



PPM Robotics AS
Managing director:
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.....because true elderly care can't be achieved by humans alone.....



How robotics can increase time spent with meaningful tasks

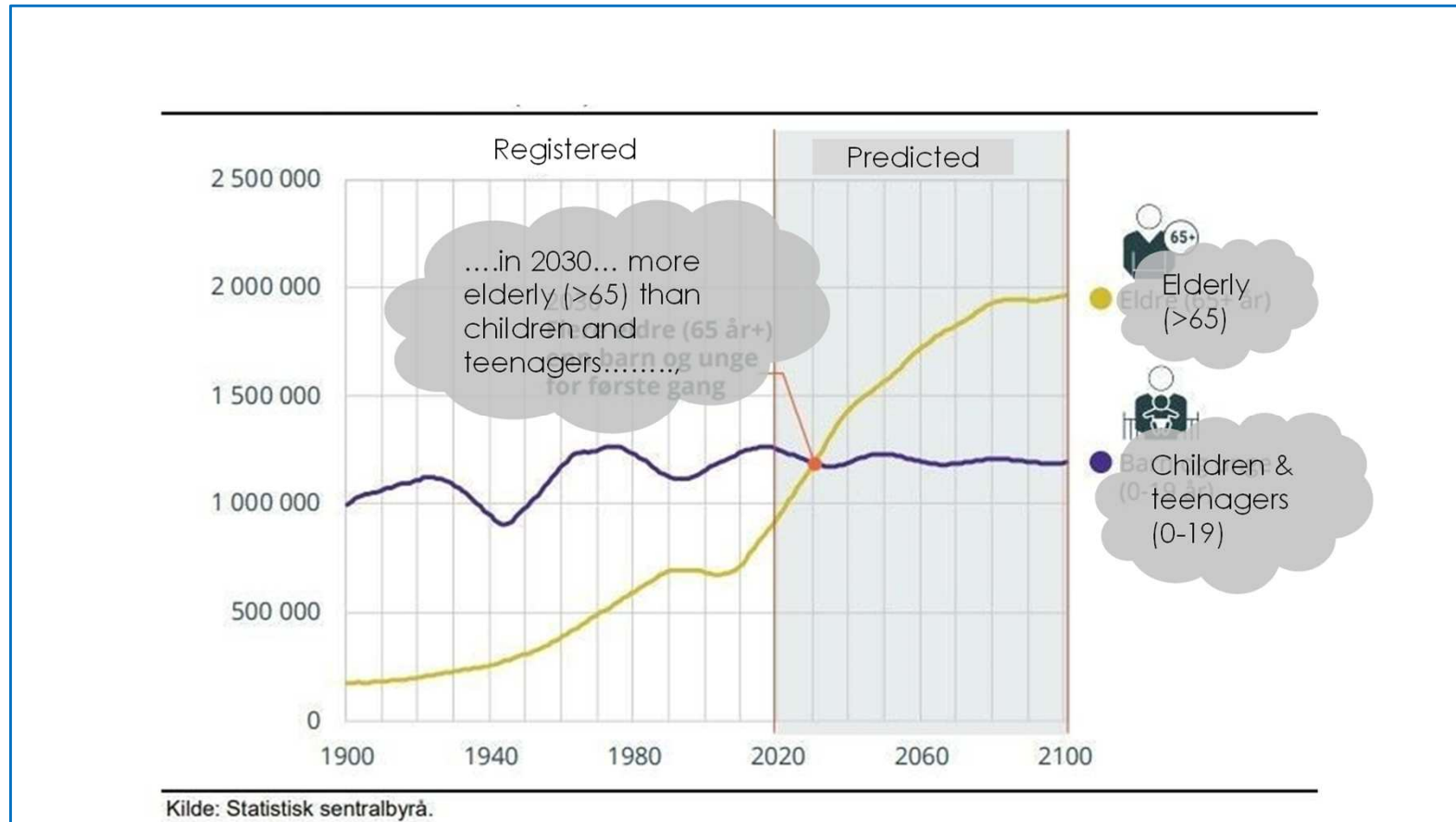
PPM Robotics AS
Trondheim
Norway

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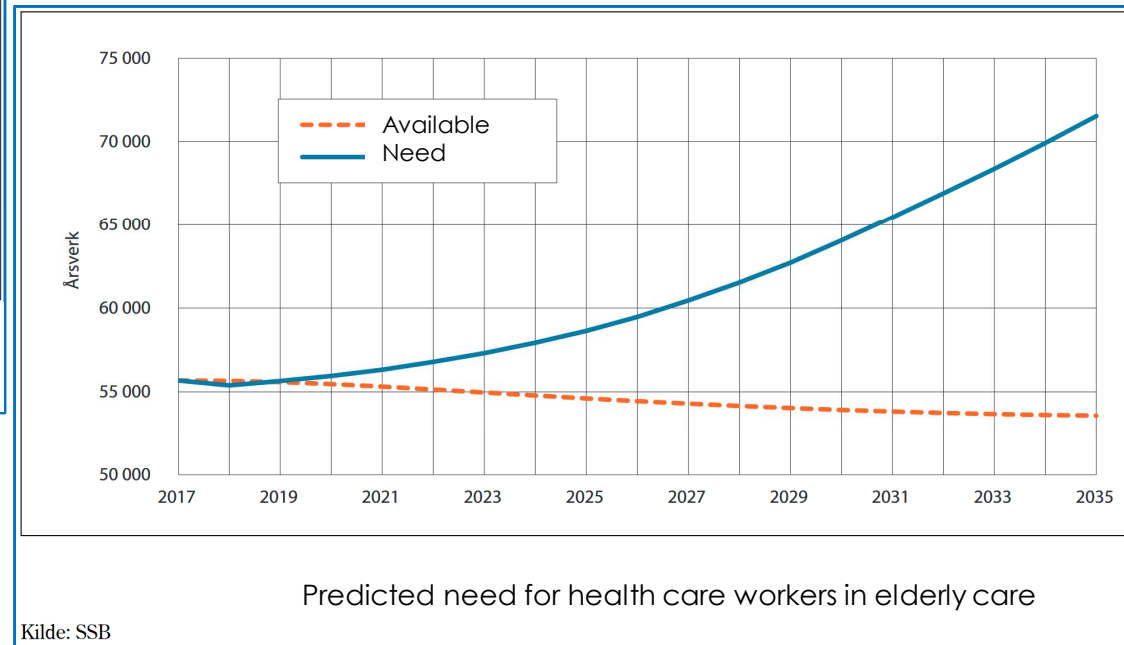
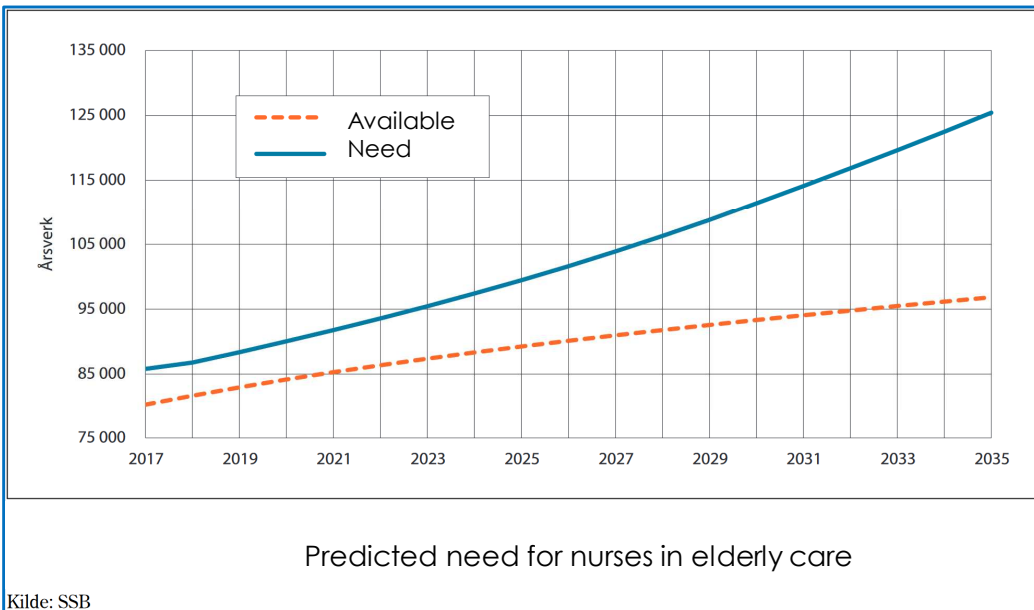
- High-tech company within IT and robotics localized in Trondheim, Norway; Established in 2000
- Located in Trondheim, Norway
- Managing Director, Prof. Trygve Thomessen
- > 20 years experience as supplier of high-tech industrial robot systems based upon R&D based industrial development
- In 2021, changed business focus to social service robotics for elderly care / nursing homes
- www.ppm.no



