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[Case Study – Collision and criminal investigation]

## Law enforcement - Derbyshire Police

**Author:** Paul Moorcroft, Forensic collision investigator

**Organisations involved:** Derbyshire Police

**Products used:** NCTech iSTAR & ColourCloud

*"This, for me, is ground-breaking and something we could never have imagined would make our crime or accident scene reporting so detailed"*

*[Paul Moorcroft. Forensic investigator collision]*



Derbyshire Police operates a Collision Investigation Unit with specialist scene investigators and vehicle examiners who attend the aftermath of serious and fatal road traffic accidents. The unit comprises six forensic collision investigators, six detective

constable investigators, three sergeants and two vehicle examiners. This unit works on a 24 hours, 7 day basis, split into a rotating three shift basis with five staff members working within unit at any given time.

## Profile

Paul Moorcroft is one of the forensic collision investigator team and the officer who makes regular use of iSTAR®, a fully automatic instant 360 degree panoramic camera which greatly enhances the work carried out by Collision Investigation team to effect the comprehensive management of a serious and fatal road traffic incident scene within constabulary area.

## Analysing major incident investigations

In 2013, road casualty figures in Derbyshire accounted for 24 people killed, 278 people badly hurt and just over 2000 people slightly hurt., The Collision Investigation Unit has made extensive use of its iSTAR 360 degree panoramic camera effect to capture the scenes of major incidents and help the forensic teams analyse and report on every situation where a detailed examination of the facts leading up to and following a serious or fatal accident can be scrutinised.

The Collision Investigation Unit took delivery of iSTAR which the Derbyshire Police Department for Transport purchased along with a Leica C10 scanner, and these almost immediately transformed the Collision Investigation Unit's ability to capture true 360 degree images of an accident scene.

Paul Moorcroft takes up the story:

"iSTAR has completely transformed our workload. Until we started using it, we spent time stitching together a significant number of photos from a road traffic accident scene. We still use traditional DSLR cameras, but the iSTAR panoramic images give us a whole new perspective on a scene situation."

"If we had an iSTAR sooner than we did, there were instances where we would have been able to detail collisions involving pedestrians in terms of where blind spot areas on vehicles had a role to play in the accident. This is not to say it would have done something we couldn't already do, but it would have greatly assisted, certainly in terms of the viewpoints of pedestrians or witnesses."

"We are now able to locate the iSTAR where people were, or said they were, and give a view of what they would be able to see."

"iSTAR is much more effective because you get a full perspective of where the vehicle would have been and that, to us, is worth its weight in gold in a lot of situations."

## From road traffic accidents to crime scene investigations

In addition to capturing images at serious road traffic incidents, Derbyshire Police forensic collision investigators now take iSTAR into crime scene investigations.

Derbyshire Police's senior investigation officers have seen the results produced by their colleagues in the Collision Investigation Unit using iSTAR and have now tasked the forensic collision investigator team to capture images of murder and serious assault criminal investigation scenes.

Paul Moorcroft again:

"For both serious criminal investigation and road traffic situations, we are continually thinking on how best to capture these scenes more effectively. We know we have panoramic capture available and now with the added enhancement of iSTAR's ColourCloud point cloud colourisation software technology, we are able to place the iSTAR camera under vehicles to capture a scene whereby a collision may have involved a pedestrian or cyclist being trapped under a vehicle. iSTAR allows us to fully capture a panoramic image of the under-body of a vehicle."

"This, for me, is ground-breaking and something we could never have imagined would make our crime or accident scene reporting so detailed. My colleagues and I are just amazed by that and it has opened up a whole new thought process for us as well."

"When the unit receive a call to attend a road traffic scene, they are unhampered by carrying a large scanner and other weighty equipment to do their imaging work. At the incident, iSTAR is mounted onto a normal camera or survey tripod. iSTAR is lightweight and after a couple of minutes of the booting up process, and with a simple press of button, a full 360 degree is captured in exceptional detail."

Paul and his team can simply walk the length of an accident scene and within ten minutes will have the entire scene captured – all from an easy to handle, robust camera which uses automatic exposure. Its speed of operation makes the team's job much easier, delivering impressive results and a completely realistic simulation of the incident scene.

He comments:

"Being able to capture images in low light or at night time is, again, something which we never thought possible and the results are pretty amazing. Before iSTAR we would use a standard Digital SLR camera and would be effectively 'painting the scene' by using a flash with long exposure, but we're simply able to change the settings on iSTAR and capture the shots we need. The end result provides us with an image full of colour and captures every detail we need from within the scene we are faced with. Of all iSTAR's attributes, this for me is the most impressive."

## Firearms training officers impressed with iSTAR

As already stated, Derbyshire Police has used iSTAR in many road accident and crime scene incidents, and more recently, it was demonstrated to senior officers involved in a firearms training exercise. This enabled Paul Moorcroft to show the extent of iSTAR's capability when he captured several panoramic images of the firearms training, stitching them together using a virtual tour software called Pano2VR and presented the images to senior force officers.

As he said, they are the decision makers – the officers called upon to make effective management decisions at the scenes of serious incidents and they have all been very impressed with the ability of iSTAR to capture every small detail.

NCTech, as we have seen with the recent integration of the new ColourCloud point cloud colourisation software, is continually looking at ways of pushing the technological boundaries of its iSTAR camera.

Research and development sit at the heart of its operation and the company has listened to its customers about adopting a number of product enhancements. It has recently specified an LED flashing light which accompanies the internal audible beep, which alert users when the camera is in the process of capturing images.

This enhancement will delight Paul who had expressed a wish to see a flashing LED when iSTAR is taking images. He adds: "iSTAR has only had the bleep when our team worked at a roadside, which means you cannot hear this so well when you have so much background traffic noise to contend with."

This meant that there was often an element of guesswork as to when the photo capturing was finished. I find it reassuring that, with this new LED visual element, NCTech listens to its customers and is happy to take on board suggestions to make iSTAR unrivalled in helping transform the whole approach to 'on the ground' incident management for Derbyshire Police."

For further information about iSTAR or NCTech software visit [www.nctechimaging.com](http://www.nctechimaging.com) or contact us [sales@nctechimaging.com](mailto:sales@nctechimaging.com)