Ch : 2

Input Devices

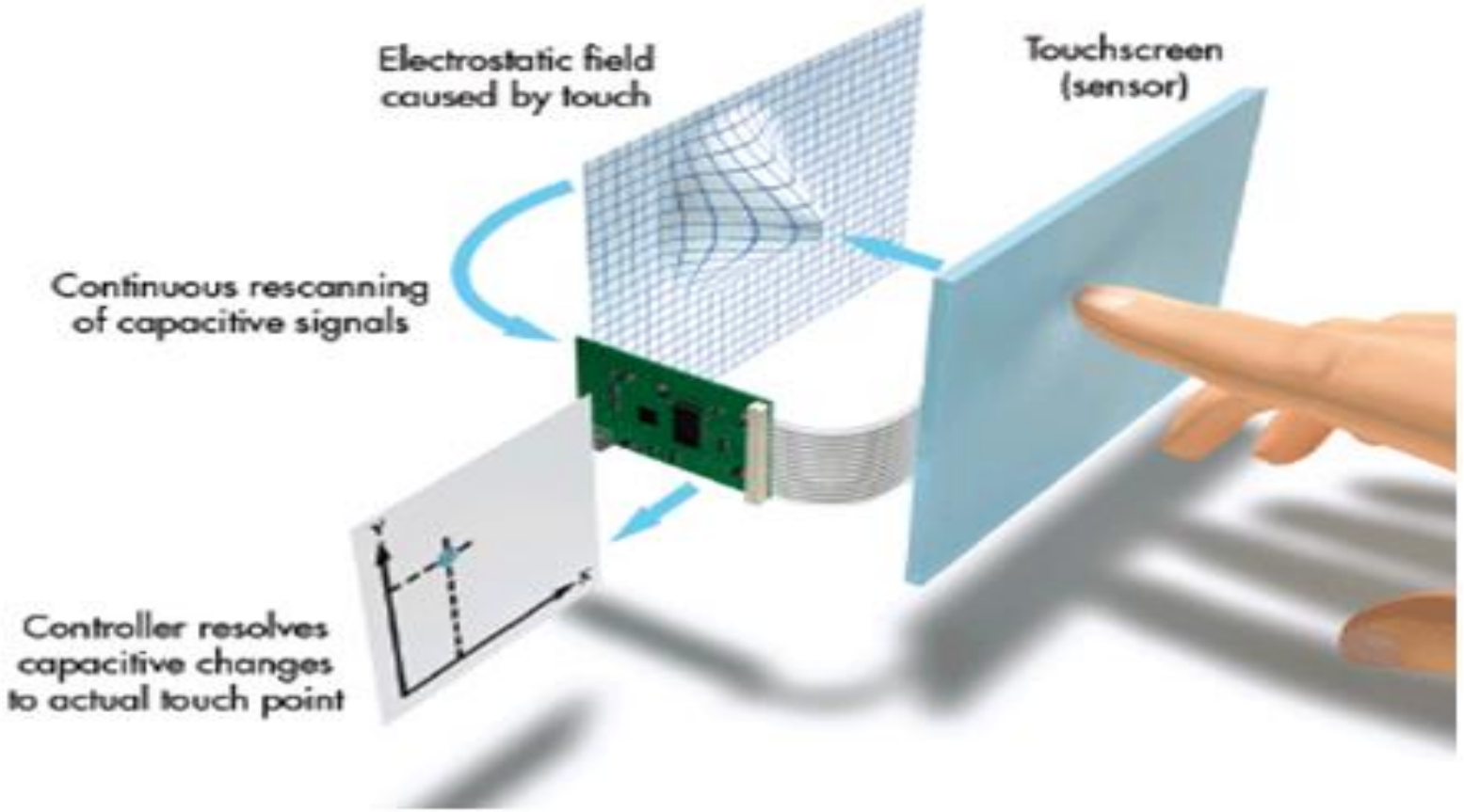
Types of Input devices :

- Keyboard
- Mouse
- Trackball
- Glide-pad
- Joystick
- Light Pen
- Touch Screen
- Digitizers and graphic tablet
- Mic (Sound Input)
- Camera (photo video input)
- POS (Point Of Sale)
- Terminal (Scanner)
- MIDI (Musical Instrument Digital Interface) Keyboard
- Wireless Devices (Keyboard, Mouse etc)

Touch screen :

- The touchscreen technology is the direct manipulation type of gesture based technology
- A touch screen is the electronic visual display capable of detecting and locating a touch over its display area
- This is generally referred to as touching the display of the device with a finger or hand
- This technology is most widely used in computers, user interactive machines, smartphones, tablets, etc to replace most functions of the mouse and keyboard.

