Home Medical Devices

Ben Shneiderman (ben@cs.umd.edu)

Founding Director (1983-2000), Human-Computer Interaction Laboratory
Professor, Department of Computer Science
Member, Institutes for Advanced Computer Studies &
Systems Research

UNIVERSITY OF MARYLAND
Human-Computer Interaction Laboratory

Interdisciplinary research community
- Computer Science & Psychology
- Information Studies & Education

(www.cs.umd.edu/hcil)
Scientific Approach (beyond user-friendly)

- Specify users and tasks
- Predict and measure
  - time to learn
  - speed of performance
  - rate of human errors
  - human retention over time
- Assess subjective satisfaction
  (Questionnaire for User Interface Satisfaction)
- Accommodate individual differences
- Consider social, organizational & cultural context
Design Issues

- Input devices & strategies
  - Keyboards, pointing devices, voice
  - Direct manipulation
  - Menus, forms, commands

- Output devices & formats
  - Screens, windows, color, sound
  - Text, tables, graphics
  - Instructions, messages, help

- Collaboration & communities

- Manuals, tutorials, training
Goals for The New Computing

1) Usable: Reliable & comprehensible

2) Universal: Diverse users & varied equipment

3) Useful: In harmony with human needs
## Standardize & Improve Home Medical Devices

<table>
<thead>
<tr>
<th>Monitors</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Glucose</td>
<td>• Ease of use</td>
</tr>
<tr>
<td>• Bathroom scale</td>
<td>• Accuracy</td>
</tr>
<tr>
<td>• Thermometer</td>
<td>• Interpretation</td>
</tr>
<tr>
<td>• Blood pressure</td>
<td>• Logging</td>
</tr>
<tr>
<td>• Breath</td>
<td>• Annotation</td>
</tr>
<tr>
<td>• Fat</td>
<td>• Save/Send</td>
</tr>
<tr>
<td></td>
<td>• Visualize</td>
</tr>
</tbody>
</table>

http://www.marketresearch.com/map/prod/924670.html
血糖监测

血流动力学，Inc. (HDI) — 一个领导者在糖尿病管理与血糖监测系统 — 帮助数百万糖尿病患者享受更好的生活。

特征Prestige智能系统™

一个无与伦比的准确性的组合

它是最聪明的选择™糖尿病监测。

保存最多40%的Prestige智能系统™测试条。只需更少的血。

临床研究证明Prestige IQ™血糖监测器是准确的和容易的。

新教育手册帮助您管理糖尿病。

食谱——这是美味的！

http://www.homediagnosticsinc.com/
Body Fat

Accu-Measure FatTrack Gold Digital Body Fat Caliper with MyoTape Body Tape Measure

The FatTrack GOLD is a new configuration of the successful FatTrack II, with a MyoTape Body Tape Measure added for extra measurement capability.

Recommended by Men's Journal, Muscular Development, Oxygen, Physical, Shape, Ironman, Muscle & Fitness Hers, Max Sports & Fitness, and Natural Muscle magazines. Also recommended by the World Natural Bodybuilding Federation, the FatTrack GOLD with MyoTape meets the stringent requirements of weightlifters, bodybuilders, and powerlifters. Whether you are in the Body-for-LIFE challenge, a competitive lifter, personal trainer, or just trying to monitor your body fat to maintain great health, the FatTrack gives you the do-it-yourself ease and accuracy expected from expensive medical devices.

Each FatTrack GOLD product includes:
- A FatTrack II Digital Skinfold Caliper
- MyoTape Body Tape Measure
- User manual with instructions
- FREE copy of "Improve Your Measuring Skill," with practical pointers for getting the best measurement readings and valuable information on ideal weight and muscle

http://www.linear-software.com/digitalcalipers.html
Blood Pressure & Pulse Rate

PRO-MED PRODUCTS
LOW PRICES - HIGH QUALITY PRODUCTS

Digital Blood Pressure/Pulse Monitor
The Manual Inflation monitor combines ease of use and affordability. This monitor combines the software technology of our automatic inflation monitors, but leaves cuff inflation control up to the user. The Manual Inflation monitor can assist in the management of hypertension, improve patient compliance to treatment of high blood pressure, and be used as a tool in a preventative health management program:

- Large, easy to read 16mm digital display
- Audible tone indicates proper inflation level
- Four-week blood pressure logbook included
- Fast measurement
- Latex free
- Comes with instruction manual

http://www.promedproducts.com/
Heart Rate Monitors

If you're an athlete looking for training guidance you'll get everything you need with the Polar S210. You can program the watch to store the training parameters (T2, timings, recovery) of your five most popular workouts. Just select the workout on the watch, put the transmitter on, and get going. The S210 will coach you through your workouts.

- OxiCom - Measures your VO2 max
- OxiCal - Tracks nutrition expenditure
- OxiCode - Personal transmission feature
- Exercise Set - program the parameters of five key workouts (T2, Timers, Recovery)
- View heart rate as a % of Max hr
- 3 Target Zones and Timers
- Average and Recovery Heart Rate
- Interval Timer
- Lap Splits with avg. hr
- Stopwatch and Timer and Supervisory free.
Dynamometers

Jamar Hydraulic Hand Dynamometer

- Measures force from 0-200lbs.
- Stainless steel gauge is protected by an exclusive shock-resistant rubber protective cap.
- Wrist strap prevents accidental damage.
- 5 position handle easily adjusts to fit virtually any hand.
- Includes instructions and comes in an attractive carrying and storage case.
- 2 year warranty.

Inclinometers

Digital Inclinometer

Allows clinicians to easily and accurately measure ranges of motion that would otherwise be difficult. Clinicians can choose a zero reference point and hold the results for easy viewing without bending over. Includes arch attachment for measurement of X-ray and sacral base angles, and ruler attachment for measuring the angle between bony landmark which are far apart. Complete instructions to aid first-time users and seasoned clinicians by providing methods, guides and protocol.
Resources

Intel's Proactive Health
http://www.intel.com/research/prohealth/

Univ of Rochester Future Health
http://www.futurehealth.rochester.edu/smart_home/
The old computing is about what computers can do,
The New Computing is about what people can do

Human-Computer Interaction Laboratory
www.cs.umd.edu/hcil