Preventative Maintenance

Managing ICT Systems

ICTSAS308

Contents

- *Examine* common ICT Systems

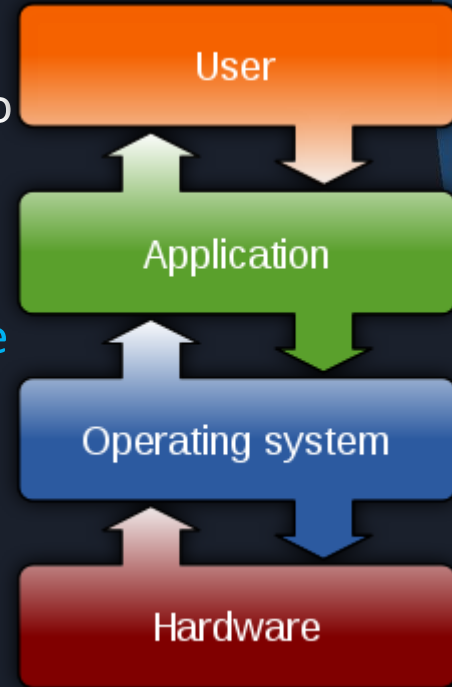- *Identify* example problems and symptoms

ICT Systems

- ICT stands for *Information and communications technology*

- It's an overarching term that integrates:
  - Computers
  - Telecommunications
  - Hardware
  - Software
  - Middleware
  - Storage
  - Audio-Visual systems

- Basically anything that enables users to *access*, *store*, *transmit*, and *manipulate* information.

ICT Systems

- ICT **Hardware** relates to the physical parts
  - Generally *difficult to modify*
  - New hardware needs to be *designed and manufactured*

- **Software** relates to the programs that are stored & run by hardware
  - Contain the *instructions that control* how hardware operates
  - Also called *applications* or *apps*
  - Generally *easy to update*
  - As easy as *downloading/copying* a new version of a program

ICT Systems

- An **Operating Systems** is *specialized software* that manages a computer's hardware and resources to run compatible software programs.

- ICT **Middleware** is *specialized software* typically used by Applications to manage *custom* hardware and resources.

- **Storage** relates to *specialized hardware* that can hold digital data
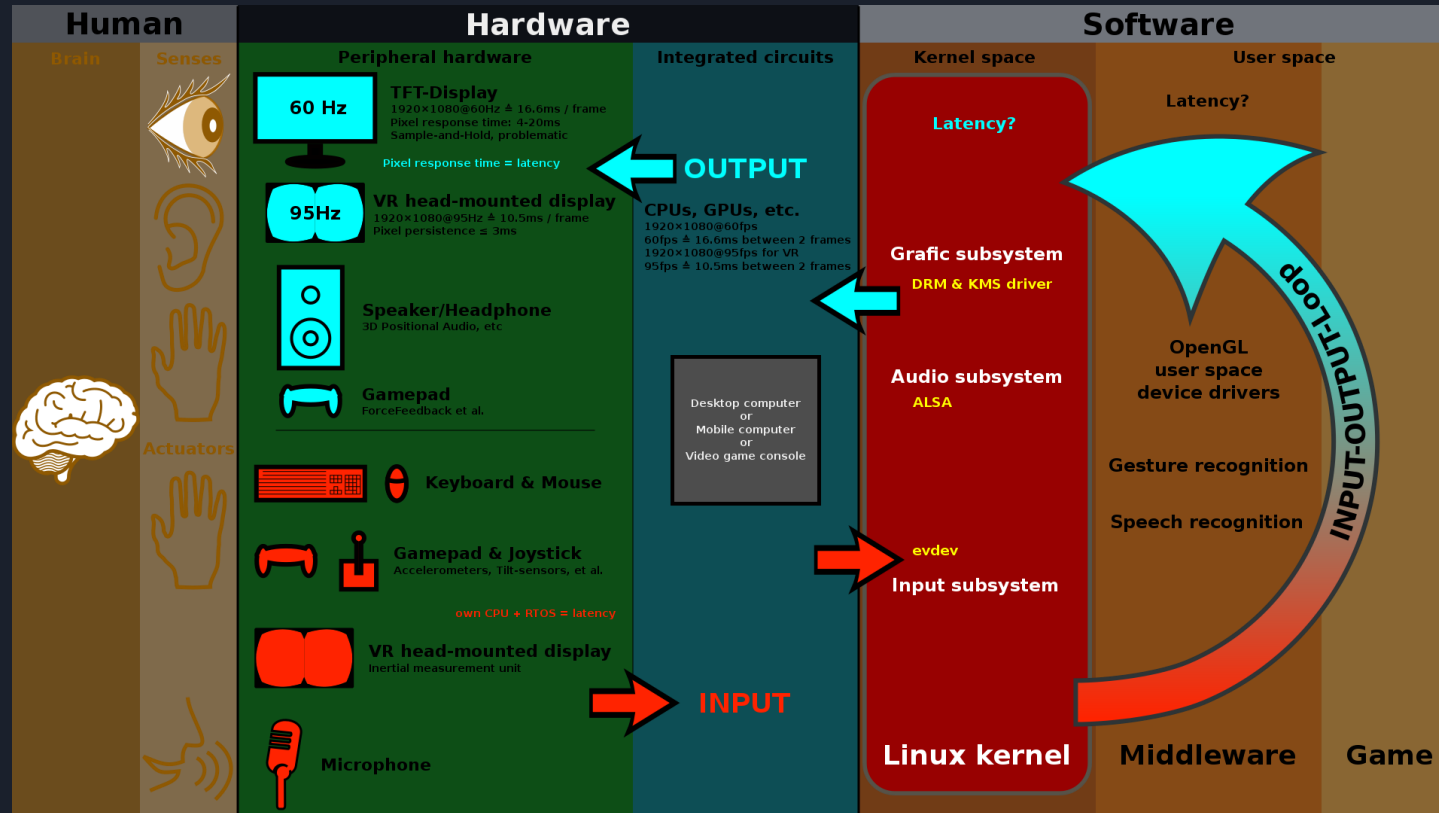 - Examples include hard-disks, memory, online cloud resource

