

“Nana” Technology™

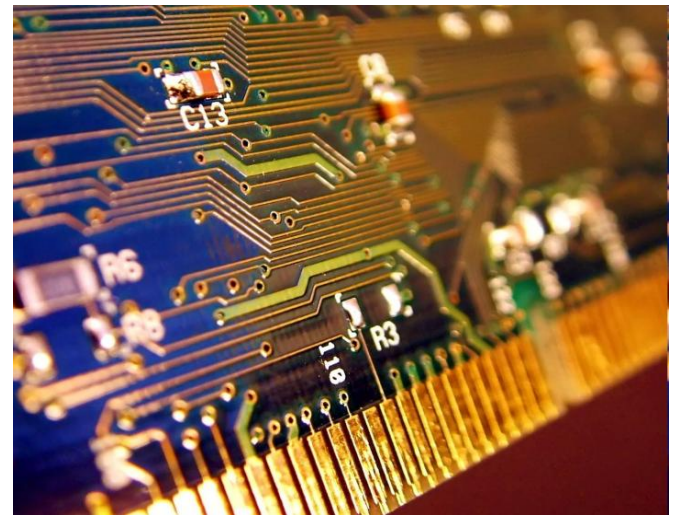
Is There A Robot In Your Future?

OLLI
Summer Session
July 23, 2013



ApriAlpha ApriAttenda
(Toshiba Corp)

- I. Why Technology is Important
- II. “Nana” Technology/Categories
- III. Technologies for TODAY
- IV. Technologies for TOMMOROW
- V. Bringing it all
TOGETHER



I. Why Technology is Important:

- First of **78 million** Boomers turned **65** Jan.1, 2011.
- Pop. age **85+** expected to more than triple from 5.7 million (2010) to **19 million** (2050). (U.S. Census Bureau 2008)
- Age **100+:**
 - 2050 U.S. Census (Est.):
834,000 age 100+.
- **NOT** an American phenomenon:
 - U.S. only **51st** of countries in % of pop. 65+. (NationMaster, 2008)
 - World Population (HSBC 2004):
 - **World Pop. 1900 = 1.65 Billion.**
 - **World Pop. 60+ 2050 = 2 Billion.**

Outcome:

- “**Global Aging**” will effect us long before “**Global Warming**”.
- Individuals who in **1968** thought they would change the world, by **2028** Actually will.



Two Issues:

1. Who will take care of them?
2. Where will they live?



Two Problems:

80% of LTC provided by **43.5 million*** (unpaid) “Family Caregivers”:

■ **Time** (*already collapsed*): Dual-working spouses means **one-third of caregivers are now men***, but combined time available to dedicate to task may be **LESS**.

■ **Proximity** (*collapsing*): **17%** of family caregivers live more than an **hour away***, with percent expected to increase each year.

■ **Energy** (*preparing to collapse*):
If your Mom is **100...**how old are **YOU**?
□ 14% of family caregivers are over the age of 65 **today**.

20% of LTC provided by “Professional Caregivers” (65K Senior Housing, 10K Home Health Agencies):

- Retirement of “Boomers” will create critical gap in labor pool:
 - **35 million** more jobs of **any kind** than **people to fill them** by 2030. (GAO)
 - **6 million** LTC nurses and nurses aides needed by 2050.
 - Only **2 million** available today. (U.S. DHHS/DOL)

How will we provide care?

