



Robotics & IoT innovations for solving the fundamental human problems

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Introduction

Embedded System Engineer and New Media Artist, worked on various software, hardware and art projects for more than 15 years. In the last 7 years in Berlin, have been a part of 5 hardware startups in going from idea to production.

Worked on various research projects of T-Labs, DCAITI, DAI Labor, TKN Group in the field of Autonomous Vehicle, V2V, Biometrics, IoT, Wireless Mesh Networks, Robotics, Computer Vision and Machine Learning.

Curate and mentor many creative, innovative and sustainability communities in Berlin.

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Agenda

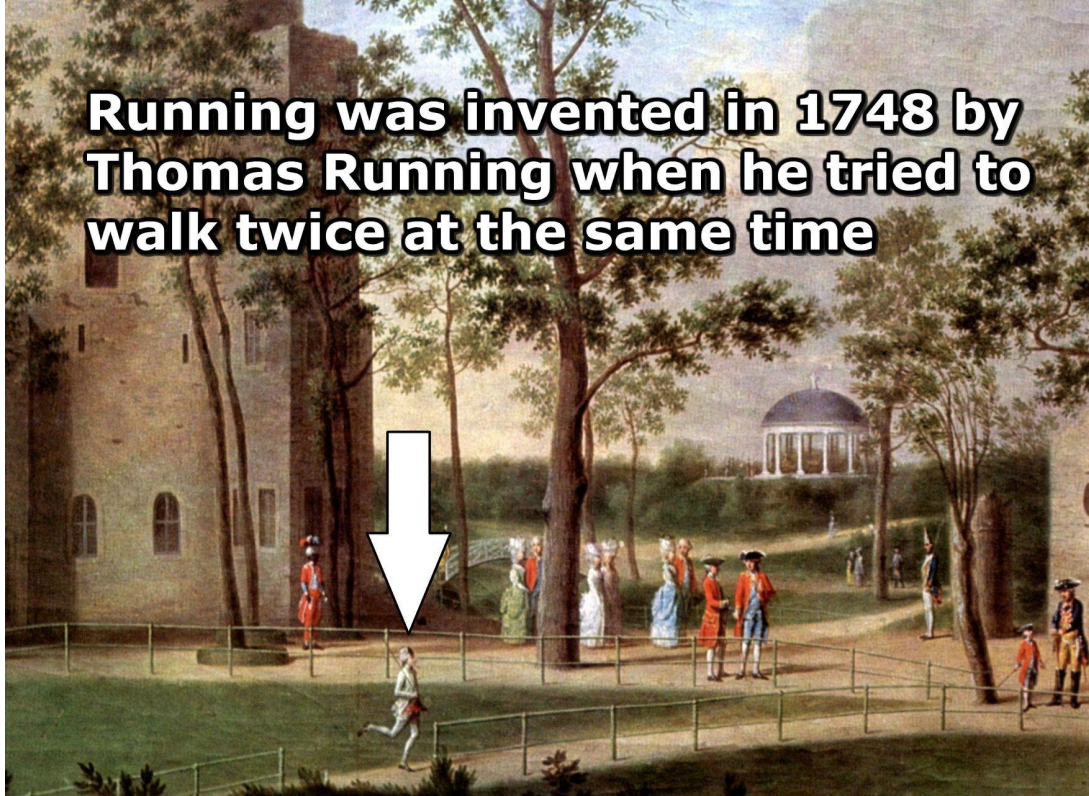
- Evolution of Human
- Evolution of Technology
- Fundamental Human Problems
- Assisted Living for Disabled
- Vertical Farming for Cities
- Connected HealthCare for Elderly

Evolution of Human

- Cognitive Revolution - 70,000 BC
- Agricultural Revolution - 10,000 BC
- Scientific Revolution - 1500 AD