Cont….


Electrostatic field
caused by touch
Touchscreen
(sensor)
Continuous rescanning
of capacitive signals
Controller resolves
capacitive changes
to actual touch point

Components and Working :

- A basic touch screen is having a touch sensor, a controller, and a software driver as three main components
- The touch screen is needed to be combined with a display and a PC to make a touch screen system
- Touch Sensor : Sensor generally has an electrical current or signal going through it and touching the screen causes a change in the signal.
- Controller : A controller will be connected between the touch sensor and PC. It takes information from the sensor and translates it for the understanding of PC.

Cont…

- Software Driver : It allows computers and touch screen to work together. It tells OS how to interact with the touch event information that is sent to the controller.

Camera :

- A camera is an optical instrument used to record images
- A most basic, cameras are sealed boxes with a small hole that allow light into capture an image on a light sensitive surface.
- Lenses focus the light entering the camera,
- Video camera is also a camera used for electronic motion picture, initially developed for the television industry but now common in other applications as well
- Closed-circuit television (CCTV) generally uses PTZ (pan tilt zoom) camera for security, or monitoring purpose. They are designed to be small, easily hidden.

Cont….

- Webcams are video cameras that stream live video feed to a computer
- Smart phones have built-in video cameras and can capture photos and videos with high resolution
- Special camera systems are used for scientific research, like, satellite, space probe, AI, robotics research, medical use etc. they use x-ray or infrared.

Point Of Sale (POS) :

POS :

- The point of sale or point of purchase is the time and place where a retail transaction is completed
- At the point of sale, the merchant calculates the amount owed by the customer, indicates that amount, may prepare an invoice for the customer and indicates to make payment
- To calculate amount, the merchant may use various devices such as barcode, scanners, touch screens, other hardware or software.

MIDI Keyboard:

Cont…

- MIDI stands for Musical Instrument Digital Interface.
- It is a technical standard that describes a communication protocol, digital interface that connect a wide variety of electronic musical instruments, computers, and related audio devices for playing, editing and recording music
- This increases the portability and flexibility of stage setups
- A single MIDI link through a MIDI cable can carry up to 16 channels of information each of which can be routed to a separate device or instrument.

Cont…

- A MIDI recording is not an audio signal, as with a sound recording made with a microphone

Digitizers :

