

The Influence of Camera Sensor Size on Image Characteristics

Assist. Prof. Dr. Hesham Ahmed Ahmed Marei

Assistant Professor at Department of Photography, Cinema and Television, Faculty of Applied Arts, Helwan University, Egypt

HISHAM_MAREY@a-arts.helwan.edu.eg

Abstract:

The size of the camera sensor has a very important impact on the quality and quantity of details that can be obtained in the image, as is the case in films, the greater the area of the image that is formed on the camera sensor, the less one will have to enlarge it to obtain the dimensions of the Final image, hence the details and tones will be better in the final image, than if the original image had formed on a smaller sensor. The size of the camera sensor also affects many characteristics of the image, including those related to the appearance of the image such as: angle of field of view, and Including what relates to image quality, such as: the dynamic range. Therefore, the sensor size is considered one of the most important factors that help evaluate the quality of the performance of digital cameras. The research problem lies in how to balance the sensor size with the resolution in a way that does not conflict with the image quality, as well as calculating the angle of the field of view of the lens with the sensors of different sizes. Therefore, the research aims to study the effect of the sensor size on the image properties in terms of field of view angle, depth of field, resolution, dynamic range, sensitivity, and noise. This is in order to fully control the characteristics of the image, as well as to achieve the maximum possible use of the camera.

Keywords:

Digital Image, Sensor Size, Dynamic Range, Field of View, Crop Factor, Depth of Field.