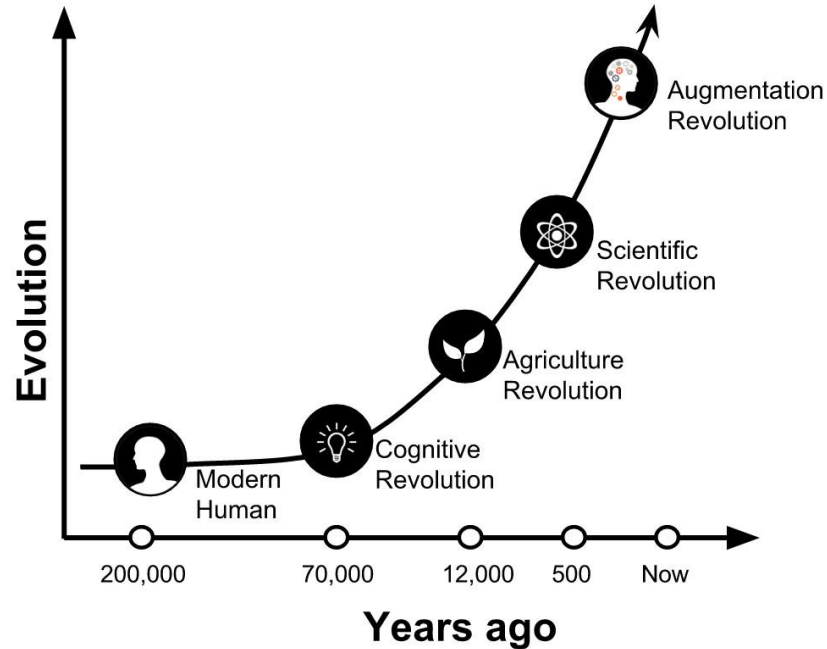
- What Next ???

**Running was invented in 1748 by
Thomas Running when he tried to
walk twice at the same time**



Source : Classical Art Memes

Evolution of Human



Source : <https://www.linkedin.com/pulse/augmentation-revolution-ajay-malik>

Evolution of Technology

- Financial-agricultural revolution (1600–1740)
- Industrial revolution (1780–1840)
- Technical revolution or Second Industrial Revolution (1870–1920)
- Scientific-technical revolution (1940–1970)
- Information and telecommunications revolution (1975–present)

Source : https://en.wikipedia.org/wiki/Technological_revolution

What's a tech revolution?
"Add me on SNAPCHAT!!" says Mom. . .

Sree Lakshman

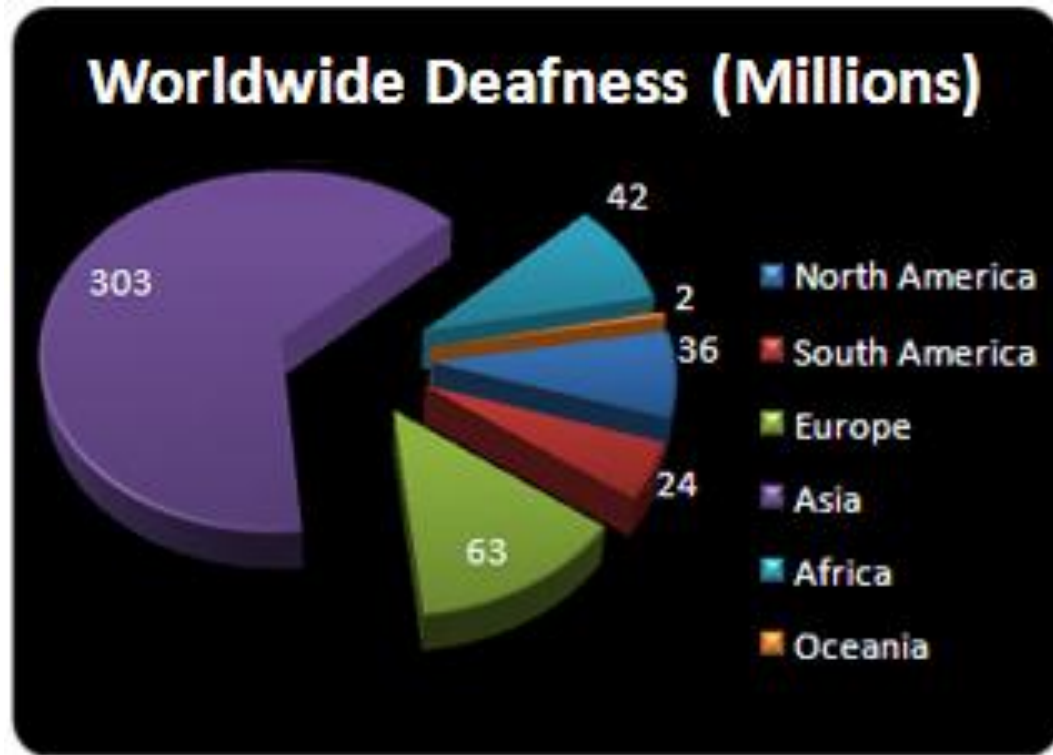
- The Emotional Typewriter

Fundamental Human Problems

According to UN Sustainable Development Goals

- No Poverty
- Zero Hunger
- Good Health and Well-Being
- Quality Education
- Clean Water and Sanitation
- Affordable and Clean Energy

