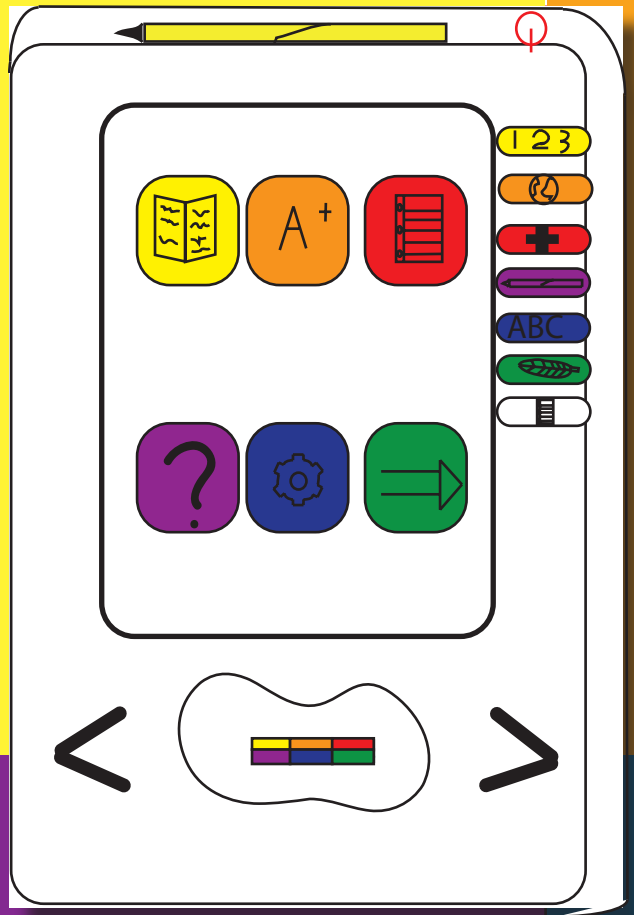
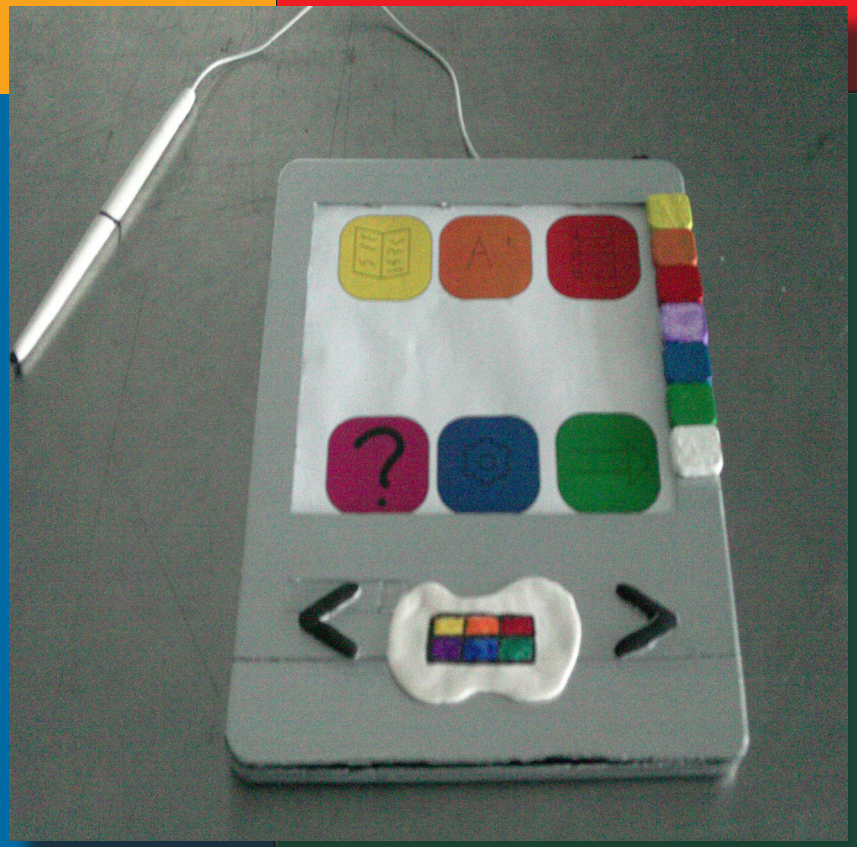


