area where people are both entering and leaving – and inevitably meeting and loitering to chat – then accuracy figures will fall.

Many will argue that a camera delivering people counting can ‘double up’ for surveillance. For effective counting, cameras are best mounted in accordance with the instructions from the supplier of the application. This should eradicate perspective issues, and enable an accurate definition of targets. As such, it is best to avoid using cameras for dual purposes.

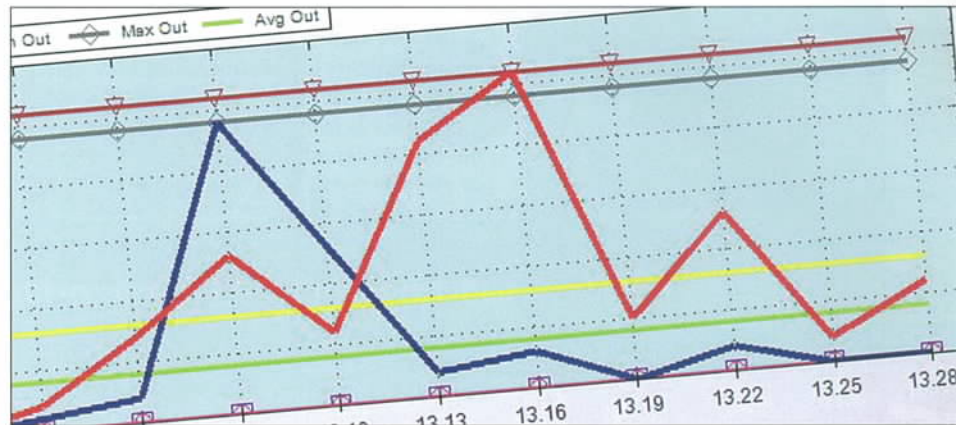
Many suppliers of people counting systems make marketing statements about how their software will work in a range of lighting levels. Whilst there will be some truth in this, best practice is to ensure that the location has sufficient lighting for the camera to process a clean, noise-free image with low degradation.

The true power of people counting comes when the user needs to view the results. The ability to report the data that each device has captured, but to also include relevant data from other devices, elevates some of the systems to a point where they deliver true benefits.

This Benchmark test looks at Applications which can be added to cameras, in a similar way to loading apps on a smartphone. The test will look at installation (issues which are not associated with the specific App will be reported but will not affect its final rating), configuration, performance and reporting.

3Y Teknoloji: PCount

PCount is a dedicated people counting application from Turkish company 3Y Teknoloji. It is compatible with the Axis Camera Application Platform, and is supplied as a single .eap file. There are separate versions for ARTPEC 3, ARTPEC 4 and AMBARELLA chipsets. The file is supplied with



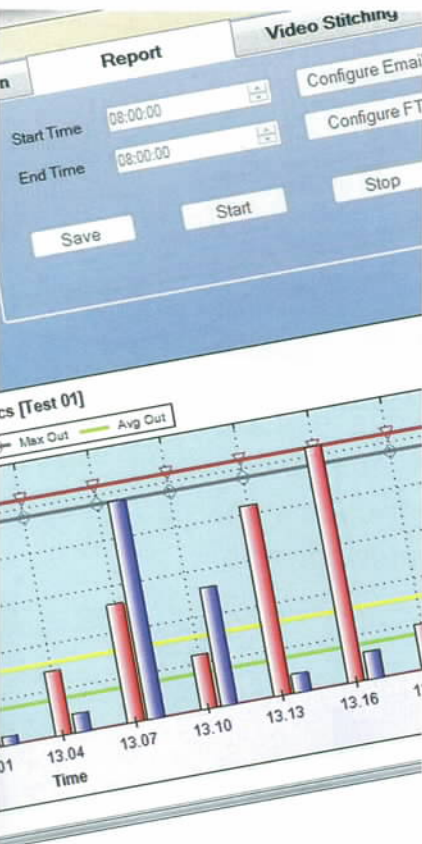
HTTP API coding and a list of supported cameras. There is no manual or other documentation. The company does have a web site dedicated to the PCount app which mentions a PCount user manual, but we couldn't find a download. An email to the company's support department went unanswered.

Installing the App is straightforward, but once loaded any attempt to access the the menus is blocked until the license is activated. A menu screen prompts for the code to be entered, and once it is the App contacts 3Y Teknoloji to verify the licence.

Whilst such an approach isn't uncommon, the problem is that PCount requires the camera itself to be configured to connect with the 3Y server as all data is handled via the company's cloud servers. If a system does not have internet connectivity – a common occurrence in security – or if a DNS service is not enabled, this can be an issue. For many sites, this will be a negative.