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Source : WHO Deafness Fact, www.wrongdiagnosis.com census (IDB)

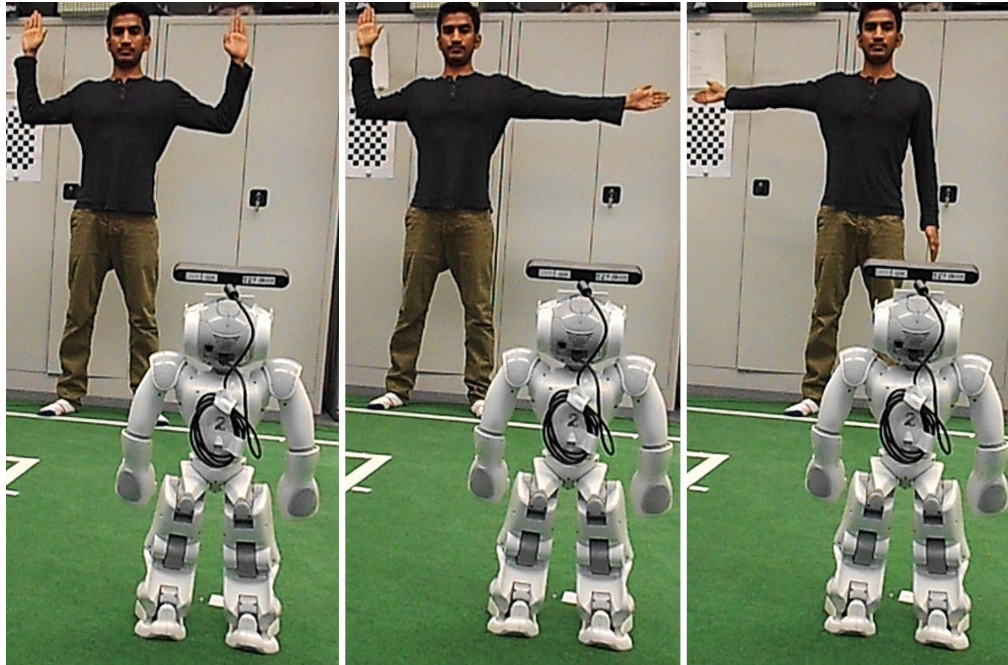
Assisted Living for Disabled

Service Robot to assist people with hearing and speaking disability in day-to-day situations.

**Gesture Recognition For Human-Robot-Interaction -
Distributed Artificial Intelligence Lab (DAI-Labor), Berlin**

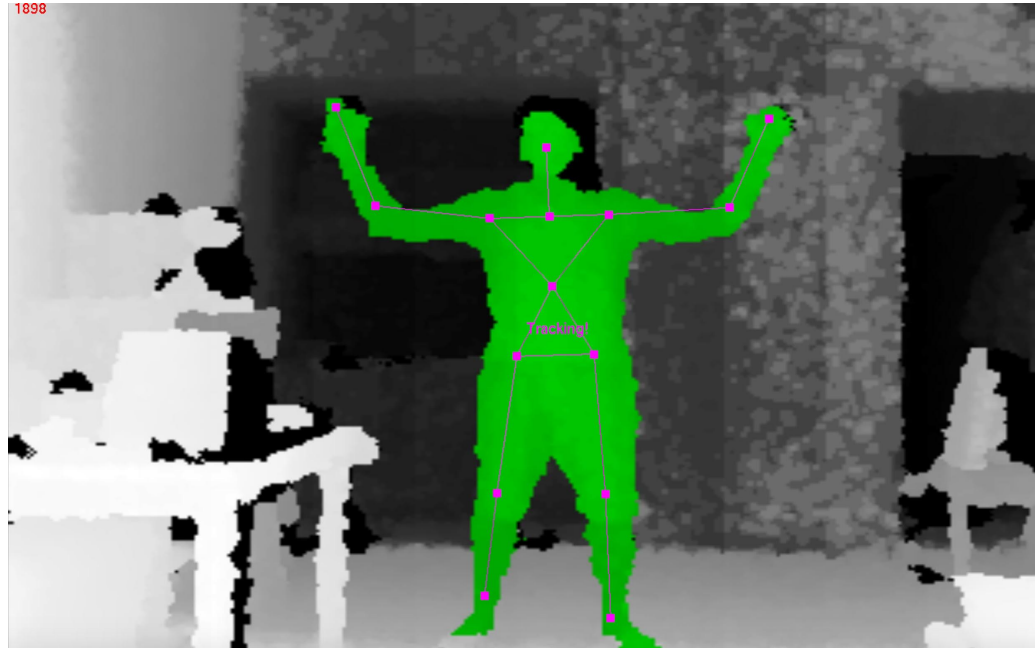
- Realtime Anatomical Landmarks Detection
- Gesture Recognition
- Natural User Interaction
- Computer Vision / Machine Learning
- Humanoid Robotics
- Sign Language Translation