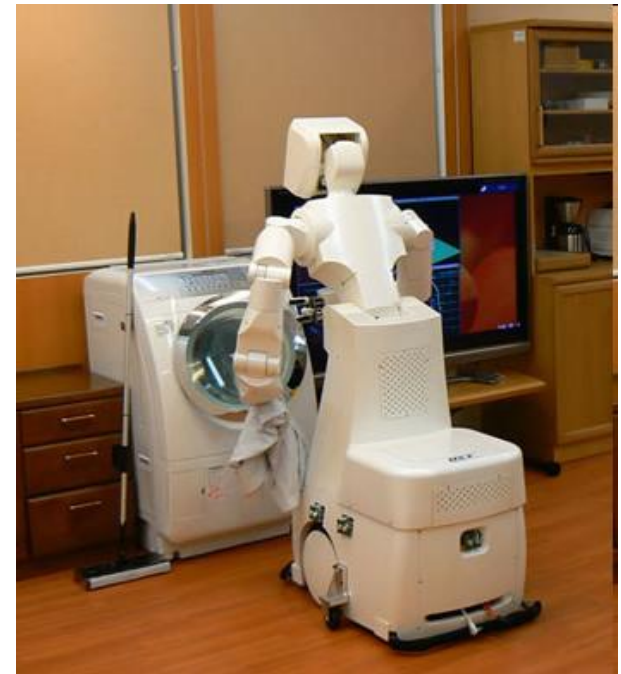
Answer: Technology

1. Allows seniors to remain independent in their homes without human resource assistance,

OR

2. Makes available human resource assistance more productive

- Making one nurse or nurse's aide in the future as productive as three today.



“AR” <http://www.youtube.com/watch?v=-wEgmNzs0w>

II. “Nana” Technology™ - Defined

“Microchip based technology designed, intended, or that can otherwise be used to improve quality of life for older adults.”

- A. Carle

http://en.wikipedia.org/wiki/Nana_technology



- **\$5 Billion** market for the microchips needed to operate these technologies.



“Nana technology” tools help seniors be independent

Categories of “Nana” Technology™:

■ Health & Wellness

□ Medications:

- Individuals 65+ are 12% of population, but consume 50% of OTC and 1/3 of Rx medications. (JAAPA, 2006)
- Estimated 22,500 deaths/year due to medication error. (AMA, 2004)

■ Safety

□ Falls:

- #1 cause of death due to injury in individuals 70+ (CDC).
- Projected to cost U.S. **\$55 Billion** in medical and related costs/year by 2020.(CDC).

□ Alzheimer’s (wandering):

- Up to 60% will be involved in a “critical wandering” incident (become “lost”). (Alzheimer’s Association)
- Nearly half (47%) **DIE** if not found within 24 hours.

■ Cognition

□ Alzheimer’s Disease:

- Affects nearly **half** of those 85+.
- From 26 million to **106 million cases** worldwide by 2050. (Johns Hopkins,2007)

□ Mild Cognitive Impairment:

- Affects 12-20% of those 70+. (Mayo Clinic, 2006)

■ Sensory

- Vision/Hearing

■ Communication

- Audio, Video, Text

■ Mobility/Transportation

□ DRIVING

- Ambulation (walker/wheelchair)

■ “Lifestyle” (IADL)

- Cook, Clean, Garden, etc.

■ Robotics/Integrated Systems

- Technologies that self complete tasks, and/or address two or more categories in one “System”.

III. Technologies for TODAY: Meds

MedMinder

- “Cellphone Pillbox” (\$40/mth.)
 - No internet, no landline
- Flash-Beep-Call/Email/Text (30 min.)
- Pre-Filled Insert Trays
- Unlimited Contacts
 - Family, Staff, Pharmacist



Weekly Report, Period of August 02 - August 08, 2009

Previous week | Next week

Print Report | View full history

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Schedule
12:00AM								
2:00 AM								
4:00 AM								
6:00 AM	Not Taken	✓	✓	✓	✓	✓	✓	MORN(7:00-9:00)
8:00 AM	Refill missed							
10:00 AM								
12:00PM	✓	Not Taken	✓	✓	more...	✓	✓	NOON (12:30-2:30)
2:00 PM								
4:00 PM								
6:00 PM	✓	✓	✓	✓	✓	Not Taken more...	✓	EVE(6:30-8:30)
8:00 PM	Monday Noon taken more...							
10:00 PM	Not Taken	Not Taken	✓	Not Taken	Not Taken	more...		BED(11:00-1:00)

Technologies Today: Falls



SafeGuardian™
Protecting All That You Love

- “Safety Cell Phone”
- Clip-on/Carry, 4 Speed Dials
- 24/7 Urgent Response Button
- “OnStar” Concierge Assistance
- **Autofalls Detection**
 - Only 20% of elderly pushed panic button after a fall.
(British Medical Journal, 2008)
- **Covers entire United States**
- \$99 Activation, \$39/mth.



