G-Tech Villa – Facilitating that Caring Embracement between generations

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THE SINOPHONE (CHINESE SPEAKING) WORLD IS AGING, FAST

• Mainland China has the world’s largest aging population.

• Taiwan, Hong Kong, Macao, and Singapore are hit simultaneously by rapid population aging and extremely low birth rate.

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<th>Hong Kong</th>
<th>Taiwan</th>
<th>Macao</th>
<th>Singapore</th>
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<tbody>
<tr>
<td>2015</td>
<td>Crude birth rate</td>
<td>9.23 (206/224)</td>
<td>8.88 (211/224)</td>
<td>8.47 (216/224)</td>
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<tr>
<td></td>
<td>Fertility rate</td>
<td>1.18 (221/224)</td>
<td>1.13 (222/224)</td>
<td>0.94 (223/224)</td>
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• LOOK INTO GERONTECHNOLOGY as a positive solution in maximizing the efficiency and effectiveness of manpower and resource put in elderly care.
“3Gs” FOR THE AGING SOCIETY

Gerontology \( (7,270,000) \), Geriatrics \( (9,200,000) \), Gerontotechnology \( (74,000) \)

- First International Congress on Gerontotechnology in 1991
- International Society for Gerontotechnology (ISG) in 1997

“Designing technology and environment for independent living and social participation of older persons in good health, comfort and safety”

- Scope of gerontotechnology: health, housing, mobility, communication, leisure, and work.

- Gerontotechnology Research Center Yuan Ze University was established in January 2003, the pioneering research center in the field of gerontotechnology in Taiwan.
TRADITIONAL VALUE SHARED ACROSS THE SINOPHONE WORLD

• Filial piety
  • Still an essential element of Chinese culture shared across the Sinophone world, where children growing up are constantly and emphatically taught to be filial to their parents and respectful to their elders.

“The young kid carries the older person on the back.”
“The young kid lends an arm to support the older person.”

“The caring embrace between the older person and the young kid”
Care needs of the older adults, proposed 2500 years ago

曾子曰：孝子之養老也，
【禮記，內則】

樂其心 不違其志
樂其耳目 安其寢寢

“To take care of the older parents, you should make them happy, and let them do what they will; help them see well, hear well, and provide them a safe and comfortable living environment.”
(Zeng, a disciple of Confucius, about 2,500 years ago)

The purposes of gerontechnology…
One day when Zeng was out cutting wood among the mountains, there came a visitor to his house. After awaiting her son’s return in vein, his mother bit her finger.

Zeng felt heartache all of a sudden and knew there was an emergency. He rushed back home with a burden of wood, and on arrival, knelt down to asked his mother what happened. His mother replied, “Here is a visitor who needs you urgently. So I bit my finger to awake you to come back…”

From the “24 stories of filial piety”
ICT in healthcare: Home Telehealth

• 10 years after the major “Ubiquitous Care” project, home telehealth proved to be a failure in Taiwan…

Who are missing in the pictures?

TeleHealth Solutions
Prof. Branko Cellar, Australia
If the vital sign measurements are sent to children, family members, rather than medical doctors?

Care, interaction, connection, in addition to health monitoring.
ARE YOU WEARING THESE WEARABLE DEVICES?

Google Glass

Nike FuelBand

Whistle Activity Monitor for dogs...

Microsoft Smartwatch

HTC Gluu

Samsung Gear Fit

Intel Smartshirt

Sony SmartBand

One More Thing – Apple Watch

Mi Band
SMART HOME / SMART LIVING?

• CHT Smart Home
  • Service controller, wireless gas detector, wireless motion detector, wireless smart plug, wireless temperature/humidity sensor, wireless smoke detector, wireless reed switch, wireless IP camera, wireless remote controller

• SERCOMM Smart Home Control

ARE THEY REALLY SELLING “LIVING”?
DO YOU HAVE A ROBOT @ HOME?

iRobot

Sony QRIO

Honda ASIMO

Paro – World’s Most Therapeutic Robot certified by Guinness World Records available for lease for $200 per month, or can be bought outright for $6000

Robot @ Home!

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What do you see in these photos?
GERONTECHNOLOGY IS MORE ABOUT DESIGN

• There is a huge gap between users and products…
• “Need” may not necessarily turns into “motivation”
• “Enjoyment as a source of life”, more fun than functions!

Facilitating that caring embracement between generations!

• Gerontechnology is only valuable if the designs can be turned into products.

Creativity ➔ Prototype ➔ Products ➔ Sales
Put “smart” into “living”: Transform artifacts commonly seen in everyday lives into Internet of Things (IoT)
**Centered around the bedroom: WhizPad is a very comfortable mattress capable of motion sensing**

- Special foam to reduce the risk of bed ulcer
- Leave bed alarm in 3 stages to reduce risk of fall
- In-bed activity / sleep quality monitoring
**Localization: Fundamental technology for smart living**

- Image processing, wearable device, floor sensors
- *WhizCarpet*: DIY assembly, flexibility in size, location and area
- Automatic mapping, real time location tracking from mobile devices
- Localization, mobility monitoring, fall detection, fall protection, leave bed alarm, rehabilitation, games…
JULUNG APARTMENT FOR OLDER ADULTS
**WhizTouch: Two-way IoT Call Button in the Form of a Bed Light**

- **IoT LED Light**
  - Set up and adjust through mobile phone App
  - Machine 2 Machine control with WhizPad
- **Two-way IoT call button**
  - Caregiver receives call from mobile phone
  - Light changes from red to green when caregiver responds
**WhizLocator: Localization using BLE devices**

- Location info.
- Alert messages
- Simple registration and set up

Put BLE receivers on desired locations and connect to Wi-Fi

If the older adult is willing to wear a BLE device, such as Mi Band
**IOT BEDROOM IN BANCIAO DEMENTIA NURSING HOME**

- **WhizTouch/Light**
- **MiBand**
- **Tablet**
- **WhizPad**
- **WhizCarpet**
- **Personalized info**

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PHYSICAL EXERCISE / COGNITIVE TRAINING / MULTI-SENSORY STIMULATIONS

BASKETBALL

PINWHEEL

WHIZTOYS
BANCIAO DEMENTIA NURSING HOME

LIFE TREE

INTERACTIVE WALL

OLD THEATER

OLD DAYS

MUSIC CORNER

ACTIVITY ROOM
Old Banciao train station is not sad anymore…
Booth G03: G-Tech Villa

- Silver Bedroom
- Memory Corridor
- Intergeneration Fun

Thank You

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