Assisted Living for Disabled



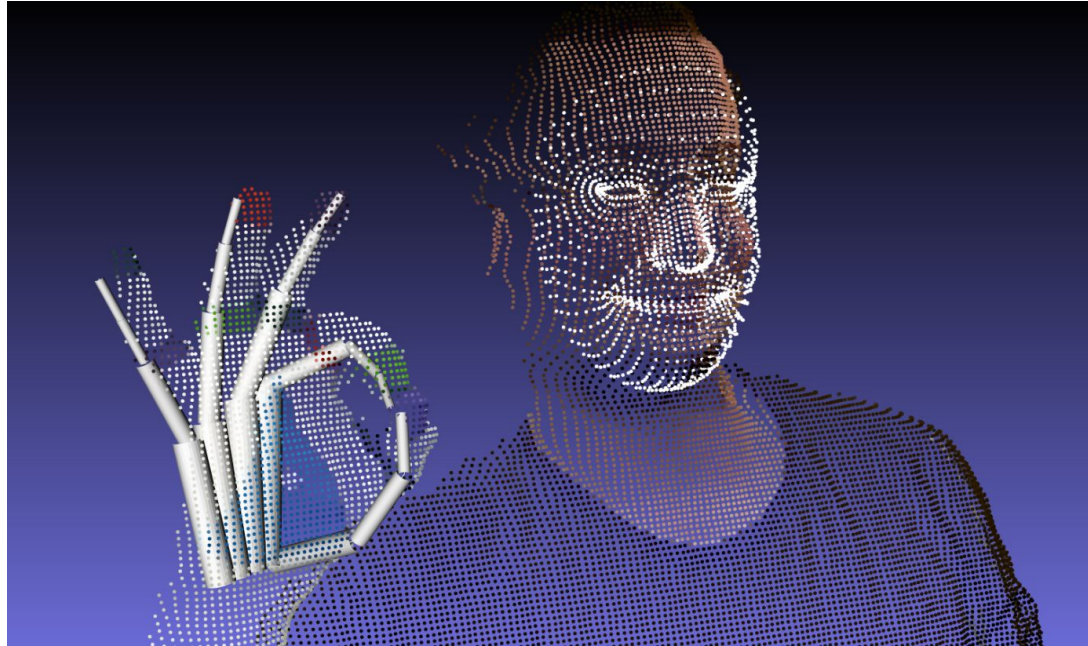
Source : <https://github.com/AravinthPanch/gesture-recognition-for-human-robot-interaction>

Assisted Living for Disabled

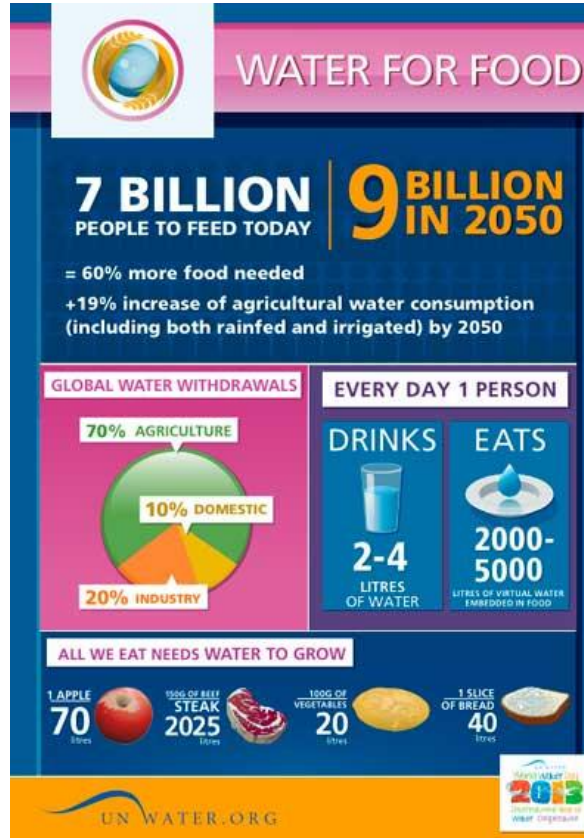


Source : <https://github.com/AravinthPanch/gesture-recognition-for-human-robot-interaction>