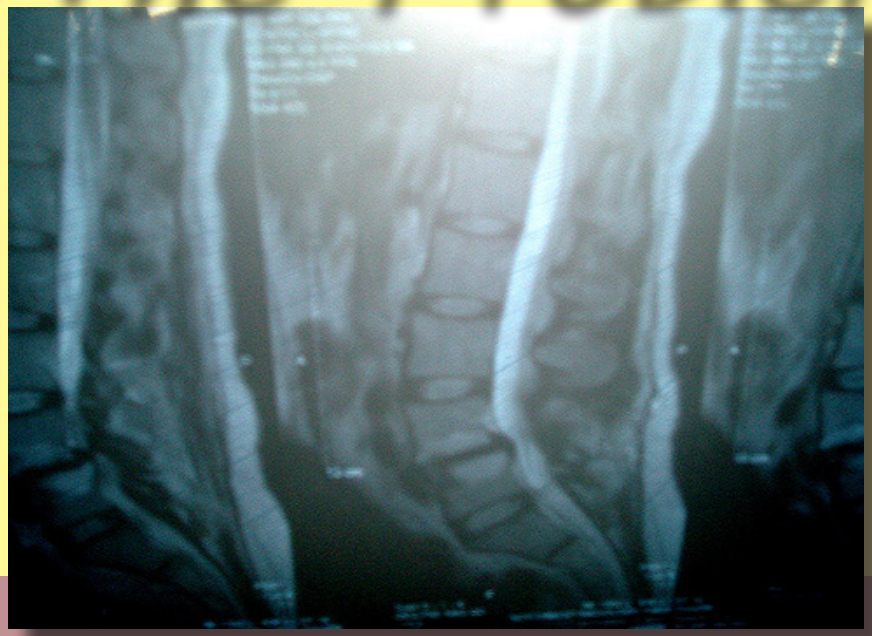
Ozmosis

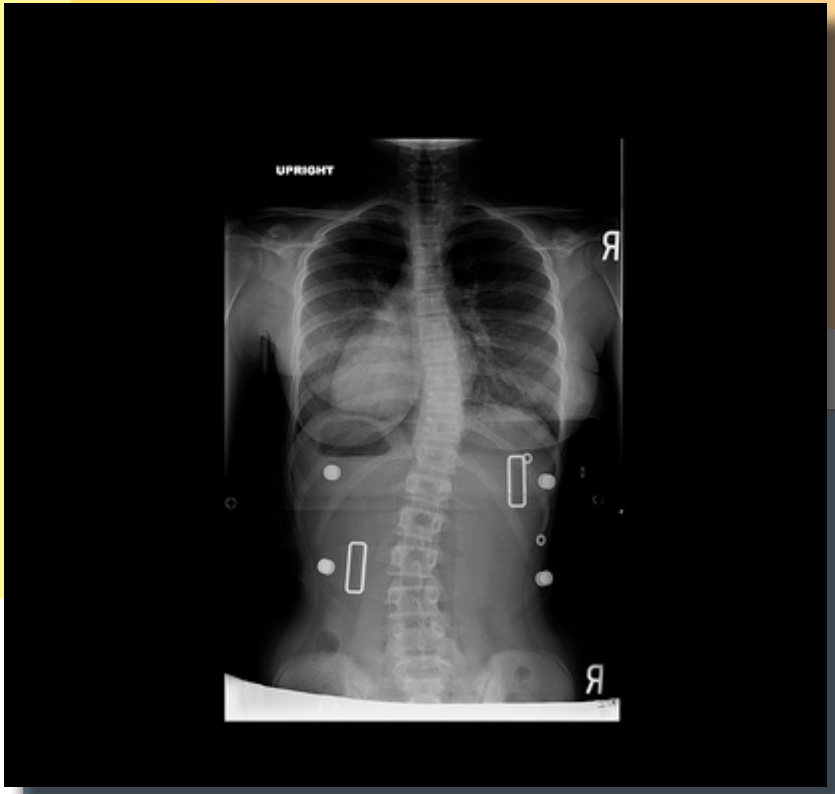
"The easiest way to learn"



The Problem

Backpacks loaded with books are causimg spinal problems by constant childhood strain.





Carrying around a backpack filled with books and school supplies can cause spinal distress in students. Who would have thought that something designed to make a student's life simpler could instead to give them back pain.

During a person's youth they go through growth spurts, and their bones and posture are susceptible to injury, sometimes from heavy backpacks. One problem seen in 4 to 6 percent of school children complaining of back pain is spondylolysis, which is a stress fracture in the back. Children also experience apophysitis, which is an inflammation of growth cartilage, often in the heel. Children also experience posture problems because with a heavy backpack many end up leaning too far forward, rolling their shoulders and causing a more rounded upper-back. They then tilt their head up to see properly, which strains the back and neck muscles and can cause nerve damage in the neck.

The Goal

The goal is to dispose of the heavy textbooks that cause back strain entirely and replace them with one lightweight device.

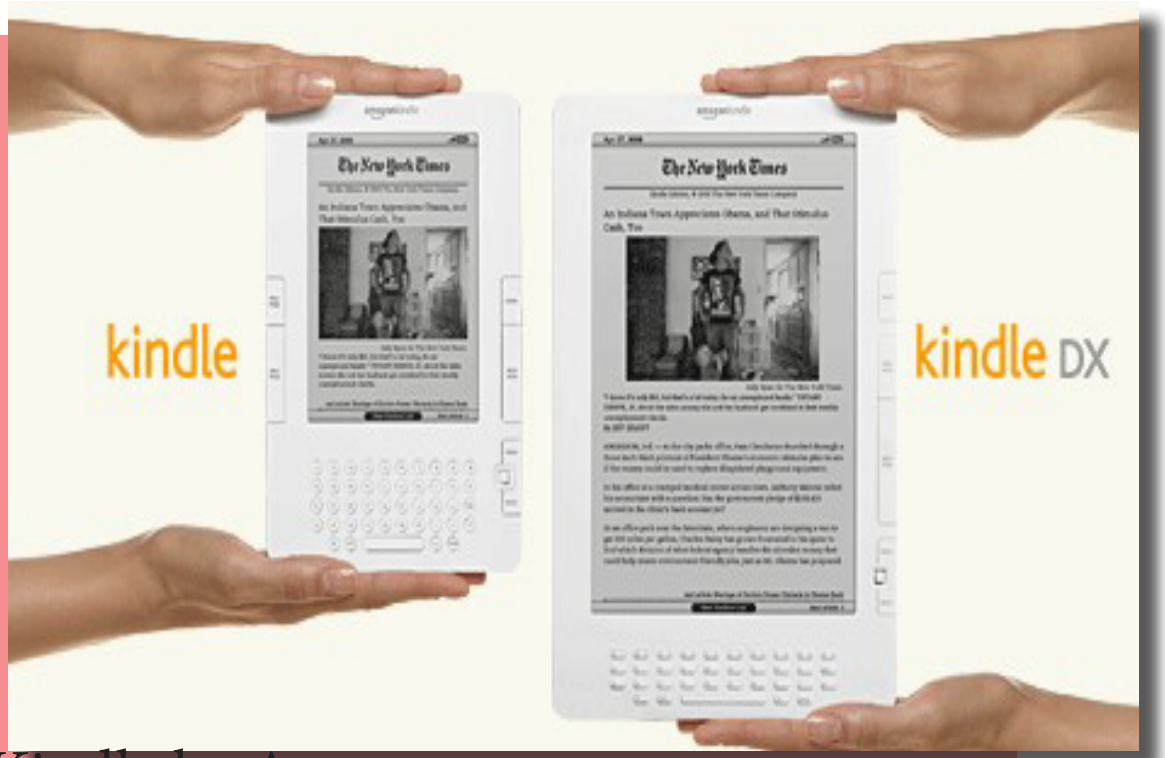
To create a product that can be used successfully in a classroom and student home environment the product must be durable, aesthetically pleasing, relatively inexpensive, and have a interface that is simplistic enough for child use.

Previous Products

Most previous e book products are not marketed to young students. Taking this into account these products are loaded with other unnecessary applications. These applications mixed with the complicated interfaces found in some models, become hopelessly confusing to children. The next problem is the devices were not produced for school consumption. The e books were created for individual purchase. The price is high because of the quality of materials and user targeting. Most popular digital reading devices cost anywhere from $200 to $500.This is far too expensive for any household to purchase per child. All previous e readers were created for leasurely reading of fiction and newspapers. The **Ozmosis** is solely a textbook reading and note taking devise. It is specifically created to aid the young student in his or her academic studies.

Leapfrogs Portable Technology Center (PTC) is a diffrent case from the other e books. Unlike the other devises this prouduct was produced with youg students in mind as the consumers. The PTC was durable enough for student use and had a bright colorful child friendly interface. Not to mention the cheaper price tag of $70. The draw backs to Leapfrog's product was they used one of their gaming devises called a Leapster®. The Leapster, a handheld game console, only allowed for individualized game play and did not lend itself to customized teacher lesson plans and group studies. At best it could be used as a lab supplemental school assignementThe **Ozmosis** is solely a textbook reader complimenting any lesson and can be used on a daily bases in every day classses.