Common ICT Systems

- **ICT systems** are *combinations* of ICT components addressing a *specific user need*

- For example:
  - Entertainment (e.g. Games)
  - Business Management Tools
  - Voice Communications
  - Personal Computing
  - Printing

- Some common ICT systems include:
  - Desktop applications
  - Operating systems
  - Laptops
  - Mobile devices
  - Printers

Common ICT Systems

- **Desktop applications**:
  - E.g. Photoshop, Microsoft Word, Outlook

- **Operating systems**:
  - E.g. Microsoft, Apple OSX, Linux

- **Laptops**:
  - E.g. Macbook, Acer, Toshiba

- **Mobile devices**:
  - E.g. Samsung/Apple phones & tablets

- **Printers**:
  - E.g. Brother Inkjets, Kyocera Laser

ICT Systems

From Wikipedia.org

Common ICT Systems

- *Can you think of any other ICT systems*?
  - Networking: How do we communicate over the internet?
  - Medial Imaging: How are your MRI/X-Rays created?
  - Traffic: How do traffic lights and police cameras operate?
  - Cars: What technology is used in new cars?
  - Defence: How does RADAR work?
  - Space: How do Satellites work?

Managing ICT Systems

- When managing ICT systems, we need to:
  - *Maintain* the healthy operation of the system
  - *Detect and Identify* common problems ASAP
  - *Troubleshoot* problems to restore healthy operation

Reviewing Problems & Symptoms

- A *symptom* is a *discernible indication* of what's not itself directly perceptible (i.e. the problem/cause)

- A *problem* can cause one or more *symptoms*

- We can sense & measure the symptoms

Maintenance & troubleshooting resources

- Online & printed manuals and service documents

- Manufacturer websites

- FAQs and guides

- Online forums and other communities

- Experienced personnel

Desktop Application (Example)

- **Microsoft Office**
  - A *rich-text editor* to create, read and edit documents

- **Symptoms**:
  - **Spell Checker** does not recognize misspelled words
  - Clicking the **Spelling & Grammar** button causes error:
    - "Proofing Tools are not installed for **default language**, try re-installing proofing tools"

- **Potential Problems**:
  - **Proofing tools** are *not installed*
  - The relevant **Speller add-in** (e.g. English-US) is *disabled*
  - **"Do not check spelling or grammar"** **check box** is *selected*
  - *Another language* is set as **default**

