Input Devices

Characteristics of Input Devices

- **Input devices**: allow users to enter data or instructions into a computer system e.g.:
  - Keyboard
  - Mouse
  - Scanner
  - Microphone
  - Touch screen

Differences between Input & Output Devices

- Input devices send data or instructions to the computer, while output devices receive data from the computer
- Input devices are used for user interaction and data entry, while output devices display or produce the results of data processing

Input Device	Use	Advantages	Disadvantages
Keyboard & Numeric Keypad	Entering text and numbers	Fast and accurate input for experienced users	The steeper learning curve, repetitive strain injury
Pointing Devices	Navigate and interact with computer interfaces	Intuitive and precise control	Requires flat surface, the strain on the wrist
Remote Control	Control devices from a distance, e.g., TVs and media players	Convenient, no direct physical contact is needed	Limited range, may require line-of-sight
Joystick/Driving Wheel	Simulation and driving games	Enhances gameplay experience, realistic control	Expensive, limited use outside of gaming, bulky
Touch Screen	Direct interaction with the screen using fingers or a stylus	Intuitive, no need for a separate pointing device	The screen may get dirty, less precise than a mouse
Scanners and Cameras	Capture images and convert them into digital format	Accurate reproduction, easy to share and store	Quality depends on resolution, which can be expensive
Microphone	Capture a sound for recording or communication purposes	Hands-free input can be used for voice recognition	May pick up background noise, the quality varies

Sensors and Light Pen	Sensors detect changes in the environment; light pen interacts with screens	Can automate tasks, provides real-time information	May require calibration, affected by the environment

Direct Data Entry

Direct Data Entry Device	Use	Advantages	Disadvantages
Magnetic Stripe Reader	Reading information stored on magnetic stripes, e.g., credit cards, ID cards	Fast, simple to use, reliable	Data can be easily erased, and limited storage capacity
Chip and PIN Reader	Processing debit and credit card transactions in stores	Secure, quick transaction, reduced fraud risk	Requires PIN input, potential for skimming
RFID Reader	Reading information from RFID tags, e.g., inventory tracking, access control	No line-of-sight is needed, multiple tags are read simultaneously	The expensive system, and potential privacy concerns
OMR (Optical Mark Recognition)	Reading marked areas on forms, e.g., multiple-choice exams	Fast processing, reduced human error	Limited to specific forms, cannot read handwriting
OCR (Optical Character Recognition)	Converting printed text into digital text, e.g., digitising books	The fast and accurate, searchable digital text	Can struggle with complex layouts, font dependent
Barcode Reader	Scanning barcodes to retrieve product information and prices	Fast and accurate, low cost	Requires line-of-sight, limited data storage
QR Scanner	Scanning QR codes for information retrieval or linking to websites	Can store more data, versatile uses	Requires a smartphone or specific scanner, quality dependent