ipad by apple

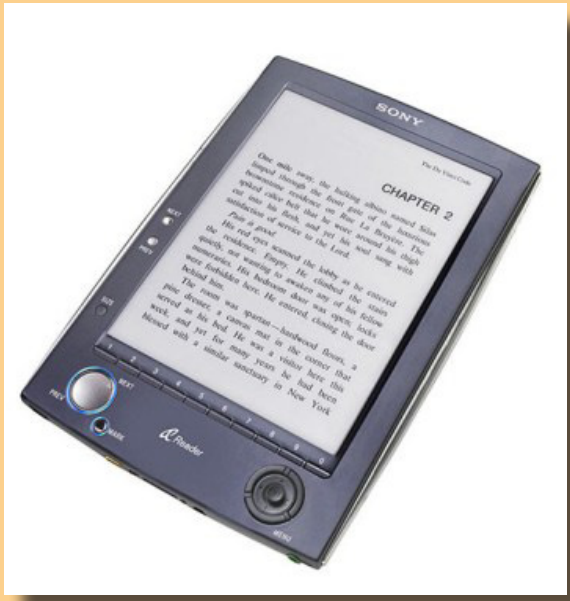


Kindle by Amazon

Nook by Barnes and Noble

Leapster® by Leapfrog

Pepper Pad by Pepper

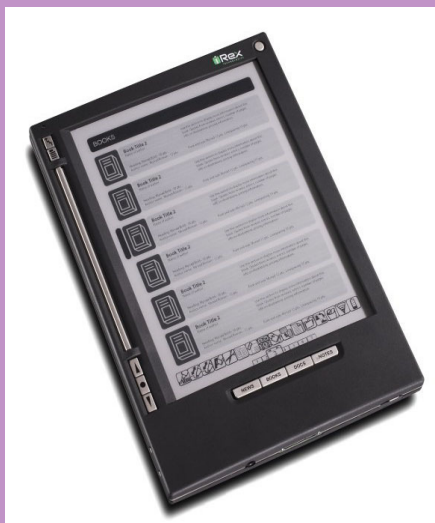


Portable Reader System
PRS-500 by Sony
Sony LIBRIe e-Book Reader

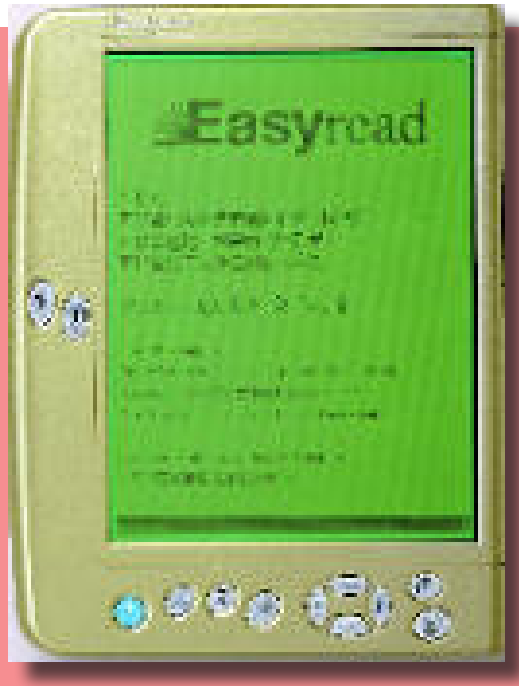
Cybook ebook device by

STAReBOOK STK-101 by eREAD

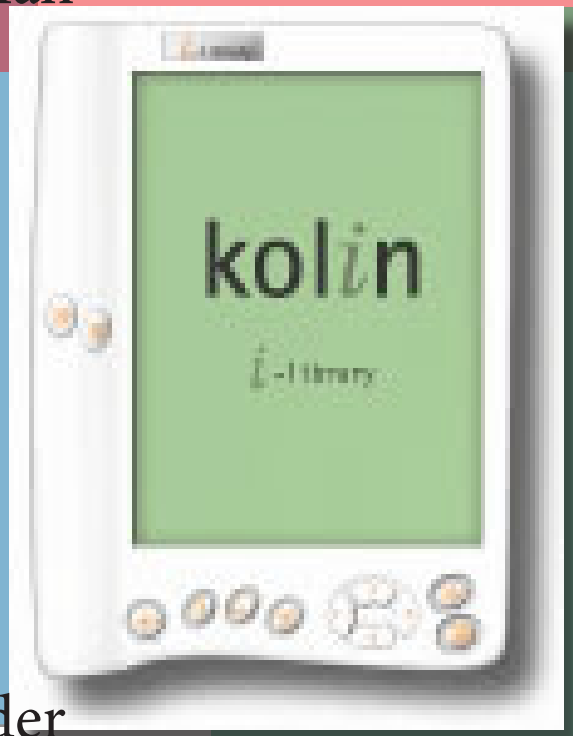
iLiad Reader by iRex Technologies



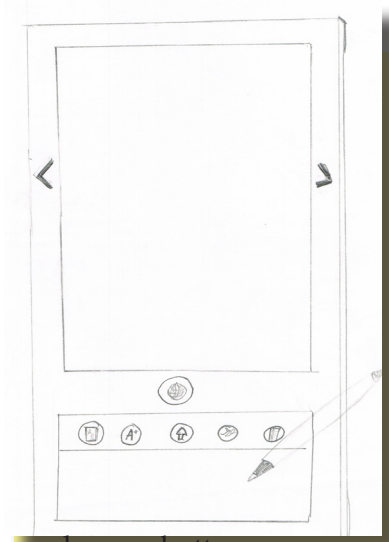
Franklin eBookMan



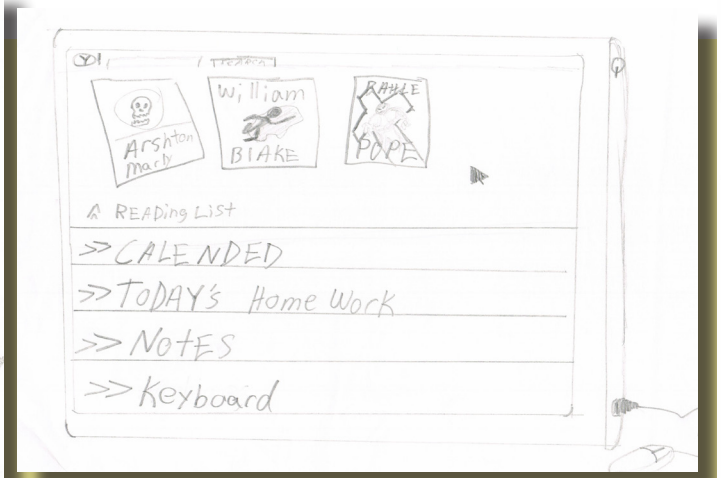
Easyread (Personal Digital Reader)



