



MULTIMEDIA AND ITS APPLICATIONS

Edited by
Akram M. Zeki



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Chapter 11

Video

Adamu A Ibrahim

Zeeshan Bhatti

Akram M. Zeki

International Islamic University Malaysia

How Video Works and Displayed

Light reflection from an object passes via a video camera lens that is converted into an electronic signal by a special sensor referred to as a charge – coupled device (CCD) (Vaughan, 2010). Top-quality transmitted cameras and even camcorders could have up to three CCDs (each just one for red, green, and azure colour) to boost the resolution with the camera and the caliber of the image.

To understand how video works, it is important to understand the difference between analog and digital video (Kulapala, et al., 2004). Analog video has a resolution measured in the number of horizontal scan lines (due to the nature of early cathode-tube cameras) that represents continuous measurements of colour and brightness along the horizontal axis, in a linear signal that is analogous to an audio signal. Digital video signals consist of a discrete colour and brightness (RGB) value for each pixel (Woods, 2012).

Digitizing analog video involves reading the analog signal and breaking it into separate data packets. This process is similar to digitizing audio, except that with video the vertical resolution is limited to the number of horizontal scan lines (Teng et al., 2011). To carry out some multimedia projects you need to digitize the legacy analog video.

The following section will discuss the differences between analog and digital video and the old and new standards for horizontal lines, aspect ratios, and interlacing according to Xingquan et al. (2005).