**REVOLUTION AND EVOLUTION OF DIGITAL CAMERAS FROM 1960s – 2000s.**

Today, digital technologies become so common to us. As the time goes by, more and more digital technology tools invented by inventors all over the world to meet the consumers’ need. Most people these days have their own digital mobile phone. Many people have digital cameras. Some people may have the combination of both – digital mobile phone that can snap digital photos. So, we can say that the digital technology is evolving and gradually revolving every second. Same goes with the cameras. It starts from an analogue camera and gradually evolves and revolves to become a digital camera. Digital camera is differ from the analogue camera. Instead of using film, digital camera captured the photographs and stored them in the internal storage or digital memory card.

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| C:\Users\Mar\Desktop\New folder\Kodak Six-20 with flash.jpg  **Analogue camera** | Revolving and Evolving | C:\Users\Mar\Desktop\New folder\nikon-d90-best-digital-camera-2010.gif  **Digital camera** |

The idea of creating an image on a wall was first developed by the Ancient Greece. It was done by passing light through a small hole and the image will come out on the wall. The first true photograph was created in 1826 by French inventor, Joseph Nicephore Niepce. He used the camera obscura to burn a permanent image onto a chemical-coated pewter plate. The word photography was created by a scientist named Sir John F.W Herschel in 1839. It is actually derived from Greek words ‘photos’ means light and ‘graphein’ means draw.

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| C:\Users\Mar\Desktop\New folder\CAM_OBS_1.GIF  **Camera Obscura** | C:\Users\Mar\Desktop\New folder\view_from_the_window_at_le_gras_joseph_nicephore_niepce.jpg  **The first permanent image** |

The idea of developing the digital technology was first figured out by National Aeronautics and Space Administration (NASA), the United State space agency. This agency had created a program named Corona Project (1959-1972) for national security purpose. This program launched many spy satellites which transmit images back to Earth using digital technology. Within this period of time (in 1960s), NASA had converted from analogue technology to digital one. Until that time, NASA still used the big, heavy and power consuming vacuum tubes for cameras. This was a big problem for them as the satellite needed more power. They need an effective solution to solve this problem.

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| C:\Users\Mar\Desktop\New folder\Charge-coupled-Device-CCD.jpg  **Charge Coupled Device (CCD)** |

The answer for this problem was the CCD (charge-coupled-device). Due to Gareth Marples, the CCD is a computer chip that converts light into electric signals. The first image created with CCDs was only 100 x 100 pixels which is not very clear. Then in 1978, they successfully created an image with a pixel array of 500 x 500. After that, they had developed 800 x 800 pixels, and the progression was on towards their development in 1982 of 1024 x 1024 pixels.

In 1975, Kodak invented the first digital camera concept, which must be credited by the world. It is known most commonly as the Digital Camera Prototype. This machine was capable to capture 100 x 100 pixels, monochrome images into blank cassette tapes. Actually, this camera used analogue process to produce a final image, so it was not really the world’s first digital camera that human had created. However, the idea of this camera allows more inventors to develop and create a camera that integrate the full concept of digital technology.

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| C:\Users\Mar\Desktop\camera\0firstdigicam002.jpg  **Prototype digital camera Kodak** |

During 1980s, the first true digital camera that captured images as a computerised file was likely the Fuji DS-1P. It recorded the images to a 16MB internal memory card that used a battery to keep data in memory.

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| C:\Users\hairunnisa\Desktop\13 - Fuji DS-1P.png  **Fuji DS-1P –First true digital camera** |

In the late 1980s, the digital photography technology has entered the commercial world particularly, the field of newspaper and books publishing. Kodak introduced the Professional Digital Camera System (DCS) which allowed the photographer to capture electronic pictures with a Nikon F-3 camera, with a 1.3 megapixels sensor.

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| G:\camera\NikonF3HP-2.jpg  **Nikon F-3** |

At the same time, Sony introduced the professional ProMavica MVC-5000.Mavica was a short for magic video cam. It was a professional level digital camcorder that capable to capture freeze frame picture.

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| G:\camera\ProMavica MVC-5000.jpg  **ProMavica MVC-5000** |

In 1990, the first real consumer digital camera was introduced. It was the Dycam Model I. It produces black and white photos at 320x240 pixels resolution. The camera was able to store 32 compressed images on 1MB built-in RAM.

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| G:\camera\Dycam-model-1-b-copy.jpg  **Dycam Model I** |

Several years later, digital camera became available for the public consumer. In early 1994, Apple introduced Apple Quicktake 100 to the users. It was a colour digital camera with a 640x480 pixels CCD and a fixed-focus 50mm lens. It could only store 8 images in its internal memory.