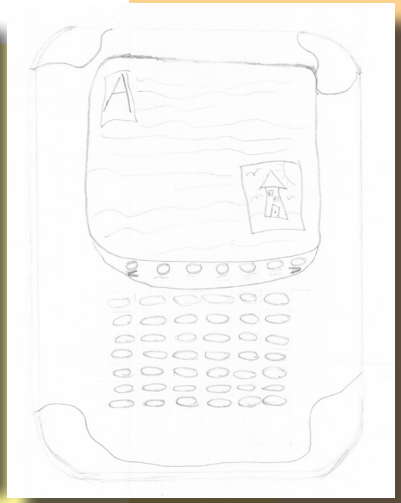
Kolin eBook Reader



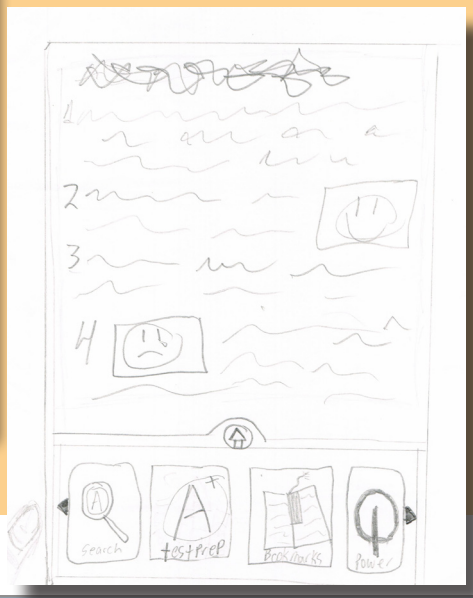
-good arrow buttons
-no roller ball



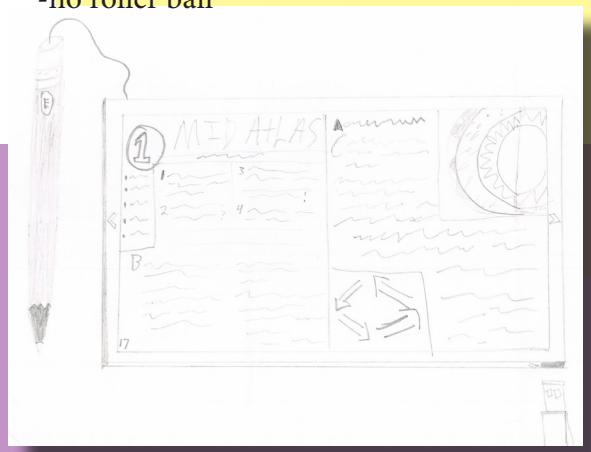
-too big -no mouse



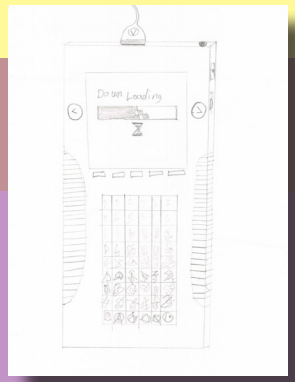
-good corner padding
-too complicated



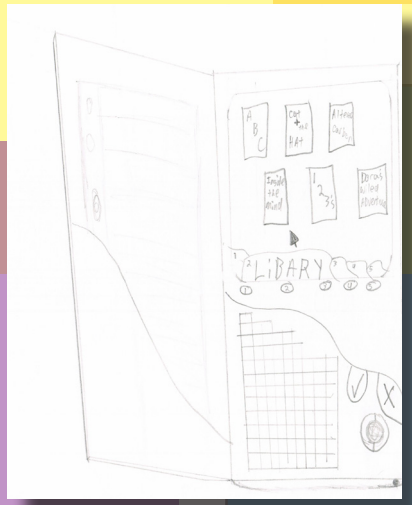
-simple buttons
-power button on touch screen



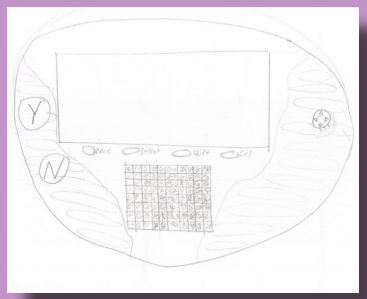
-no dual screen -good pencil stylus



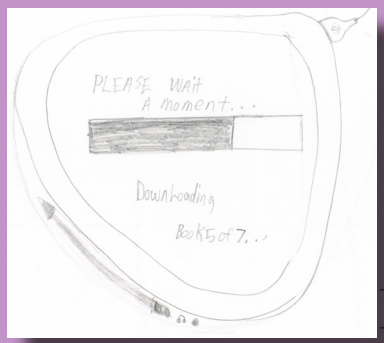
-too blocky
-screen too small



-good cover -too many buttons

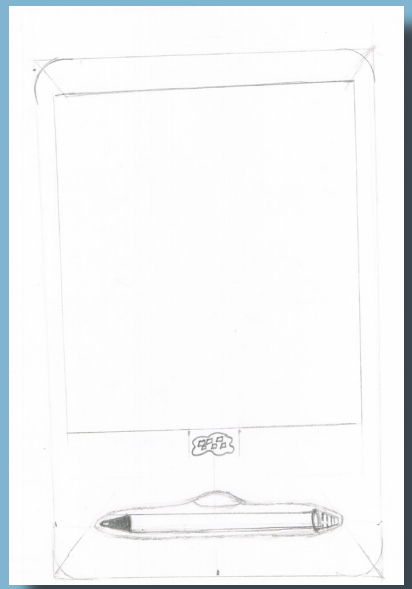


-too many buttons
-too much like a game devise

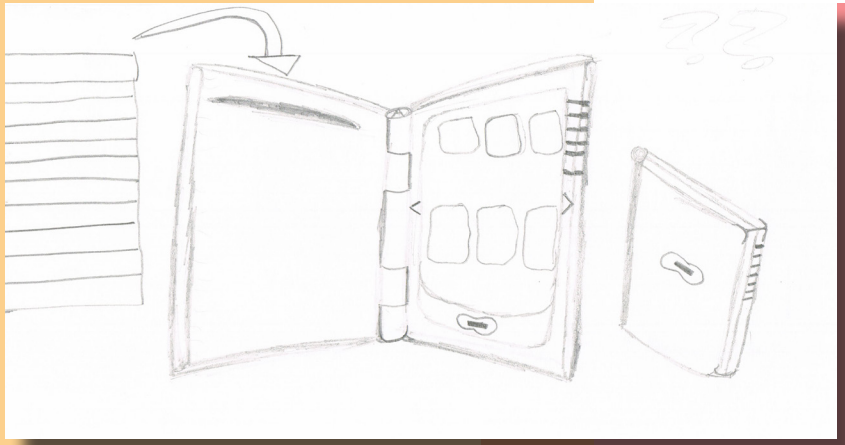


-akward stylus
-bad shape

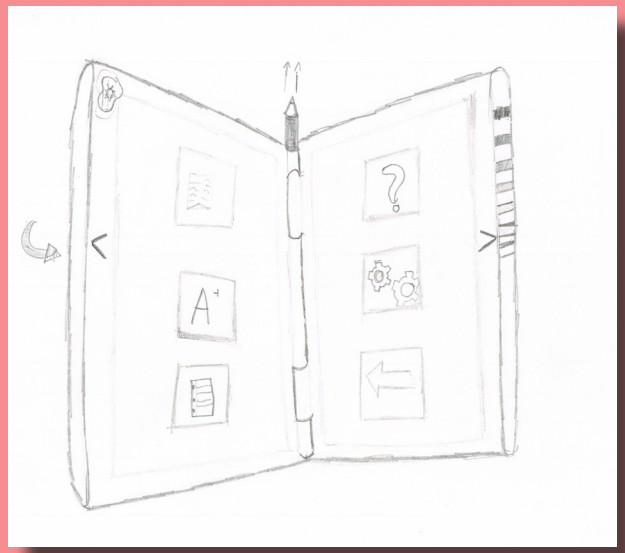
Ideation



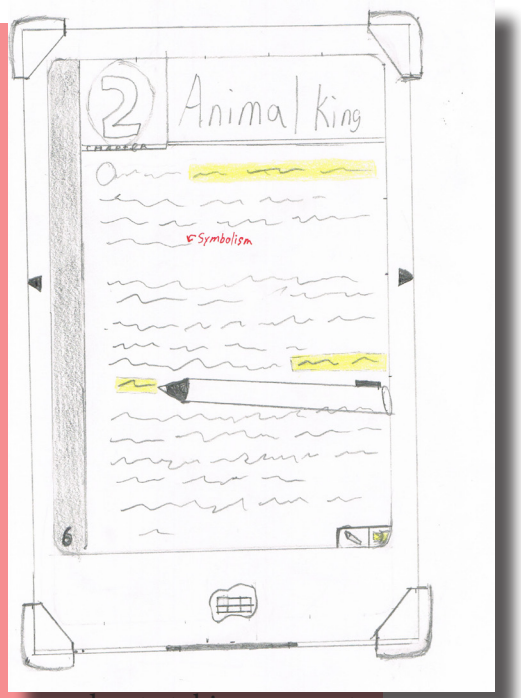
-good home button design
-bad stylus placement



