

Size matters

Advances in camera technologies are testing the creativity of broadcasters and producers alike in the ongoing search for the most extreme and innovative sports programming. **GARY ROWDEN** (Hitachi) explains

The reduction in camera size allied to significantly increased performance is now the defining factor in bringing the armchair athlete closer to the action.

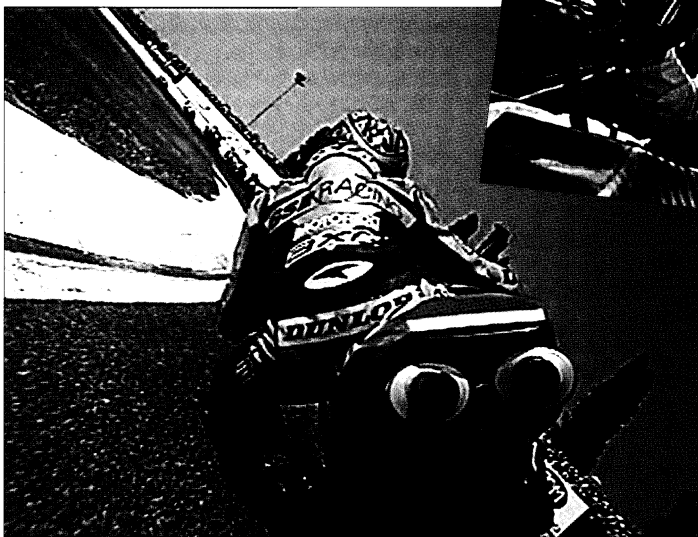
The Holy Grail is to provide the viewer the most vicarious experience possible, however, the discerning viewer is coming to expect these types of mini-camera shots as part of a normal sports presentation. Understandably broadcasters are feeling the pressure of continuously having to re-invent their programmes and look longingly at technology to provide new solutions.

It is certainly no exaggeration to say that there is a direct correlation between this reduction in size and the number of miniature cameras currently being used in sports television. There are more cameras per event than ever before creating opportunities for increased use of video in alternative replay angles and slow motion. A camera measuring only 22mm x 22mm x 86mm and weighing in at only 80g can provide previously unseen shots and give that unique extra dimension. Producers have been quick to see the benefits of offering these views in their traditional packages as well as providing a platform to revolutionise previously less media friendly events.

Pushing the boundaries

Applications are becoming more and more technology reactive. For example America's National Football League has already experimented with a helmet mounted player-cam, along with Major League Baseball employing miniature cameras in the bases. Closer to home, BBC Outside Broadcasts Special Facilities has established a reputation for being at the cutting edge of miniature camera implementation. In addition to its now legendary "stump camera", the OB department received particular praise for its "slalom gate" camera used at the World Skiing Championships in St. Anton, Austria. The producer wanted something that had never been achieved before, and the BBC chose the Hitachi KP-D8 primarily because the camera's unique profile was ideal for the project's size constraints.

UK microwave experts Total World Sports are currently developing a ski



Any time, any place, any angle.

jump unit based around the KP-D8 colour camera. The device will strap to the jumper's leg and transmit live pictures via a short-range microwave device. Anthony Woolhouse, Total World Sports managing director says, "The size and performance of the camera gave us an opportunity to give the viewers a much better sense of the speed and dedication required for this event."

Some events lend themselves more readily to miniature camera use, rallying for example, which is enjoying somewhat of a renaissance in the public eye. The World Rally Championships employs approximately 35 on board cameras in addition to 50 track bound cameras including the "puddle-cam", which is buried in the road near jumps and produces stunning footage. Specialist camera provider Eastern Video, has many years experience on the rally circuit and currently uses a combination of single and three CCD cameras. Eastern Video's managing director Jonathan Thursby says, "The long-term aim is to increase the number and types of cameras we can run in each car, but this is very much dependent on size and weight issues."

Broadcasters who are not fortunate enough to carry high profile sports content have to think carefully about how to enhance their productions with clever and fresh ideas. Extreme and minority sports channels have become synonymous with inventive coverage, and in "A camera measuring only 22mm x 22mm x 86mm and weighing in at only 80g can provide previously unseen shots and give that unique extra dimension."

some respects this mirrors the intense action portrayed on the screen.

Miniaturisation does not only benefit single chip cameras; the more advanced three chip products that provide broadcast quality 800TVL pictures are getting in on the act as well. The majority of current three CCD technologies use a remote camera control unit (CCU), which controls set-up and functions, linked to the head via a cable. At approximately 710g a CCU presents further weight and storage problems. The long awaited solution to this problem has finally arrived: the Hitachi HV-D30s 65mm x 65mm x 80mm compact profile without separate CCU gives the producers a revolutionary opportunity to upgrade picture quality and colour performance without space restrictions becoming a major issue. Fundamental developments like this allow the producers to really flex their creative muscle.

But it is not only on board footage that benefits from miniature camera use, producers and broadcasters are able to deliver specialist shots, particularly tracking views, with smaller sized units as opposed to regulation electronic news gathering (ENG) style cameras.

Camera control units

BBC Outside Broadcasts Special Facilities are working on an underwater turn camera to cover swimming at the Commonwealth Games in Manchester later this year. Paul McNeil, head of special facilities, welcomes the advent of the CCU less HV-D30 camera, "This is a big step forward for us. Previously, to achieve this type of shot, we had to use a larger camera and of course this meant a larger overall unit. Unit cost and manoeuvrability are important factors to be considered."

