# **Design Projects 3500** Design for an Aging Population



## Automatic Pill Reminder (APR)

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### **Section: Story**

**Problem Definition** 

Jane is a 74 year resident of Nova Scotia and lives alone in an urban area. Jane's grand daughter visits her once a week but she does not have enough time to take care of Jane on a daily basis. Jane is able to do her daily tasks and house chore without problems.

Jane's general health is in a good shape, but she suffers from diabetes, high cholesterol and a mild rheumatoid arthritis. Jane's doctor has prescribed her long term medications needed, but unfortunately recently the number of capsules and pills has exceeded more than 7 different types. Although Jane's short term memory has remained intact, her long term memory has been slightly decreased from 5 years ago. Her doctor has advised her that this is a typical sign of aging and she does not need to be worried about it. Jane is using 7 different cap/pill containers and she has to memorize more than 7 different combinations of cap/pills to take everyday.

Recently she has missed some of the days to take the medications. Sometimes she has taken the wrong pills on the wrong days and it could also harm her health. She tried to use a manual pill organizer but the problem was that she just forgot to take the pills from the pill organizer.

I started to work on the problem. Jane needed to have a system to alert her and remind her to take the pills in add to organize them. I designed an automatic reminding system that will alert Jane every day by a green light when it is the time to take the medications. In case Jane forgets once to take the pills, the reminder will alarm her by a red light plus a alarming sound. Jane has to fill the device once a week and the rest will be adjusted by the system. This dispenser uses a rechargeable battery so Jane does not need to buy new battery.

I have called this device the Automatic Pill Reminder (APR). APR fits in hand and Jane can take it with herself everywhere she likes. I hope Jane will not forget her pills anymore.

### Section: Research

**Research References** 

I have used the following research resource to accomplish this product design:

Day Peter, Lewis Linda, "Art in Everyday Life", 1988

Williams A Hugh, "World Design", 1992

Antonelli Paola, "Objects of Design: museum of modern art", 2003

The International Design Magazine (ID) 2004, Volume 14

Communication Arts Magazine, 2006

The International Review of Graphic Design, The Eye Magazine, 2005

World of graphic Design, The NOVUM Magazine, 2001

http://arthritis.about.com/od/assistivedevicesgadgets/tp/pillbox.htm (Top 10 Pill Boxes)

http://www.gadgetspeak.com/gadget/article.rhtm/752/237996/article. html (*An Electronic Nurse*)

http://csdl2.computer.org/persagen/DLAbsToc.jsp?resourcePath = /dl/ mags/co/&toc = comp/mags/co/2004/05/r5toc.xml&DOI = 10.1109/ MC.2004.1297237 (Inventing Wellness Systems for Aging in Place)

http://www.seniorjournal.com/NEWS/Eldercare/4-04-07Autominder. htm (*Autominder Serves as Computerized Caregiver for Elderly*)

http://www.findarticles.com/p/articles/mi\_m3498/is\_n12\_v55/ai\_ 13539958 (*PolyMedica markets medication reminder*)





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### **Section: Mock-ups**



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### Section: Usability



### **Section: Functionality**

# Color of the light

The irregular surface of the top lid helps sliding it easier. When the light turns green the user has to open this lid and take his/her medication.

The top lid can be slided in both ways and it snaps on both ends. The top hole is located underneath the top lid.

### Back Transparent Lid

Every weekend the user needs to refill the weekly compartments. The user opens the back transparent lid by pushing down a button located beside it. Then the user fills the compartments with the required medications. When the user closes the back lid, the system will reset itself and becomes ready for use.



### **Section: Parts**



### **Section: Recharger**



### **Section: Technology**

### Technology





This device has been redesigned in a 3D application to simulate the dimensions and its functionality.

First, a hand-drawn sketch has been drawn on paper and then it was scanned in the program.

Second, the hand-drawn picture was converted to a vector image.

Finally the vector image was imported in the 3D program and then the dimensions have been created.

After initial modeling, additional texture, advanced lighting and special cameras was created to increase the visual impression of the final renders.

- 1) Top Lid
- 2) Top Dispenser Hole
- 3) Internal Compartment System
- 4) Recharger Base
- 5) Grabbing Pads
- 6) Alarming Lights

Please refer to the 'Parts' section for further information.

### **Section: Dimensions**



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### **Section: Views**