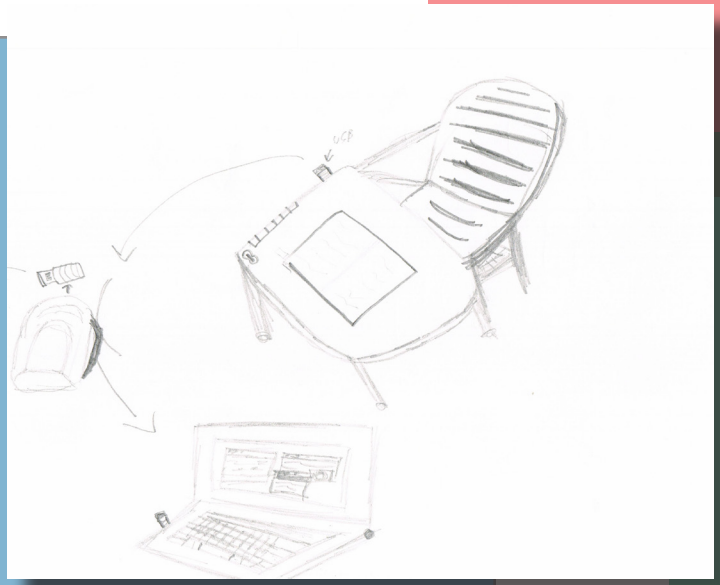
-bad pad design -good tabs



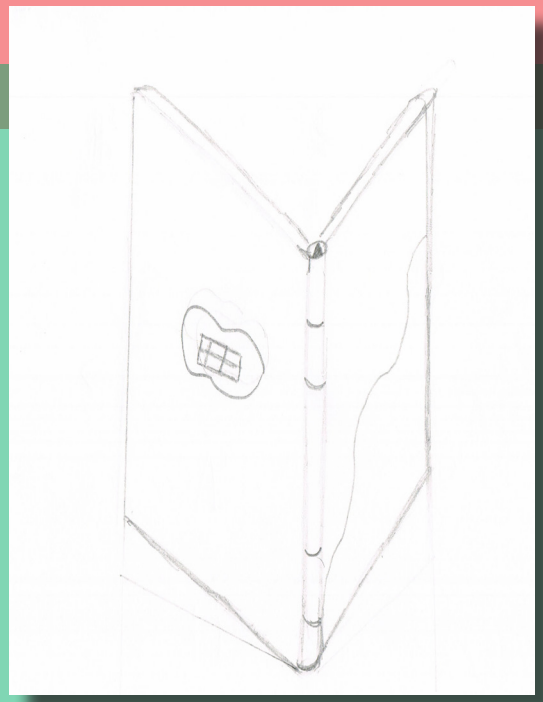
-good book style -good stylus position
-bad dual screen -too expensive



-good note taking concept
- simple design
-bad corner bumpers



-too big -too expencive
-too hard to incorperate into schools

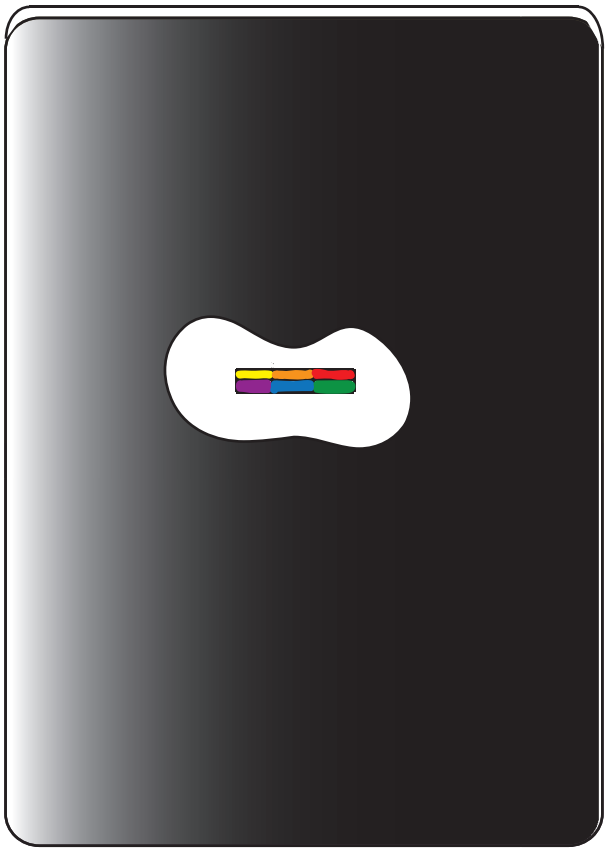


- good book design -theoretical back cover

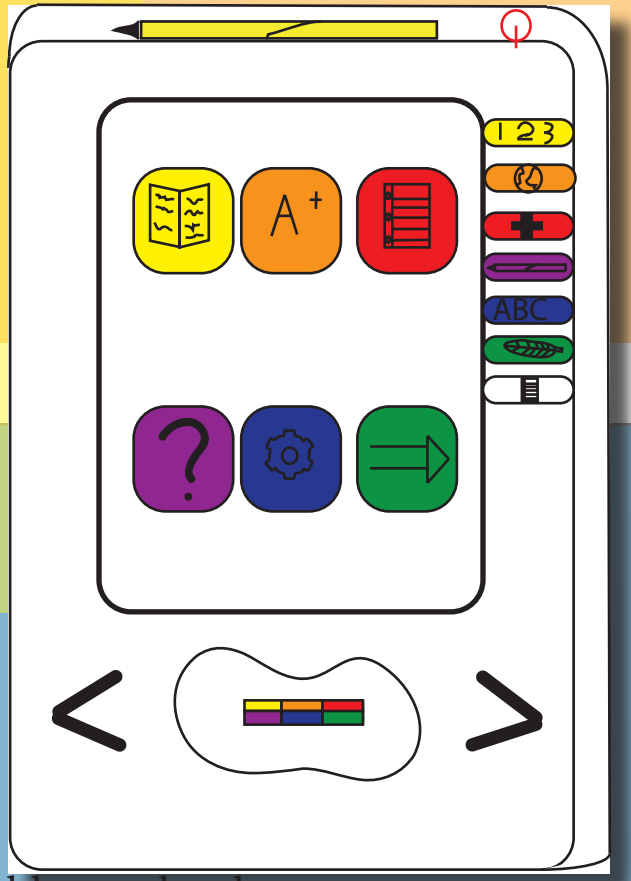
-too thin to be real -bad gripping/ corner bumpers
-writing and visual split confusing