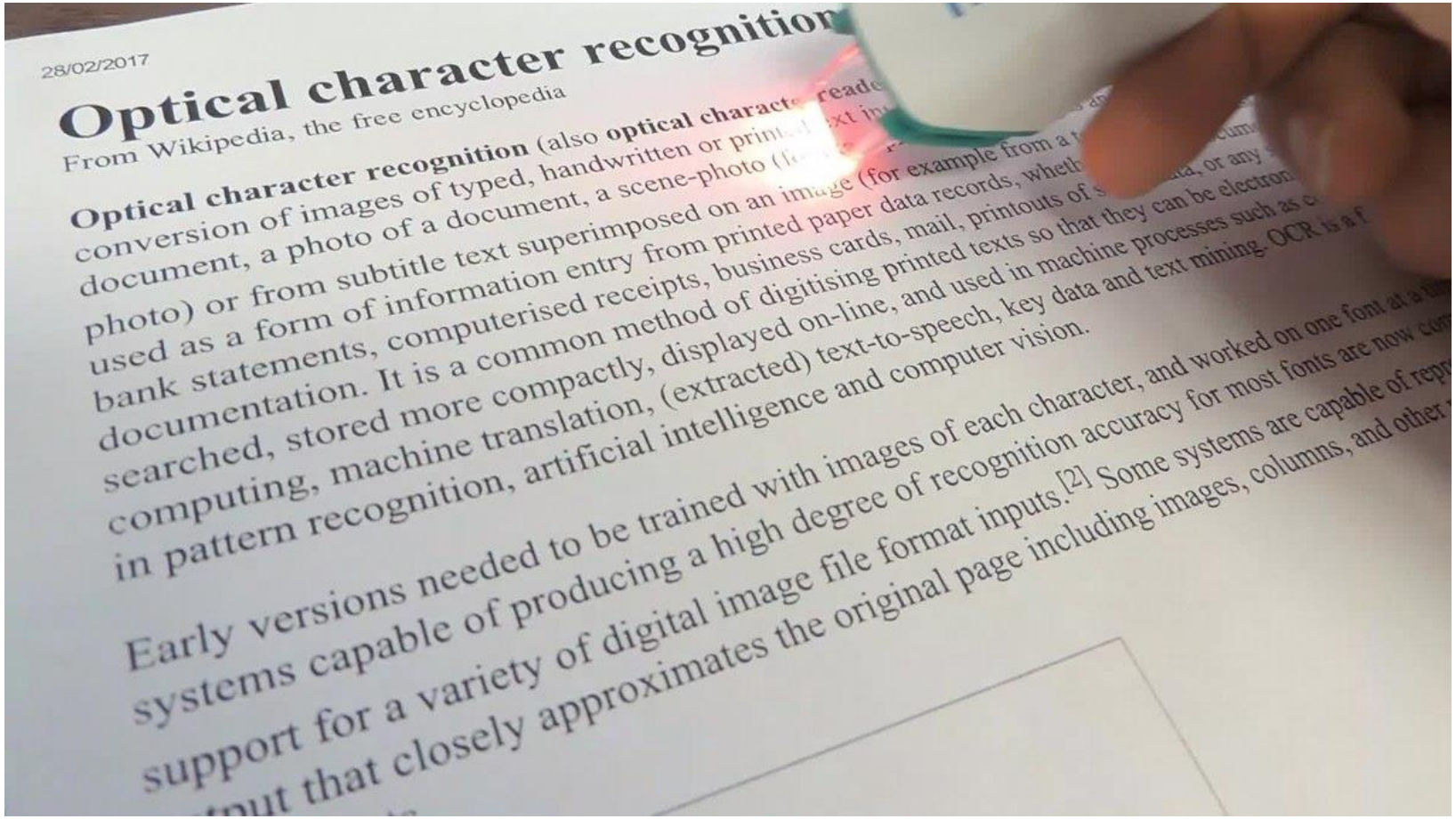
- Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer.
- They can be used by the computer to create a picture of whatever the camera had been pointed at.
- Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs.
- A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Cont…

OCR :

- **Optical character recognition** or **optical character reader** (**OCR**) is the electronic or mechanical conversion of images of typed, handwritten or printed text into machine-encoded text, whether from a scanned document, a photo of a document, a scene-photo (for example the text on signs and billboards in a landscape photo) or from subtitle text superimposed on an image
- Widely used as a form of data entry from printed paper data records – whether passport documents, invoices, bank statements, computerized receipts, business cards, mail, printouts of static-data, or any suitable documentation – it is a common method of digitizing printed texts so that they can be electronically edited, searched, stored more compactly, displayed on-line, and used in machine processes such as machine translation, (extracted) text-to-speech, key data.

Cont…


28/02/2017
Optical character recognition
From Wikipedia, the free encyclopedia
Optical character recognition (also optical
conversion of images of typed, handwritten or
document, a photo of a document, a scene-photo
photo) or from subtitle text superimposed on an
used as a form of information entry from printed paper data records,
bank statements, computerised receipts, business cards, mail, printouts of
documentation. It is a common method of digitising printed texts so that they can be electron
searched, stored more compactly, displayed on-line, and used in machine processes such as c
computing, machine translation, (extracted) text-to-speech, key data and text mining. OCR is a f
in pattern recognition, artificial intelligence and computer vision.
Early versions needed to be trained with images of each character, and worked on one font at a
systems capable of producing a high degree of recognition accuracy for most fonts are now
support for a variety of digital image file format inputs.[2] Some systems are capable of
that closely approximates the original page including images, columns, and other

OMR :