Technologies Today: Cognition

■ “Brain Games”

- ❑ “Fun”
- ❑ No scientific claims, may or may not be individualized. “Mind challenging”.
- ❑ *Nintendo® BrainAge™*

■ “Brain Gyms”

- ❑ “Joining a Gym (Exercise Equip)”
- ❑ Science based exercises. Individualized by the user. Targeted to all age groups.
 - *Lumosity.com* and other “online gyms”.

■ “Brain Trainers”

- ❑ “Personal Trainer”
- ❑ Science based. Individualized by the Trainer. **Targeted to seniors.**
- ❑ Downloads.
- ❑ *PositScience™, Dakim™, CogniFit™*

■ “Brain Systems”

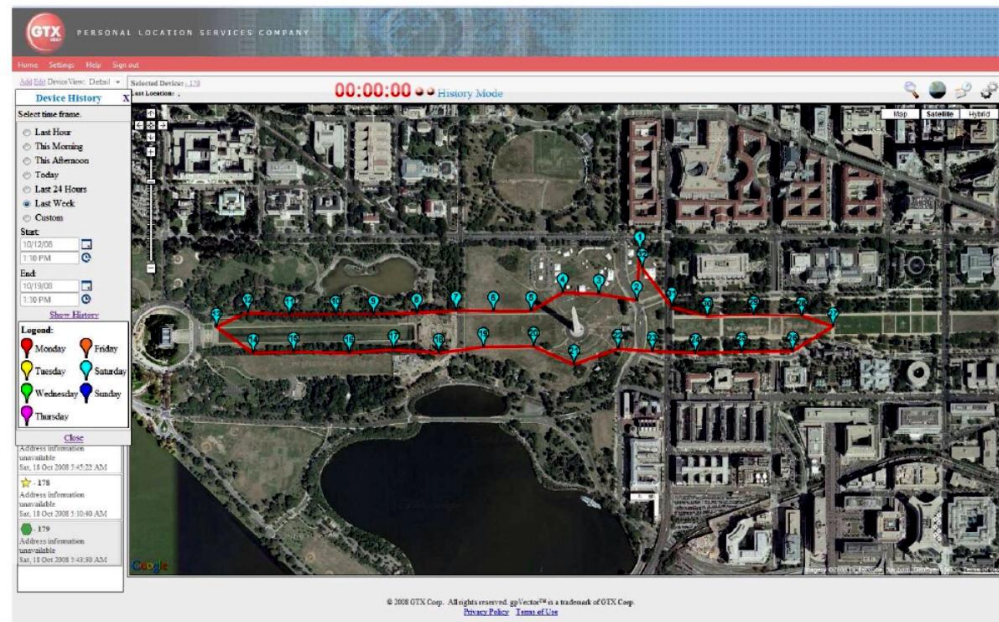
- ❑ “Mind, Body, Spirit”
- ❑ Science based. Individualized. **Targeted to seniors.**
- ❑ Incorporates cognition training, **plus** overall health, wellness, and social well being.



Technologies Today: Safety/Cognition



- Can locate within 30', anywhere there is GPS and/or cellular reception.
 - I.e. **“Worldwide”**
- Utilizes Procedural (Habitual) Memory.
 - **Last type of memory retained in AD**
- “Geofencing” Capabilities.
 - **As large or small as needed**
- Auto alerts to designated family member of caregiver.
 - **Cell phone, PC, Tablet**
 - **Includes low battery alerts**
- \$299, \$20/mth.



Technologies Today: Integrated Systems

“Sensor” Technologies:

- Uses sensors to **Monitor** health & wellness:
 - Motion (Bedroom, Bath, Med Cabinet, Kitchen)
 - “Tele-health” (Temperature, BP, Weight).
- **Establishes baseline** of normal activities:
 - “Reports” emergencies or requested information to caregiver or health professional, via password protected website.
- **“Communicates”** with senior via dedicated **GrandCare TV** channel or **HOME BASE** (pictured):
 - Reminders (meds/appointments)
 - Video/Photo’s (even grandkids from cell phones)
 - Greetings



Blood Pressure



Motion



Weight



Door

IV. Technologies for TOMORROW:

Health & Wellness:

■ “Magic Medicine Cabinet”

(Accenture Corp.)