The Final Product

Front Cover



Inside



The OZ

- Size of a marble notebook.
- Its weight is a fraction of that of a textbook.
- One devise where all the textbooks can be stored.
- Simple and colorful touch interface.
- Extremely durable
- portable
- Relatively inexpensive

Additional Advantages

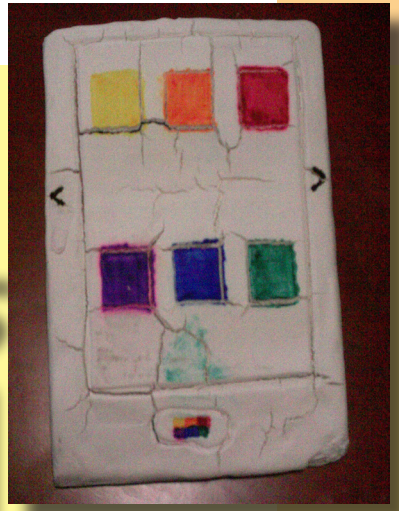
Top

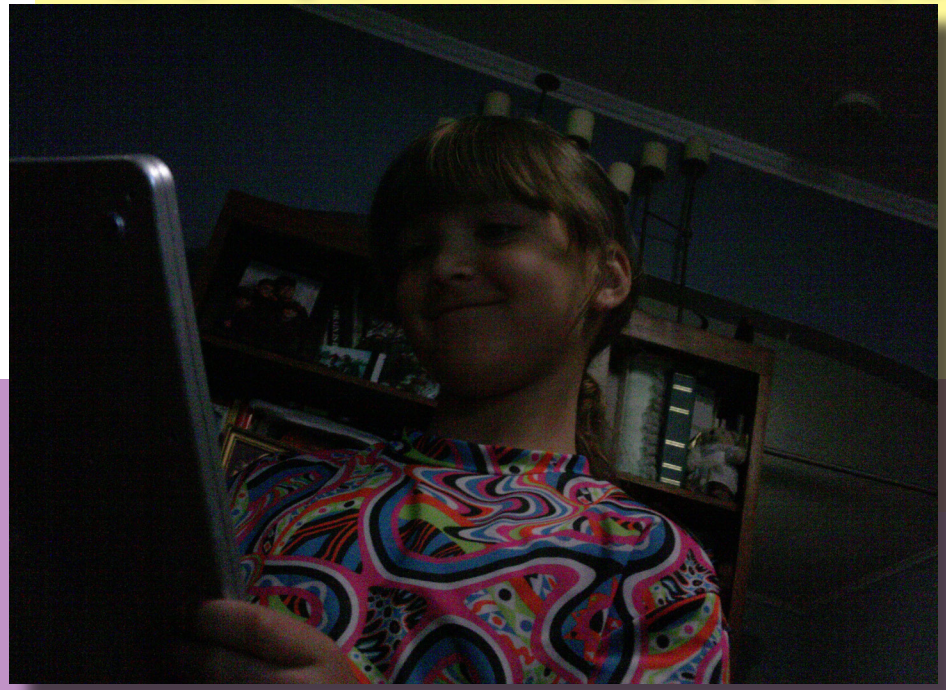
Back

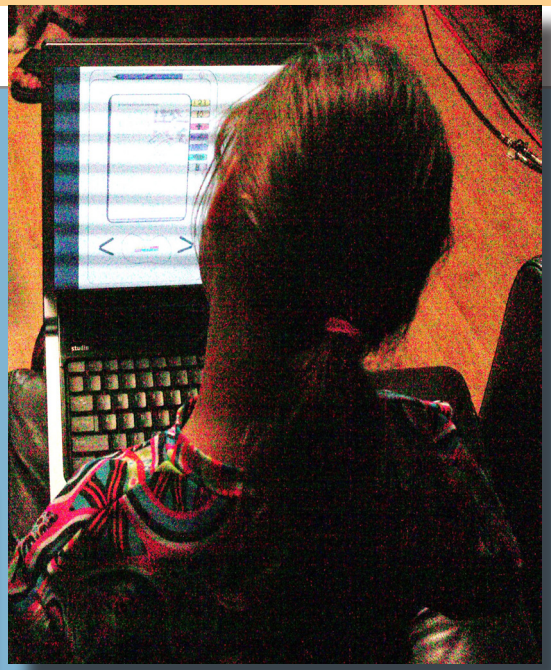
Note taking

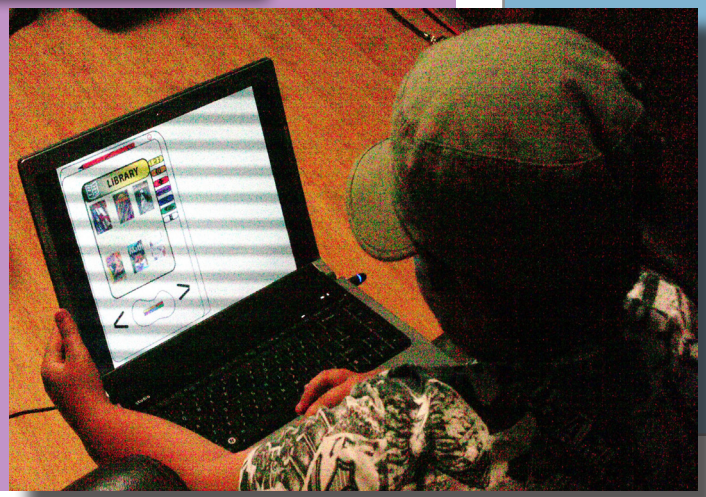
- One time purchase at enrollment in the school.
- System completely controlled by the school.
- Pure profit for publishing companies (subscription based payment).
- Textbooks always up to date.
- Ability to highlight and take notes inside the text-book.