Assisted Living for Disabled



Source : <http://www.signall.us>



Source : http://www.un.org/waterforlifedecade/food_security.shtml

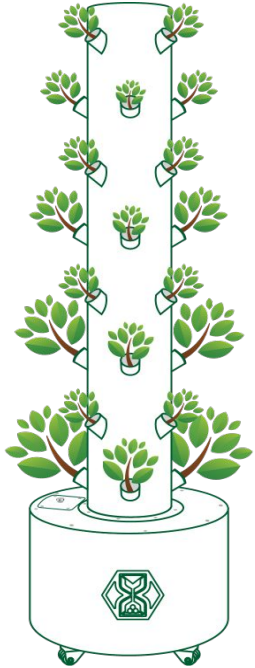
Vertical Farming for Cities

Alternative agriculture methodologies to efficiently grow vegetables in the resource limited urban areas.

Hydroponic & Aeroponic Vertical Farms - MacsXperts, Bangalore

- Soilless Agriculture
- 90% Water Efficient
- Continuous Yield
- Less Labour Work / Automatic Fertigation System
- No / Less Pesticides
- No Nutrition Wastage

Vertical Farming for Cities



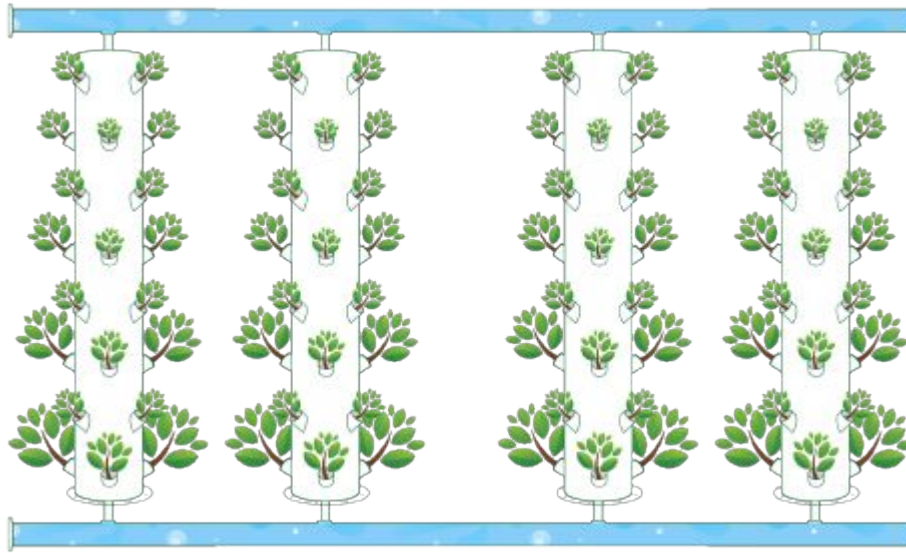
Source : <http://macsxperts.com>

Vertical Farming for Cities



Source : <http://macsxperts.com>

Vertical Farming for Cities

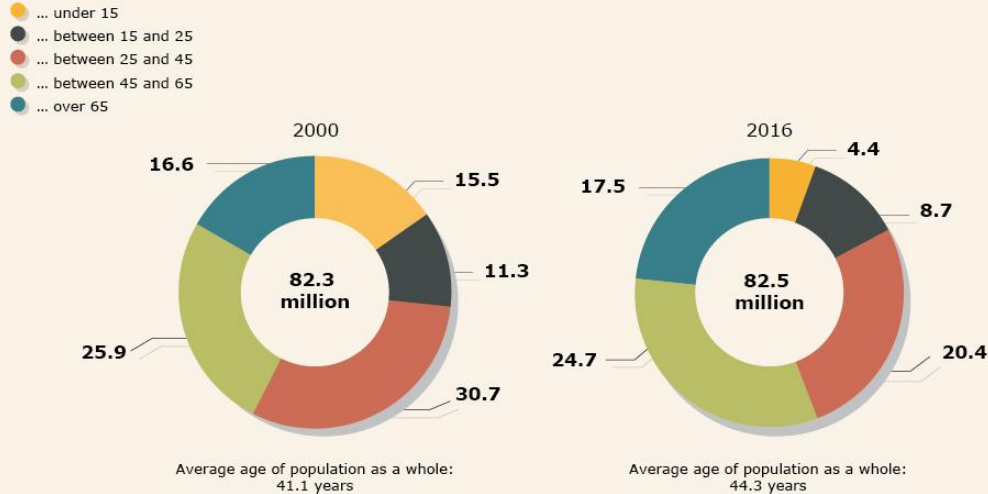


Source : <http://macsxperts.com>



A continually ageing population