On the subject of negatives, the Axis test camera was set up using Internet Explorer, which is pretty much accepted as the de facto standard for IP cameras. However, when configuring PCount, the live view – which is required to draw the counting lines – does not display in IE. Instead, a different browser is required. We used FireFox and the live view was available. As in the first part of the test with the Facit Data App, it raises questions as to why 3Y Teknoloji have decided to not recognise the security industry approach.

The actual configuration – browser issues aside – is relatively simple. The counting line is created by clicking nodes, and can be configured as vertical or horizontal. It can use segments to allow a non-linear approach. Once the counting line is created, the In and Out directions are set, and can be toggled. Finally a counting area is defined, as is a human size. The last set-up element is to create a working hours schedule.



The Live view of the configuration pages can be used to check operation. After that, data and reports are viewed via a separate page.

Accuracy is claimed to be 96 per cent, but in our test we found that 85 per cent was about as good as it got. Data typically read over the genuine traffic levels.

However, on one occasion accuracy was 0%! The App handles counting data via the 3Y cloud servers, and the server could not be contacted so the system created no count data. It did not store the data at the edge, so when the connection resumed all we had was a gap in the information.

IntuVision: Line Crossing

IntuVision doesn't offer a dedicated people counting App. However, it does promote the option as one of its system benefits. Counting is achieved by using a line crossing App (the company calls its applications Spys), with events passed, via the Axis Action Rule feature, to the IntuVision VA software package which counts the events. If you want an edge-only option, this won't be for you.

We were advised by IntuVision to run the App on an ARTPEC-5 camera. However, the .eap files were for ARTPEC-3, ARTPEC-4 or AMBARELLA devices. A quick query resulted in an assurance that the ARTPEC-4 App would run on a series 5 device. All of the other Axis-based Apps tested have done just that.

Installation of the App is straightforward, and a trial license can be obtained from Axis. The configuration instructions are brief, which does give the impression of simplicity. However, if you need to trouble-shoot the App, you'll realise that several stages of the install

and set-up are missed out. In all fairness, the App is fairly intuitive (when it works), so the instructions aren't fully necessary. Of course, if it doesn't work...

Going in to the App settings page prompted the camera to generate an authentication window. We entered the log-in details, and were rewarded by another authentication window. This continued until we force-closed the browser. Both IE and Firefox gave the same results. The conclusion is that the App isn't compatible with ARTPEC-5 devices.

On an ARTPEC-4 device it worked as expected. The

settings page shows a live image, which the crossing line is added to. It can be moved by drag-and-drop. There are four settings menus: alarm, object, general and advanced. These are relatively straightforward.

The alarm menu allows specification of distance moved in pixels, and time in seconds or milliseconds. Object settings include minimum size and detection sensitivity. The menu for general configurations includes camera position (top or side), resolution and lighting sensitivity. Finally, the advanced setting permits a maximum percentage to be set; this can prevent events being signalled by global scene change. This is also where the metadata stream type and port is set.

Once licenced and configured, the next stage is to install IntuVision VA. The software's licence is linked to the MAC address of a device. When supplying information prior to receiving the App, we were asked for a MAC address, but because it was an edge App we gave the camera MAC address. Of course, this meant the licence was invalid!

We contacted IntuVision and were told that they were transitioning to a new version of VA with a different license model. This is not locked to MAC address but uses a username and PIN. However, once installed, it could not be reinstalled nor moved to another PC.

Linking to a MAC address can be an issue with licenses. It precludes the ability for an installer or integrator to gain familiarity prior to an installation, and prevents the user from having flexibility with regard to which infrastructure is used.

The main issue with dealing with software in transition is with regard to manuals and documentation. As mentioned, the IntuVision instructions do have gaps, and the transition means that if you hit a snag you must rely on a direct approach to the company in the US.

With the App and VA program installed, the next stage is to create an input trigger for the site, and link it to the relevant camera. With this done, an event is created for the Axis camera, and this is then set to notify the VA program via the Action Rule. The VA software is then used to create reports which show the counts of line cross events.

One thing that will be obvious is that the various configurations don't feel like those associated with people counting, and that's because they're not. Effectively you're generating a cumulative count of line cross violations.