Mock ups & Materials









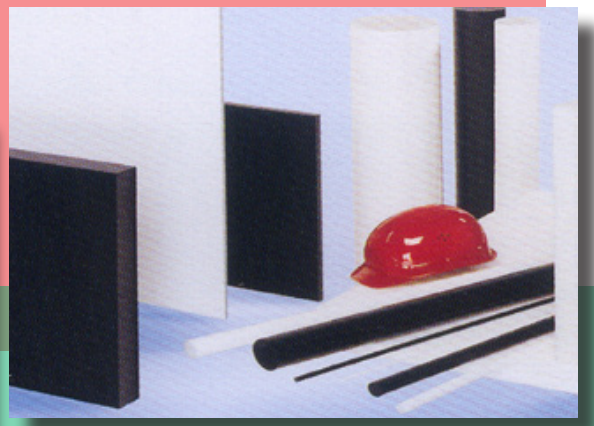
Delrin - acetal resin

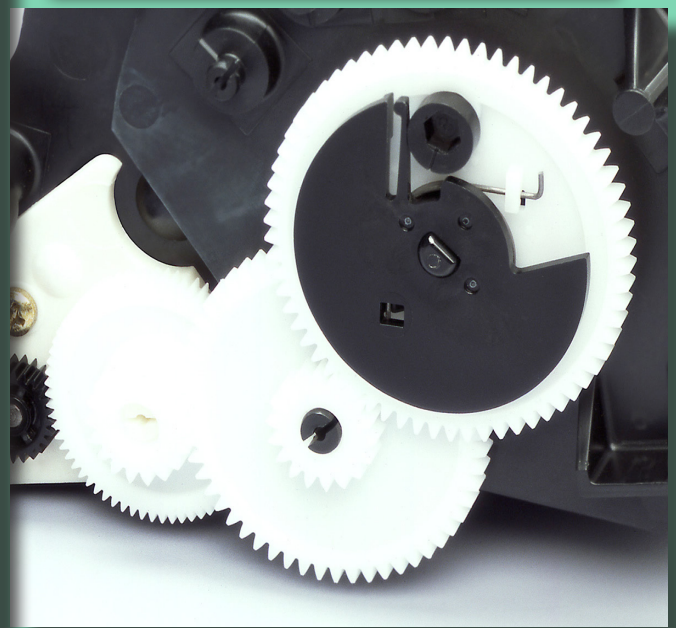
A thermoplastic produced by the addition polymerization of an aldehyde through the carbonyl function, yielding unbranched polyoxymethylene chains of great length. The acetal resins are among the strongest and stiffest of all thermoplastics, and are characterized by good fatigue life, low moisture sensitivity, high resistance to solvents and chemicals, and good electrical properties. Acetals may be processed by conventional injection molding and extrusion techniques. The main area of application for acetal is industrial and mechanical products.

Porperties of delrin:

Toughness at low temperature (down to –40° C).

- High mechanical strength and rigidity.
- Fatigue endurance unmatched by other plastics.
- High resistance to repeated impacts.
- Excellent resistance to moisture, gasolines, solvents and many other neutral chemicals.
- Excellent dimensional stability.
- Natural lubricity.
- Resilience.
- Good electrical insulating characteristics.
- Ease of fabrication.
- Wide useful temperature range.



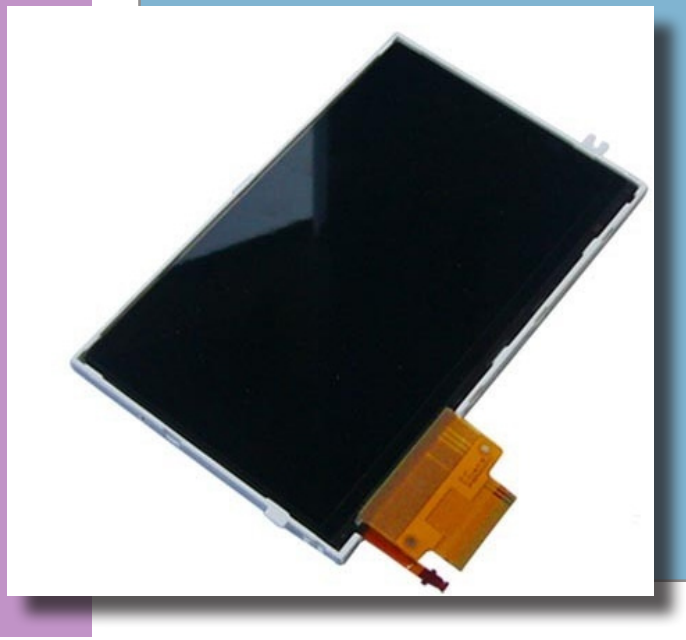


LCD Screen - liquid crystal display

A LCD screen is a thin, flat electronic visual display that uses the light modulating properties of liquid crystals (LCs). LCs do not emit light directly. LCD screens are used in a wide range of applications including: computer monitors, television, instrument panels, aircraft cockpit displays, signage, etc. They are common in consumer devices such as video players, gaming devices, clocks, watches, calculators, and telephones. LCDs have displaced cathode ray tube(CRT) displays in most applications. They are usually more compact, lightweight, portable, less expensive, more reliable, and easier on the eyes. They are available in a wider range of screen sizes than CRT and plasma displays, and since they do not use phosphors, they cannot suffer image burn-in.

Why lcd screen rather than CRT and plasma displays:

- more compact
- lightweight,
- portable,
- less expensive,
- more reliable,
- easier on the eyes.
- They are available in a wider range of screen sizes
- since they do not use phosphors, they cannot suffer image burn-in.



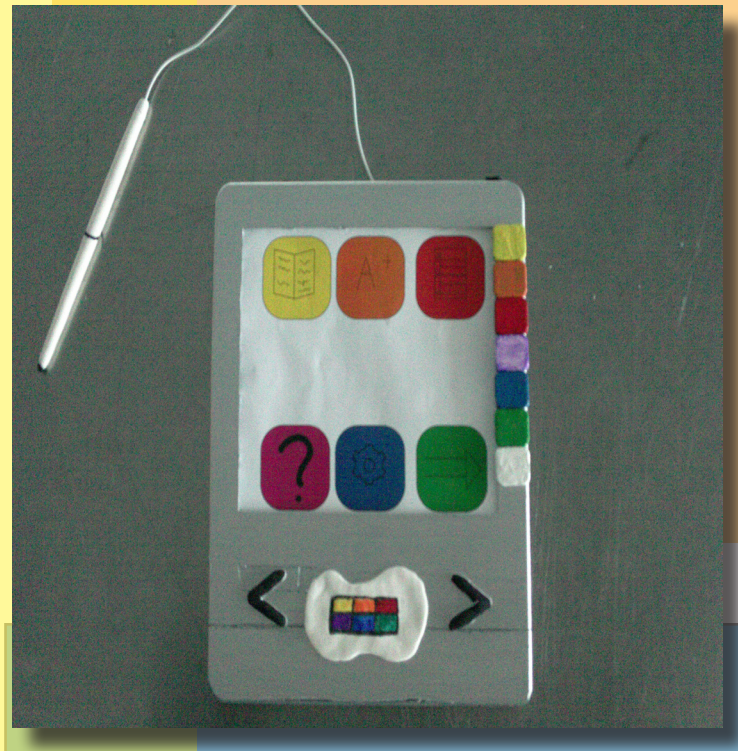
Pleather - Poromeric Imitation Leather

Pleather is made out of a polyurethane film, which is a lighter, more flexible and less restrictive material than leather. This kind of pleather is easy to clean. simple care ensures a longer life for pleather garments, making them nearly as durable and reliable as their true leather counterparts. Pleather is a very versatile fabric that can be made into virtually any accessory or item of clothing. This fabric also breathes and it is easily dyed. Pleather is still less expensive, sometimes costing three times less than real animal hide leather. This makes pleather an attractive fabric for companies that make mass-produced clothing lines and accessories.

pleathers properties

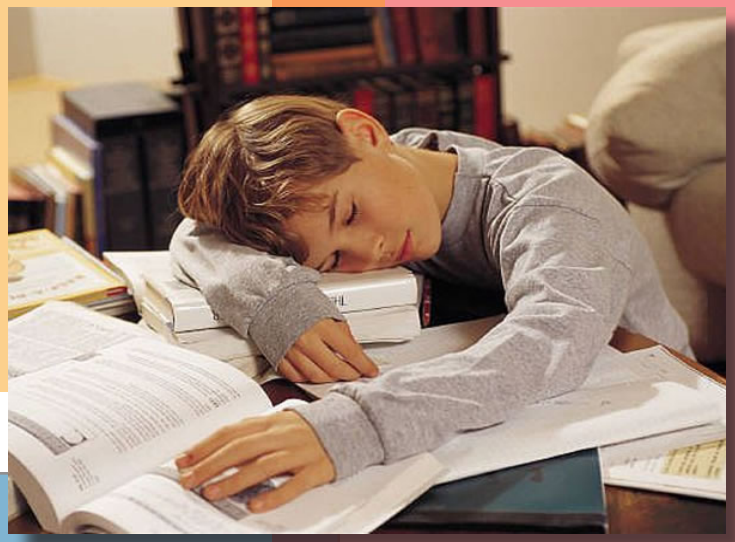
- lighter
- more flexible
- less restrictive material than leather.
- easy to clean
- longer life
- very versatile fabric that can be made into virtually any accessory
- fabric also breathes
- easily dyed
- less expensive