- Face recognition
- Voice communication
- Medication management
- Telehealth

- BP
- Blood Sugar
- Cholesterol



■ “Digital Pill”

(Proteus Digital Health)

- Currently in use in UK
- FDA approved (2012). U.S. use by 2014.
- Confirmation, heart rate, activity, etc.



Technologies Tomorrow: Falls

“Self Parking” Walker

(Carnegie Mellon):

- Significant % of seniors who fall do so while either walking to or away from their walkers to “sit down”.
- Uses remote control to leave and/or retrieve walker.
 - **Developing Voice Recognition**
- Looking at applications for self navigation for cognitively impaired residents in senior housing communities.



■ “Smart Shoes”

(Boston University)

Pilot Study:

- 73 year olds had same balance as 23 year old grad students...



Technologies Tomorrow: **Driving**

Self Driving Car:

- **Myth:** Seniors are bad drivers.
 - ❑ **Accidents/Driver SIX TIMES lower than 16 yr. old, and half that of all drivers.** (Census Bureau)
 - ❑ **Most voluntarily stop driving when they feel they aren't safe.**
- **Issue:** Results in “downward spiral” in all areas:
 - ❑ Socialization/Spirituality
 - ❑ Nutrition
 - ❑ Home Maintenance
 - ❑ **“Prisoners in their own home”**
- **GOOGLE:** Has surpassed 300K miles on test vehicles.
- **Ford, GM, BMW** all working on vehicles.
- **NHTSA:** Established 5-Level Definition for self-driving technology (2013).
- **Society of Automotive Engineers** predicts “fully autonomous” cars by 2025.
 - ❑ **First Baby Boomers reach 80.**

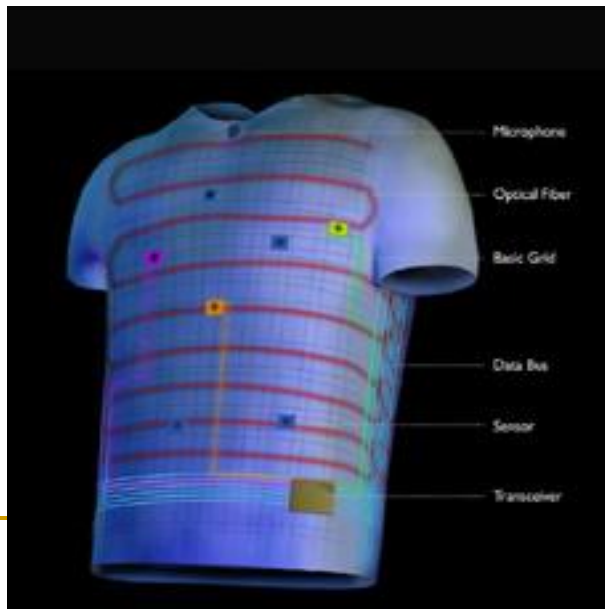
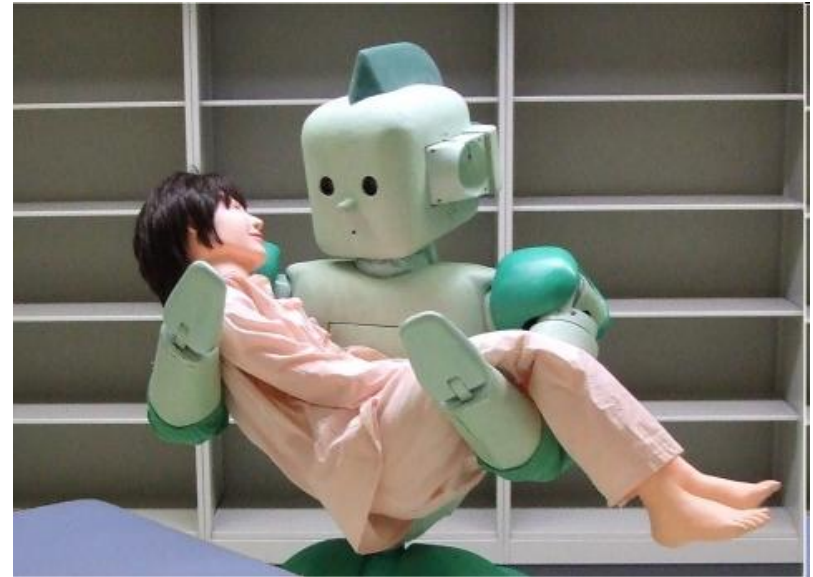


Technologies Tomorrow:

Robotics:

- “**RiMan™**”
(Riken Labs)
- Can “*See*”, “*Hear*”, “*Smell*”.
- Currently lifts up to 90 pounds.
- Next phase to be designed for assistance to Japanese elderly.