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| G:\camera\Quick Take 100.jpg  **Apple Quicktake 100** |

Also in 1994, Olympus introduced their Deltis VC-1100, the world’ first digital camera with built in transmission capabilities. This allowing user to connect to a modem and upload digital photos over cellular and analogue phone lines to another camera or a computer. This camera had a 768x576 pixels resolution. It stored images on removable memory card.

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| G:\camera\Deltis VC-1100.jpg  **Deltis VC-1100** |

There was a great competition between the manufactured companies in digital camera industry. Each company competes to be the first that used the latest technology. Later, in 1995 Ricoh announced their RDC-1, the first digital camera that can capture moving images with sound recording, as well as still images. But, it can only capture the video with 10 seconds length.

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| C:\Users\Mar\Desktop\camera\RDC-1.jpg  **RDC-1** |

In early 1996, Sony introduced Sony Cybershot Digital Still Camera. This camera introduced infrared wireless image transfer capabilities. It also consists of built in flash and also can record video. It used floppy discs for storage purpose.

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| C:\Users\hairunnisa\Desktop\Sony-CybershotDSC-MD1-big-179x300.jpg  **Sony Cybershot Digital Still Camera** |

Then, in 1997 Hitachi had successfully created MP-EG1, the world’s first digital camera which could output moving images to a personal computer in MPEG (the generic coding of moving pictures and associated audio information) format. This camera is capable of recording 20 minutes videos and capturing 3000 JPEG still images.

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| C:\Users\Mar\Desktop\camera\hitachi mp-eg1.jpg  **Hitachi MP-EG1** |

In 1998, Fuji, another giant company in photographic industry introduced the In-Printer Camera, which stored captured images in SmartMedia memory cards. This camera could print a credit-card size picture right from the camera.

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| C:\Users\Mar\Desktop\camera\fujiprinter.jpg  **Fuji In-Printer Camera** |

The latest digital cameras that are available today are digital SLR (single-lens reflex) model. This model allows us to change its lenses to create a high quality of images. In 1999, Nikon introduced Nikon D1, a 2.74 megapixel camera. It was the first digital SLR (DSLR) camera created by human.

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| C:\Users\Mar\Desktop\camera\nikon-d1-1.jpg | C:\Users\Mar\Desktop\camera\NikonD1_2.bmp |
| **Nikon D1** | |

During 2001, the Kodak and Microsoft partnership ensured that the digital camera manufactures could use the power of Picture Transfer Protocol (PTP) standard through Windows. This means that users are able to transfer images of videos direct from their digital cameras to their personal computer for printing, storing, and emailing purpose. This can be done by using software like Kodak EasyShare.

Other industries that have link with the digital camera industry like printing industry had adapted their products to be compatibles and syncs with the images and videos created by the digital cameras. Cell phone manufacturers also had tied up with digital camera technology to develop new age camera phones in recent years. These camera phones are able to capture images and share them through the phones.

1996 through 2010 has shown an outstanding improvement in digital camera industry, technologies, capabilities, and price. This industry is definitely moving ahead in incredible pace. The standard digital cameras have evolved to include SLR digital (DSLR) cameras for amateurs and professionals’ satisfaction. Years ago, most photographers believe that digital cameras would never replace film cameras. But, now, with larger storage, high resolution, variation of lenses, and faster shutter speed, digital cameras have completely replaced the analogue cameras. These are several latest digital cameras:

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| **D:\c 700 backap\Documents\Akademik\QMT323E\projek 1-camera\camera\00721_canon-powershot-sx210is.jpg**  **Canon PowerShot SX210IS** | **D:\c 700 backap\Documents\Akademik\QMT323E\projek 1-camera\camera\1294295309.jpg**  **Fujifilm FinePix Z90** |

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| **D:\c 700 backap\Documents\Akademik\QMT323E\projek 1-camera\camera\nikon-d90-best-digital-camera-2010.gif**  **Nikon D90** | **D:\c 700 backap\Documents\Akademik\QMT323E\projek 1-camera\camera\2hx4l8j.jpg**  **Pentax 645D** |

In these few years, the digital cameras are absolutely revolving and evolving more than what users expected. Few years back, digital cameras have to evolve in order to meet the users’ needs and expectations. But, nowadays, users are the one who had to catch-up with the evolution and revolution of digital camera. As a result, digital cameras have taken over the market and consumers (photographers), leaving analogue cameras as collectible items for collectors.