The Prototype



The **Ozmosis** is a device that is one of many yet the first of its kind. Unlike many e readers out in the market today this is the market's first textbook reader. A device specifically designed and produced with the intention of younger student use. The **Ozmosis** devices themselves would be sold in bulk to the schools wanting to implement them into their school system. The parents would then purchase the textbook reader from the school at the beginning of the student's enrollment or start of 1st grade. It's a onetime payment and the student would use The **Ozmosis** for several years after. The extent of the devices use is completely up to the School and its teaching methods. The **Ozmosis** is used in the same manner as an original textbook, or notebook and can be utilized in the classroom the same way. The school simply downloads the books onto the devices at the beginning of the year, and the teacher never has to worry about the new technology until the next update.Because The **Ozmosis** replaces student's textbooks, workbooks, homework planner, and some notebooks, their backpacks are light and keep all of the students resources in one place.

User Data



As stated before the buyers of The **Ozmosis** will be schools concerned with the education and well being of the students. The parents would then purchase the product through the school. However the buyers of the textbook readers are not necessarily the day to day users of this school reasource. The typical user of The **Ozmosis** is a elementary school student in a school grade between and including 1st grade and 4th grade approximately between the ages of 6 and 10. Students who's minds are growing and want or need a interactive medium to learn. It can keep track of multiple resources and help to keep the student organized. The **Ozmosis** is useful for any student that are tired of lugging heavy backpacks back and forth between school and home. Although the student users are an extremely important they wouldn't be using them unless the teacher integrated the technology into the class room. This means the teacher should be open to a little change, as well as, creativity learning to use the device fullest extent.

Functions & Button Meanings

The interface system was specifically organized and colorfully designed to be easy and fast to navigate. The home screen has six big colorful buttons that can be selected by the stylus tap. The buttons are organized like the rainbow starting at yellow and working its way to green. The six big buttons hold icons that relate to the menu it opens; the yellow book stands for the library, the orange grade stands for the homework / test planner, the red loose-leaf stands for the notebook, the purple question mark stands for the help menu, the blue gear stands for the settings menu, and the green arrow is the back button. Towards the bottom of the devise is the icon for The **Ozmosis** it is also a home button which when pressed takes the student out of whatever screen he or she is on and brings him or her to the screen with the 6 color squares. On either side of the home button are arrows these arrows help navigate textbooks and notebooks by flipping from page to page. On the right side of the top of the device is a button holding it for 3 beats will turn the device on or off. Located next to the power button is the holder for the stylus which is connected to The **Ozmosis** by a string. The stylus is used for menu selection and note taking via the touch screen.

On the front of the textbook reader, next to the screen, there are seven rectangular buttons resembling the home screen's 6 squares, only here with the addition of a white button. These buttons are quick tab buttons customizable to each textbook through the options menu. Pressing one of the tab buttons brings the user to the textbook that the button is configured to on the page the reader last left the book on. The white button however brings the user to the notebook page on the last opened page. These tabs are good when students need to flip between textbooks and notebooks or textbook to textbook. Allowing them to go straight to the last page rather than going through the library. Pressing the tab button of the book the user is currently in, opens "in text book options". These stylus selected options include page selection but also, changing to pen, highlighter or eraser functions. These functions are used in note taking both in the notebook and the textbooks. Activated by writing with the stylus one can write notes, answers to the questions, highlight textbook material as well as one's own notes, and erase everything but the textbook material.

Manufacturing

The Ozmosis has three main elements; the plastic shell made of Delrin, the outer cover made of stiff pleather, and the screen an LCD screen with a clear plastic touch screen over it. Each of these materials are chosen for the specific properties each bring to the table. As reviewed in the mock up and materials section. The Delrin pieces are injection molded creating anything from the outer casing to the buttons to the stylus' core. The outer cover is created from pleather and comes in huge rolls of the material which is stamp pressed into the shape of the cover and the logo embossed on to the material. Being that the material has plastic fibers weaved throughout it, it is heat infused with the Delrin shell as its cooling. During the assembly of the pieces the LCD screen is placed into the shell of the device with a clear plastic sheet laid over it this plastic screen holds the sensory components of the touch screen as well as protect the screen from damage. Both the pleather and the plastic is manufactured by DuPont shrinking the sources of materials greatly only needing the electronic components to be ordered from elsewhere.

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http://www.ebook-device.net/

http://www.ebook-site.com/ebook-devices.html

http://www.leapfrog.com/school/prod_pages/LeapsterPTC.html


bicycle ▸ Big Dipper
bicycle
Spelling Note
bicycle
The prefix bi- means "two." Recognizing this prefix will help you spell the word bicycle (a vehicle with two wheels) and these other words: bilingual (speaking two languages); binary digit (one of the two numbers 0 and 1 used in some counting systems); binoculars (an optical instrument consisting of two small telescopes); biplane (an airplane with two sets of wings); bisect (to cut into two equal parts). The word biscuit also contains the element bi-; it originally meant "twice-baked."
wheels mounted one behind the other, a seat for the rider, and pedals for turning the wheels. ▸ verb To ride a bicycle.
▸ verb forms bicycled, bicycling
bid (bid) verb 1. To offer an amount of money as a price: I bid a dollar for the old magazine. 2. To say or express something to someone: Our guests walked to the door, and we bid them farewell. 3. To order someone to do something; command: The knight bade his squire to prepare for the journey. ▸ noun 1. An offer to pay or accept a certain amount for something: We're looking for a higher bid for our boat. 2. An amount that is bid: The winning bid for the necklace was $500.
▸ verb forms bid or bade, bid or bidden, bidding
bidden (bid'n) verb A past participle of bid: They must do as they are bidden.
Carrots are biennial plants.
bifocals (bī'fō'kəls) plural noun 1. Eyeglasses with lenses that have one section that corrects distant vision and one section that corrects near vision: When my dad turned 45, he started wearing bifocals.
big (big) adjective 1. Very large in size or amount: That's the biggest pumpkin I've ever seen. My mother got a big raise last year. 2. Of great importance: Graduation was a big event in my life.
▸ adjective forms bigger, biggest
Synonyms
big, great, large
A hippopotamus is a really big animal. ▸ A great ship appeared on the horizon. ▸ The large factory employs 1,000 workers.
Antonyms: little, small
Big Dipper noun A group of seven stars in the northern sky that is shaped somewhat like a cup with a long handle, with four stars forming the bowl and three forming the handle. It is larger than the Little Dipper, which has a similar shape.
North Star
Big Dipper
ask Teacher
1 2 3
ABC