Bedfordshire-based Polecam has


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taken track-bound miniature camera usage to another level with its lightweight portable jib arm. The portability aspect allows the company to get into areas where safety concerns would have prohibited larger cranes from operating. It is no surprise that Polecam has decided to use high performance Hitachi three CCD cameras to ensure its unique access isn't degraded by poor quality results. Polecam's sales and marketing manager Sharon Moore explains, "Producers and directors are constantly looking to us to provide them with new and dynamic shots, and the secret of our success is simple mobility. We can provide shots that a single fixed camera wouldn't be capable of."

Size also has ramifications for the federations and governing bodies striving to propel their sports into the big leagues. Let us not forget that they are sports first and foremost, but these less intrusive cameras ease the way to achieving both the sporting and commercial objectives.

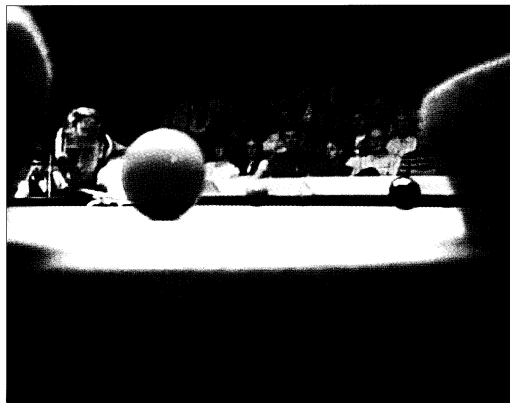
The development of digital signal processing is a quantum leap forward, both in single and three CCD cameras. Traditionally it had been acceptable for the on screen action to outweigh the picture quality, however, this is no longer the case, broadcasters expect radical footage coupled with increased quality. But reso-

lution is not the only factor affected by these developments, colour correction, or put more simply the ability to change primary and secondary colours independently of each other, allows the producer to achieve more realistic images. Full broadcast functions and set-ups are now available without the cost and transportability issues associated with higher priced ENG cameras. One of the most difficult shots to produce effectively is the point of view shot through the windscreen of a car. The problem of exposing two areas can be resolved by Hitachi's range of three chip cameras that use its automatic light control to define the area to be exposed in conjunction with a master black setting that allows for a more balanced picture.

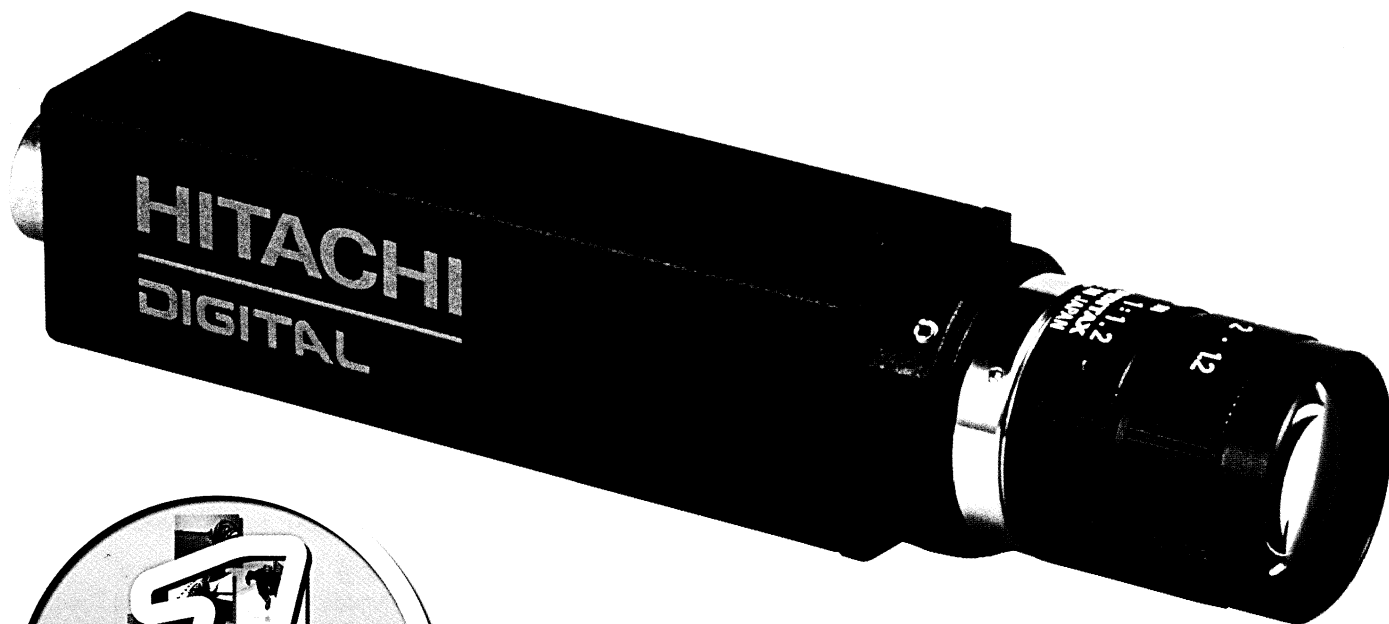
So what does the future hold for miniature cameras? Most certainly the growth of interactive television and web-casting provides untapped opportunities for increased numbers of cameras and more diverse angles. The success of Sky's player cam has tempted the viewer with more individually tailored programming, and now many other sports are looking to become part of the interactive revolution. Whatever future developments are around the corner, it is clear that the real winners will be the armchair sports fans. 



◆ The infamous stump cam in action.



◆ Pocketing the benefits of miniature cameras.



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