

Digital cameras and Web cameras

INTRODUCTION

Digital cameras record images in a format that allows for electronic transmission, storage, and manipulation. Smaller than the majority of film cameras, digital and web cameras can be hidden for covert use. Web cameras are a specific kind of digital camera that link wirelessly or over a cable to a computer for use. These cameras can record both still and moving pictures, as well as sound if a microphone is included in. Digital cameras have mostly replaced film-based cameras as the majority of those made today. Traditional film cameras are giving way to digital ones more and more frequently. They are also being incorporated into numerous other consumer goods, like cell phones. With the same or more capabilities and features as dedicated cameras, digital cameras are now extensively used in mobile devices like smartphones. Professional photographers and amateurs who want to produce better photos still frequently utilise high-end, high-definition dedicated cameras. An optical system that commonly uses a lens with a variable diaphragm to concentrate light onto an image pickup device is shared by digital and digital video cameras. Similar to film, a controlled amount of light is admitted to the image by the diaphragm and shutter, but the image pickup technology is electrical rather than chemical. Digital cameras, in contrast to film cameras, have the ability to save and delete photographs from memory as well as display images on a screen immediately after they have been captured. Web camera are video cameras that transmit live video or images to or over computer networks like the Internet. Webcams are often small cameras that are either built into the hardware, attached to a user's monitor, or rest on a desk. During a video chat session with two or more participants, webcams can be used for live audio and video chats. Users can record videos or transmit them online thanks to webcam software. Since online video streaming consumes a lot of bandwidth, these streams typically use compressed formats. Because higher resolutions would be compressed during transmission, webcams typically have lower maximum resolutions than most handheld video cameras. In figure 1, we have showed different types of Digital and Web cameras been used for investigations.



Figure 1 : Digital Cameras and Web Cameras

Value of Digital and Web cameras

- Investigators should be aware of the following:
 - These cameras can be utilised for surveillance, recording events during searches, or other procedures where a film camera might be used. Instant photos are provided by digital cameras (versus film developing time).
 - Digital photographs can be printed on-site with portable printers for speedy dissemination. Voice notes that accompany the photographs may be recorded using digital cameras. Real-time distribution to numerous locations is possible with digital photographs.
- Subjects are permitted to: –
 - Digital cameras are used by subjects for all the same things that a film camera would be used for. These cameras are particularly common in crimes involving child exploitation, covert monitoring, forgery, and identity theft.

Identifying and obtaining Digital and Web cameras

- Any electrical or computational equipment can contain or integrate a digital camera. Particularly with cell phones or other covert cameras, photos can be taken secretly without the subject's awareness.
- These devices support removable media as well as media that is built into the device itself using a variety of memory storage devices.

Special investigative considerations and other factors

- Pictures, videos, and audio make up the data that digital cameras record or save. Even if these data have been removed from the device, in some cases they might still be retrievable. The image files of photographs are generally information-enhanced by digital cameras. This data, known as metadata, may need to be accessed using specialised software and can include the serial number, make and model of the camera, information about the lens and lighting, and date and time settings.
- The user can change the date and time settings, just like with other electrical equipment. Submit the digital camera for forensic analysis if it is seized.

Scenario

- A remote location is being processed by crime scene investigators. A digital camera is used to process and take pictures of a latent finger print. The crime lab receives this picture through email from the scene. In 15 minutes, the crime lab receives a cold hit after processing the print using the Automated Fingerprint Identification System (AFIS).
- Officers are in acute need of a photograph to be used on flyers after receiving an AMBER Alert for a missing child. Officers ask the parents of the missing child for a digital photo, which they use to create flyers right once and email to the media and other nearby jurisdictions. The missing person is displayed by the authorities with mobile terminals.