We did notice one slight anomaly, in that some other non-count camera events showed up via the VA software. Although the system is, once configured, pretty simple, it always

BASIC FUNCTIONALITY

PCOUNT - 3Y TEKNOLOJI	50%
INTUVISION - LINE CROSSING	75%
ALLGOSYSTEMS - ALLGOVISION	80%

EASE OF CONFIGURATION

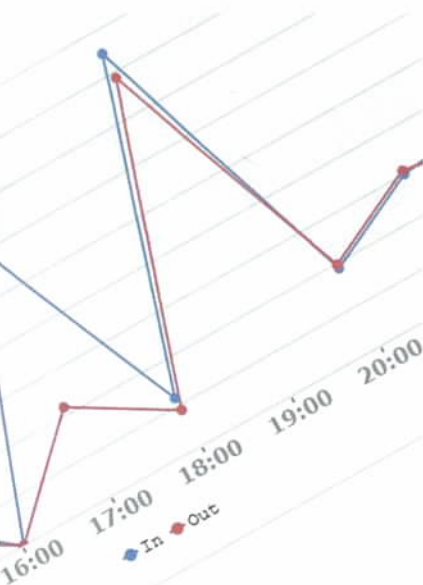
PCOUNT - 3Y TEKNOLOJI	60%
INTUVISION - LINE CROSSING	70%
ALLGOSYSTEMS - ALLGOVISION	65%

ACCURACY

PCOUNT - 3Y TEKNOLOJI	50%
INTUVISION - LINE CROSSING	80%
ALLGOSYSTEMS - ALLGOVISION	82%

REPORTING

PCOUNT - 3Y TEKNOLOJI	40%
INTUVISION - LINE CROSSING	70%
ALLGOSYSTEMS - ALLGOVISION	84%



had a feeling that the set-up was all a bit 'Heath Robinson'.

Accuracy was decent, although whilst most Apps in the test overcounted, this one undercounted. When considered alongside the pure people counting Apps, the IntuVision offering seemed a clumsy and less flexible approach.

AllGoSystems: AllGoVision

AllGoVision is arguably the furthest removed option from the typical 'App experience' in the test. While manufacturers like to reference the similarity with platform devices and smartphones to highlight simplicity, this option requires the .NET framework, followed by installation of MySQL and a dedicated database updater, a proprietary analytics engine and alarm management software package and an open source (and, as highlighted in previous tests, unreliable) video codec before you even get started.

Whilst most of the various elements are provided by AllGoSystems, the VLC codec isn't. There are a host of different builds available, as it's open source, and there's a fair few dirty ones on-line, so beware!

Each of the previously mentioned elements needs to be individually installed. Whilst many software packages which need numerous elements loaded are supplied with one single installer, AllGoSystems has opted not to do this. We think that delivering a single installation package could only improve the experience.

Once everything is installed, the next stage is to link the server software and the camera. The instructions cover this, and once it is completed the details are used to create a GUID file. This must then be sent to AllGoSystems who will provide a license file.

There are two minor issues here. The first is that GUID captures a variety of details about the set-up. In short, you need to ensure that you have the system and cameras pretty much installed before licensing.

The instructions indicate that the software will display the camera stream so you can verify details are correct. However, you will see a message indicating that a connection cannot be made. This led to time troubleshooting the link to ensure that the GUID was correct when sent. However, the stream cannot be viewed without a licence, so it was time wasted!

The second issue is that the process of handling the GUID and issuing a licence isn't automated. As AllGoSystems is based in India, this process took 10 hours in our case. In some cases it could result in significant

downtime during an installation due to the lack of a simpler licensing system.

AllGoViion uses two different .eap files. One is the analytics engine and the other is a server App. The latter requires a configuration file, which is created via the AllGoVision software. You'll need the instructions for this; ours were out of date but we got through the process.

The analytics configuration file is created via the server software, and includes the line and directional information, minimum and maximum sizes, alarm handling and other details. This is then uploaded to the camera and the analytics service is started.

Before looking at performance, it must be said that the process with AllGoVision is not quick and it's not intuitive. Whilst there is nothing that will challenge a professional installer or integrator, the software isn't user-friendly. Many of the other Apps would have been up and running in less time, and the installation would have been smoother.

Accuracy was around 85 per cent during our test, with a tendency to slightly over-count. The system does allow the creation of maximum object size, which should prevent global scene changes from triggering a count. However, changes in ambient illumination did cause false readings.

Reports can be viewed as a log, or presented in graphical format. This allows selected times to be viewed, and statistical information can also be added to the reports. These can be saved or exported. One benefit is that time windows can be broken down to a minute-by-minute report, allowing close examination of actual footfall.