Population numbers and age structure in 2000 and 2016 (absolute and percentage)



Source: Statistisches Bundesamt (date: february 2018); Illustration: Djanhan/Orth
© Make it in Germany; Federal Ministry of Economics & Energy

Source : Statistisches Bundesamt, <https://www.make-it-in-germany.com>

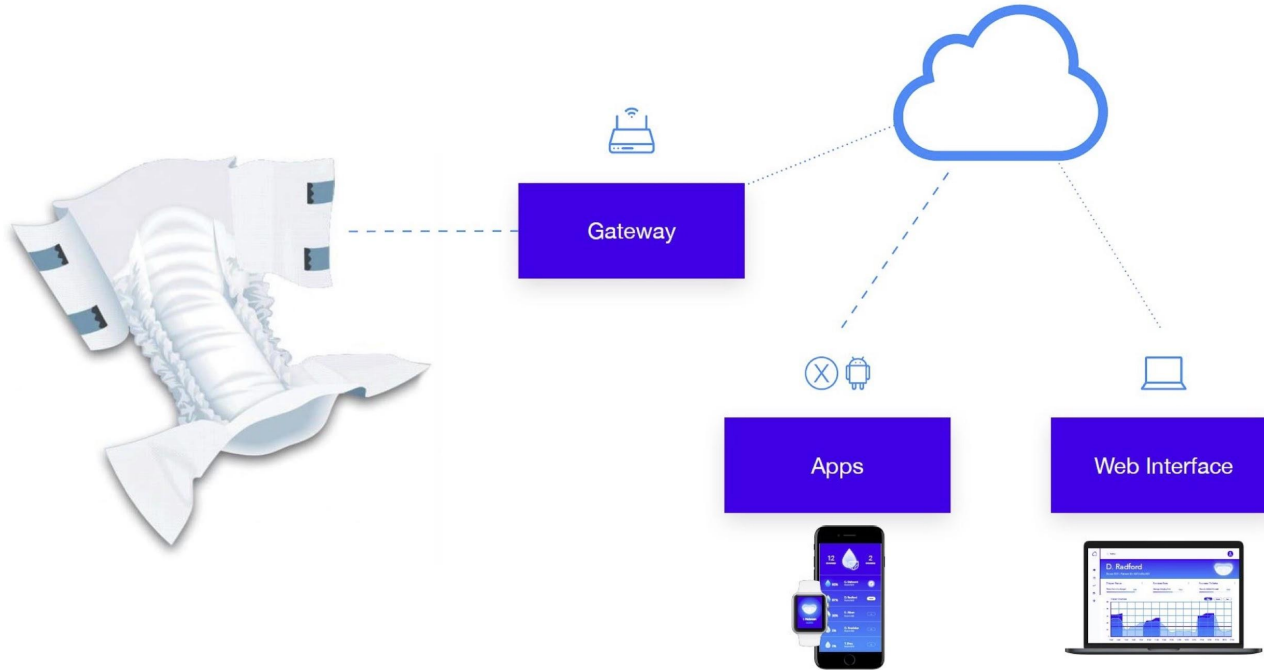
Connected HealthCare for Elderly

Smart adult diaper pant to enable individualised & dignified incontinence care.

PANNI - Assistr, Next Big Thing AG, Berlin

- Printable sensors
- Biodegradable electronics
- Early incontinence leakage detection
- Early diagnosis of diseases
- Integration with hospital infrastructure
- Dynamic nurse allocation

Connected HealthCare for Elderly



Source : <http://www.assistrcare.com>

Connected HealthCare for Elderly



Source : <http://www.assistrcare.com>



Source : <https://www.gerdleonhard.de>

Thank you

Questions ???