- **Resolution/troubleshooting**:
  - Follow the Microsoft Docs (see references) for guides to address each of the above problems
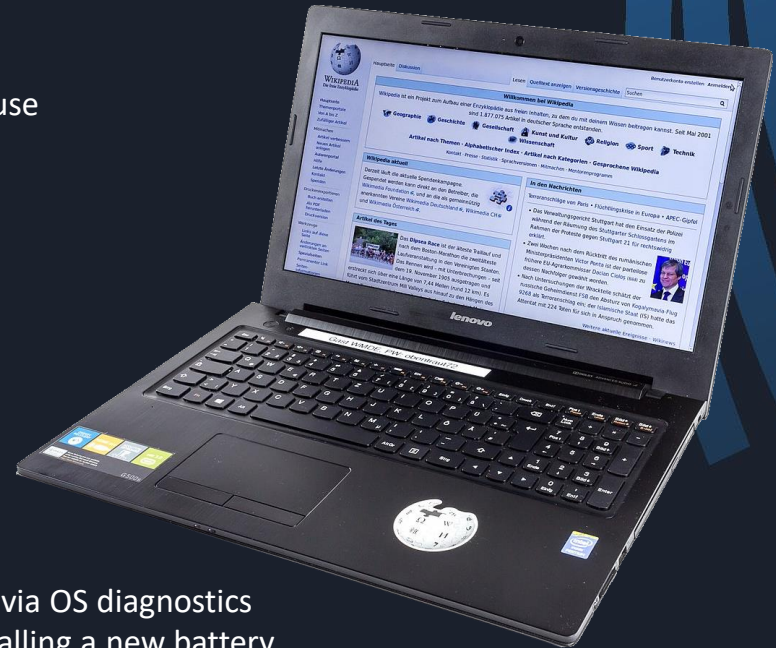
Operating System (Example)

- **Microsoft Windows**
  - An *OS with a Graphical User Interface* to manage computer hardware and resources for the Personal Computer and Enterprise solutions

- **Symptoms**:
  - **Mouse Cursor** not responding to user mouse movement
  - **Mouse Cursor** not visible on screen

- **Potential Problem**:
  - **Wired Mouse** may be connected to *faulty USB* port or hub
  - **Wired Mouse** may be *faulty*
  - **OS and/or Mouse Drivers** may be *faulty or out-of-date*
  - **Wireless Mouse** may be *low on power*
  - Wireless **TX/RX dongles** may be *faulty*
  - **Bluetooth Mouse** may be *faulty*
  - **OS** *not pairing* with a **Bluetooth Mouse**

- **Resolution/troubleshooting**:
  - Research Windows support site, forums and Tech sites like <u>Solvusoft</u> to devise a troubleshooting/maintenance plan
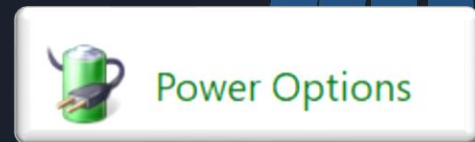
Laptop (Example)

- **Acer Aspire**
  - A small *portable personal computer* suitable for mobile use

- Symptoms:
  - *Poor* battery life
  - *Low* screen brightness
  - Computer performance is *slow*

- Potential Problem:
  - Old/expired battery

- Maintenance Plan:
  - Use the <u>Acer manuals</u> for testing/optimizing battery life via OS diagnostics
  - Use the <u>Acer Forums</u> and manuals for procedure on installing a new battery
  - Manage OS Power Settings (see next slide)
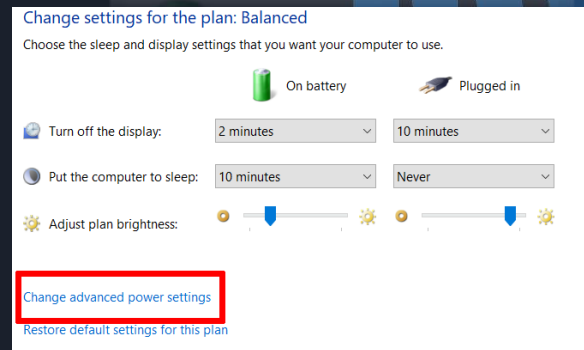
Laptop Power Options (Example)
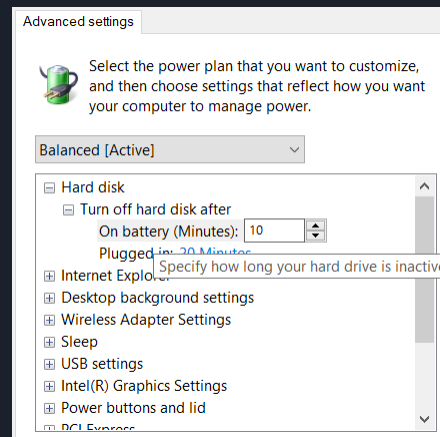

Power Options

- Maintenance Power Settings in Windows 10
  - Open "Control Panel" from the Start Menu
  - Select the "Power Options" menu

Change settings for the plan: Balanced
Choose the sleep and display settings that you want your computer to use.