Verdict

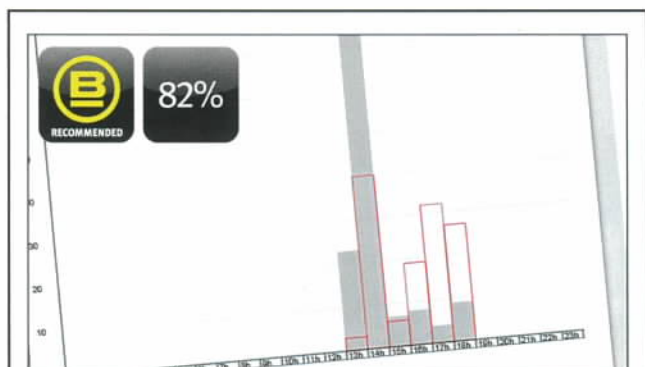
PCount is a simple people counting plug-in, but 3Y Teknoloji has chucked in a couple of elements that ruin true simplicity. The licensing model is clumsy, the lack of support for IE is an issue, and non-existent support doesn't help. However, the unreliable cloud service makes it impossible to recommend.

IntuVision's Line Crossing App is a workaround for people counting, and it feels like one. It only makes sense if you are using multiple rules. If you want to use it, our advice is to wait until the transition is complete and documentation is accurate.

AllGoVision does what it sets out to do, but the installation and configuration is clumsy. If the company invested resources in tidying it up, it would have wider appeal. As it stands it's hard to recommend it, considering some of the other options available to installers and integrators (see page 56).

Alternatives...

Benchmark rounds up some other people counting applications; these were previously tested in the August 2015 issue.



FoxStream: FoxCounter

FoxCounter is a dedicated people counting application from FoxStream Intelligence Video. The application can be used for bi-directional counting, and can also measure occupancy of an area as well as tracking traffic trends.

FoxCounter is available for the Samsung Techwin Open Platform and the Axis Camera Application Platform.

FoxStream does not recommend using the camera running the App for other surveillance purposes, and mounting needs to be above the counting area, at a height of between 2.5 and 6 metres.

Recorded counts can be saved and exported as a .csv file, or displayed as a graph. The App delivers a degree of customisation with regard to how the count data is viewed.

Visual Tools: AX-PeCo



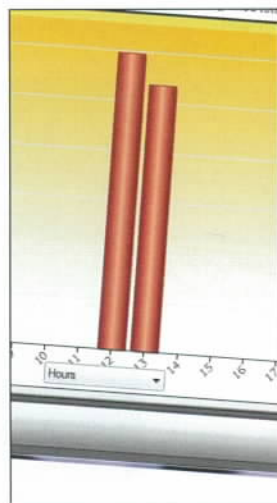
AX-PeCo is a dedicated people counting

application from Visual Tools. The application can deliver bi-directional counting, and can also be used to measure occupancy of an area or location.

AX-PeCo is only available for the Axis Camera Application Platform, with different plug-ins for the various chipsets. Currently Apps are available for ARTPEC-4, ARTPEC-3 and AMBARELLA chipsets. There is not currently an App for the ARTPEC-5 chipset, although we ran the ARTPEC-4 version on a version 5 camera without any issues.

AX-PeCo makes use of cameras mounted above the counting point, so it will not be possible to use the camera running the App for other surveillance purposes. The mounting height can be varied, and a simple configuration tool allows setting of the person size criteria using a simple slider.

Data captured by the App is displayed in simple tabular format. However, this can also be viewed in different ways using the company's PeCo-Graph tool, which is free-of-charge.



Facit Data Systems: People Counter

78%

People Counter is a dedicated people counting application from Facit Data Systems. The application counts traffic and footfall by the use of regions of interest, and applies directional discriminations to counting by detecting persons moving from one detection region to another in the same ROI.

People Counter is available as an App for the Samsung Techwin WiseNet III Open Platform or as a boxed server-based solution. The Benchmark test made use of the edge application.

The application is supplied as a single .cap file along with a PDF instruction manual, much of which is dedicated to setting up the WiseNet III device.

Facit Data Systems uses a more traditional camera placement, allowing for a perspective view of the counting area. This enables the camera running the People Counter App to be utilised for some limited surveillance if appropriate. The mounting height is 3-4 metres and the camera must be 2.5-3.5 metres from the counting area.

AI-Tech: AI-People

79%

AI-People is a dedicated people counting application from Italian company AI-Tech. The application can deliver bi-directional counting, and can also be used to measure occupancy. It does this via sensing of motion through 'virtual coils'.

AI-People is available for the Samsung Techwin Open Platform, the Axis Camera Application Platform and Hikvision's App-ready cameras, as well as Linux servers.

The application is supplied made up of three software elements. AI-People includes the on-device application (in the case of the Samsung App a .cap file). There is also the AI-Config program which is used for configuration (this can be used with all of the applications available from AI-Tech). Finally, AI-Dash delivers the interface for counting and data reporting.

AI-People makes use of cameras mounted above the counting point. The mounting height is not specified, but should be sufficient to allow correct counting at the expected traffic speeds.