Sharp Creates Camera-Based 'Black Box' for Cars

Editor's Note: I was already dreading the upcoming "smart road" tech that will be helping us control our cars in the future, and now I have to worry about someone at the DMV armchair-quarterbacking my driving habits. First your drive camera footage will only be used for accident forensics, but I fear that eventually the police will just send you a bill for the list of transgressions your car reported to the authorities about your drive. Just look at Britain's love affair with the snoop camera.

Painstakingly detailed work to reconstruct the circumstances of traffic accidents will soon be a thing of the past, at least in Japan. Sharp has developed a black box for the domestic market that can record up to six hours of travel. The heart of the high-tech travel recorder is a 2-MP CMOS sensor in 1/4 format, combined with a 180° lens in order to record what happens across the entire width of the road. The black box system comes in two versions, one for rear-view and the other for the front-view applications.
CCD and CMOS modules are also becoming increasingly popular in Europe as sensors for camera-supported driver assistance systems. Sharp will be offering optimised CCD and CMOS automotive camera modules within the next one to two years for this extremely fast-growing market (42% annual growth).

The state-of-the-art devices in cameras for passive driver assistance systems that serve primarily as visual aids for the driver are the highly sensitive CCD modules as offered by Sharp. They deliver beautifully clear images, thanks to their light sensitivity of just 1.8 lux – the equivalent of the ambient light of a moonlit road. Through improved software, the next generation of Sharp CCD modules will superimpose automatic guidelines that will mark the danger zone, e.g. when reversing. CCD modules are still ahead at the moment, due to their light sensitivity but, in the long term, CMOS modules will be used more and more as rear-view cameras.

Once the CMOS sensors have achieved the necessary image performance in dark environments, they will also bring a whole host of further advantages with them, such as lower costs, higher resolution and, above all, a more compact design, as the image processor can be integrated directly onto the camera chip.

CMOS is the technology of choice for sensors for active driver assistance systems that intervene automatically in driving if there is a hazard. High frame rates and dynamics (greater than 100dB) are required, particularly for front cameras, in order to get clear images under even the most extreme light/dark contrast conditions.