<http://www.youtube.com/watch?v=17A3wD6Vx7g>



Integrated Systems:

- “**Smart Shirt**” (Sensatex, Inc.)
- “**iTextiles**”
- Vital Signs & Safety Monitoring

V. Bringing It All Together:

ISSUE: “People 65+ won’t use technology.”

- Tell that to the people using the Roomba® :
 - **(Under 65)** *“The Roomba® vacuumed the room.”*
 - **(65+)** *“I vacuumed the room, with the Roomba®.”*



OK...But people 75+ won't use technology.

■ Nintendo Wii®

- ❑ Low impact
- ❑ Range of motion
- ❑ Same “hobbies” they already enjoyed



- Erickson Retirement Communities (CCRC's)
 - ❑ Average age 80+.
- Erickson Sports:

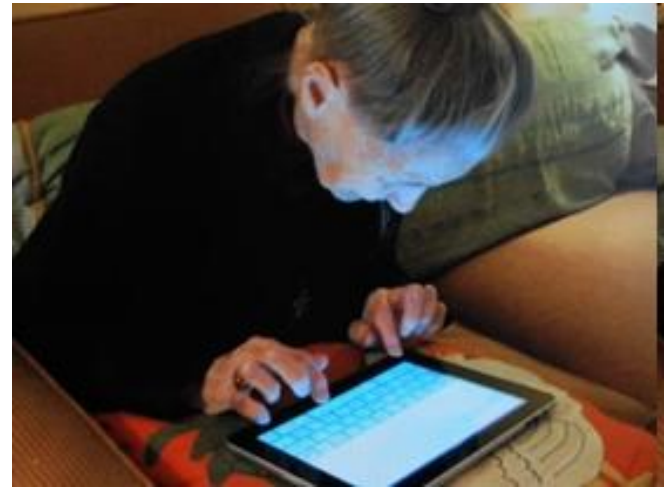


<http://www.youtube.com/watch?v=1rKlcSMsE0I>

OK...but people 85+ won't...

iPad®:

- ❑ Doesn't require prior computer knowledge.
 - No keyboard. No mouse.
- ❑ Replaces paper, not a computer.
 - Applies to their “paper” world.
- ❑ Apps (i.e. “Buttons”) that are self explanatory.
 - Nothing to “learn”.



*“To this technology-ninny it’s clear
In my compromised 100th year,
That to read and to write
Are again within sight
Of this Apple iPad pioneer.”*

- Virginia Campbell, Age 99
Mary Woods Retirement Community
Lake Oswego, OR

<http://www.youtube.com/watch?v=ndkIP7ec3O8>



The Truth about Technology...

People will use **ANY** technology that can improve the quality of their life – and is “user friendly”.

- 1284 Salvino D'Armato credited with inventing first wearable eye glasses.



- AARP/Microsoft Study (“Boomers and Technology” 2009)
- **“Ease of use”** is the primary expectation:
 - *“If you can’t explain it in one page (of instructions), you need to make it simpler.”*
 - *Seniors aren’t behind everyone else when it comes to technology...they are **AHEAD**.*
- An expectation of **ALL** technology, for **ALL** age groups, moving forward.
 - No more “Blinking 12:00”.



Is there a “Robot” in your Future?

YES.

- ***The Need: “Think Strategically”***

- ❑ Don’t purchase for “Bells & Whistles” or “Fads”.
- ❑ Purchase for **Function**.
 - Will this improve **quality of life**?
 - Will it allow someone to **remain independent** and **in their own home** longer?
 - In a **senior housing community** vs. a nursing home?



Questions...

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