

# E-Readers

November 2013

## A little history & background

- According to Wikipedia:
  - An ***e-book reader***, also called an ***e-book device*** or ***e-reader*** is a mobile electronic device that is designed primarily for the purpose of reading digital e-books and periodicals.
- When most of us think of e-readers, we probably think of the *Amazon Kindle*.
  - While the Kindle was one of the early e-readers, it definitely was the most widely-marketed e-reader of its time.
  - But it was predated by the Sony's *Libré* by three years.
- The technology that made the e-reader feasible is known as *e-ink* (or, more correctly, *electrophoretic ink*).
  - Either dark or light e-ink particles are pulled to the surface of the display in response to an electronic charge.
  - Once positioned, the pigment particles stay where they are, even though the charge is removed from the display.
  - This means that e-ink displays only require electricity to change the displayed text or image, and require no electricity to keep text or an image displayed.
- Are there any downsides to e-ink?
  - Because of the technology behind them, successful e-ink displays of today are *gray-scale*, with the capability of displaying, say, 16 shades of gray.
  - Like their paper counterparts, you must have an external light source to read using an e-ink reader.

## **How does e-ink compare to LCD?**

- An important family of the newest e-readers uses LCD (Liquid Crystal Display) rather than e-ink.
- How do the LCD readers compare to the e-ink readers?
  - Price: LCD reader e-ink reader
  - Color and resolution: LCD reader e-ink reader
  - Weight: LCD reader e-ink reader
  - Battery life: LCD reader e-ink reader
  - Memory capacity: LCD reader e-ink reader
  - Video capability: LCD reader e-ink reader

## **How do books get onto an e-reader?**

- All e-readers can download e-books and periodicals from a computer using a USB cable.
- Many e-readers (LCD and e-ink) have wi-fi capability.
- Some e-readers have free 3G cellular connectivity. (Free, that is, for downloading e-books and periodicals.)

## **How many books fit onto an e-reader?**

- That all depends ... :)
- First, let's look at the sizes of some larger e-books (for Kindle):
  - The King James Bible ..... 3.0MB
  - Ender's Game ..... 2.5MB
  - Atlas Shrugged..... 2.3MB
  - Wizard of Oz (14 books)..... 2.3MB
- "Average" book size used for calculations: about 1.7MB.

- Now let's look at the capacity of several e-reader:
  - E-ink:
    - Kindle Paperwhite .....2GB (1,200 books)
    - Barnes & Noble Nook Glowlight .....4GB (2,400 books)
    - Sony prs-t2.....2GB (1,200 books)
  - LCD:
    - Kindle Fire.....8GB (4,800 books)
    - Nook HD+ .....16GB (9,600 books)

### **E-readers vs. tablet computers**

- One of the disadvantages of the dedicated e-reader is that it is (more or less) a one-trick pony.
- By comparison, tablet computers can serve not only as e-readers, but also as “general purpose” computers.
  - Seeing a new market in tablet computers, the big three e-reader manufacturers (Amazon, Barnes & Noble, and Sony) all have released e-reader apps for Apple, Android, PC, and Mac.

### **Free e-books, anyone?**

- Classic books that have fallen out of copyright can be downloaded freely from the internet.
- Two of my favorite sources for free classics:
  - Project Gutenberg (<http://gutenberg.org>)
  - Archive.org (<http://archive.org>)
- Also, if you visit the Kindle and Nook book sites, you can find books by new authors for free.
  - Sometimes, they also will offer popular books for free, but only for a limited time.