	On battery	Plugged in
Turn off the display:	2 minutes	10 minutes
Put the computer to sleep:	10 minutes	Never
Adjust plan brightness:		

Change advanced power settings
Restore default settings for this plan

- Edit basic settings to suit your power needs

- Edit the "Advanced" settings
  - More options for power management
  - Adjust *individual components* power usage

Advanced settings

Select the power plan that you want to customize, and then choose settings that reflect how you want your computer to manage power.

Balanced [Active]

Hard disk
  Turn off hard disk after
    On battery (Minutes): 10
    Plugged in: 20 Minutes
Specify how long your hard drive is inactive
Internet Explorer
Desktop background settings
Wireless Adapter Settings
Sleep
USB settings
Intel(R) Graphics Settings
Power buttons and lid
PCI Express

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Mobile Device (Example)

- Apple iPhone
  - A *portable telephone* that can make and receive calls, SMS, MMS, Email and access the internet

- Symptoms:
  - *Phone apps stop working*
  - *Unreadable data* on phone (e.g photos, sounds, videos)

- Potential Problems:
  - *Virus* on system
  - *Corrupted data* due to failed storage device
  - *Corrupted data* due to OS bugs

- Maintenance Plan:
  - Use the iPhone manuals to discover recommended procedures for making Back-ups and Restoring iPhone Software

Mobile Device (Example)

- Common Phone Maintenance jobs:
  - Monitoring Apps, Storage Usage
  - Clearing Cache, Uninstalling Apps
  - Cleaning up OS via Settings
  - Disabling services and troubleshooting (e.g. Wifi, Mobile Data, Bluetooth)
  - Monitoring/Troubleshooting a Mobile Hotspot
  - Virus scanner for Phone
  - Tuning Setting for extending battery life

- *Can you think of any others?*

Printer (Example)

- **Brother Inkjet Printer**
  - A *peripheral hardware device* to create persistent representation of graphics and text, often on paper.

- **Symptoms**:
  - **Printer** *not printing*

- **Potential Problem**:
  - Out of Ink
  - Paper Jam
  - **Software Drivers** *not installed or out-of-date*

- **Maintenance Plan**:
  - Use <u>Brother User Manuals</u> to follow correct procedures, and use supplied Diagnostic software to maintain the hardware

  - Use <u>Brother Service Manuals</u> for recommended procedures on servicing and maintaining equipment

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Summary

- *Examined* common ICT Systems

- *Explored* some example problems and symptoms

- See *references* for links to Manuals/Forums mentioned in this lecture

References

- Foldoc. 2019. Information and Communication Technology. [ONLINE] Available at: http://foldoc.org/Information+and+Communication+Technology. [Accessed 20 June 2019].

- Tutor2U. 2019. What is ICT. [ONLINE] Available at: https://www.tutor2u.net/business/reference/what-is-ict. [Accessed 20 June 2019].

- Microsoft. 2019. Microsoft Support. [ONLINE] Available at: https://docs.microsoft.com/en-us/office/troubleshoot/word/not-recognize-mispespelled-words-in-word. [Accessed 20 June 2019].

- Solvusoft. 2019. The Ultimate Guide to Microsoft Windows 10 Troubleshooting. [ONLINE] Available at: https://www.solvusoft.com/en/windows-10-troubleshooting-guide/. [Accessed 20 June 2019].

References

- ManualsLib. 2019. Acer Aspire Manual. [ONLINE] Available at: https://www.manualslib.com/manual/1037061/Acer-Aspire-One-Cloudbook-11.html?page=29#manual. [Accessed 26 June 2019].

- Acer. 2019. Acer Community Forums. [ONLINE] Available at: https://community.acer.com/en/discussion/276690/best-way-to-use-an-acer-laptop-battery#_ga=2.93002589.1377667182.1561012998-5203331.1561012998. [Accessed 26 June 2019].

- ManualsLib. 2019. iPhone 4G User Manual. [ONLINE] Available at: https://www.manualslib.com/manual/8509/Apple-Iphone-4g.html?page=8#manual. [Accessed 26 June 2019].

- ManualsLib. 2019. Brother Printer Service Manual. [ONLINE] Available at: https://www.manualslib.com/manual/1142227/Brother-Mfc5840cn.html?page=2#manual. [Accessed 26 June 2019].

- ManualsLib. 2019. Brother Printer User Manual. [ONLINE] Available at: https://www.manualslib.com/manual/473697/Brother-Mfc-640cw-Color-Inkjet-All-In-One.html?page=10#manual. [Accessed 26 June 2019].