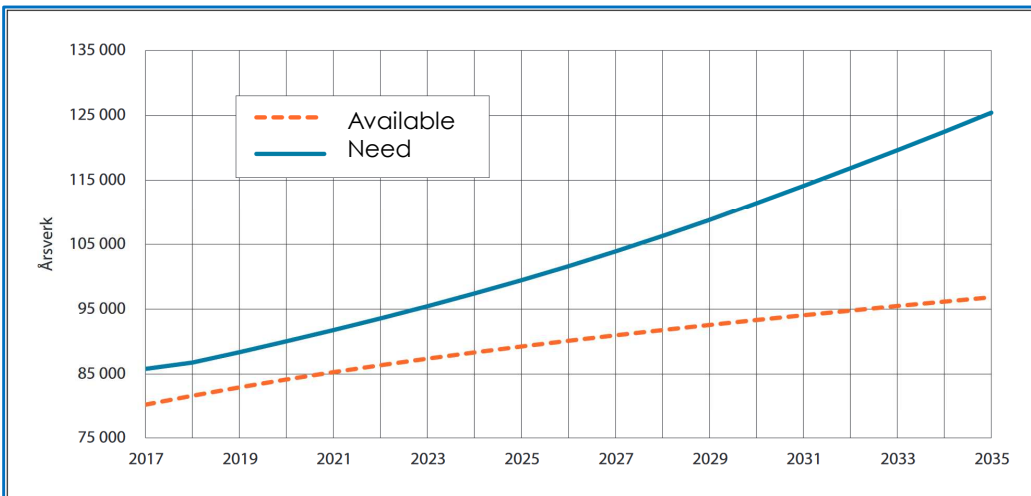
...the "elderly wave"...



...the resource challenge...



...the resource challenge...



Predicted need for nurses in elderly care

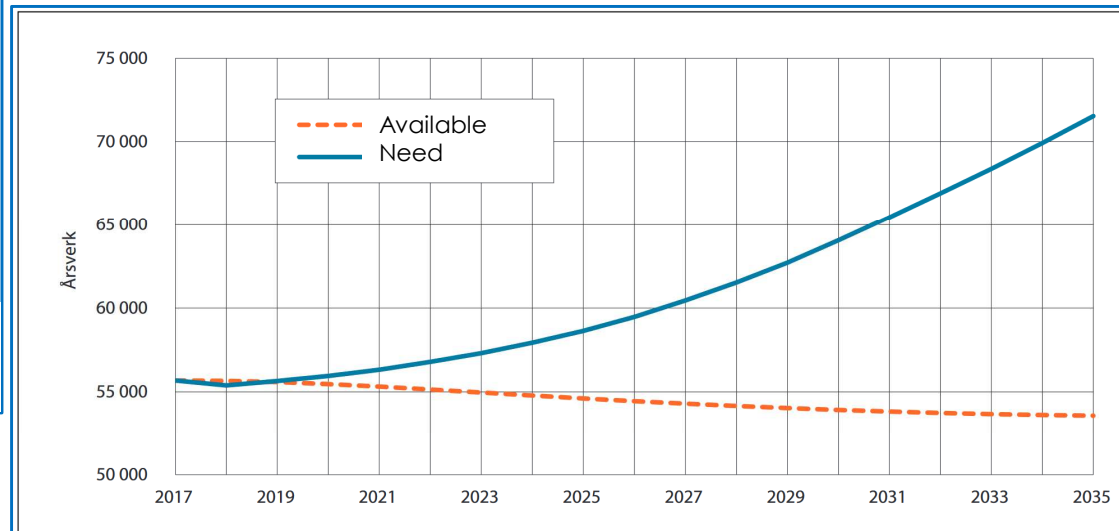
Kilde: SSB

Status in 2035

≈ 30 000 nurses

+ ≈ 20 000 health care workers

≈ **50 000 missing in elderly care**



Predicted need for health care workers in elderly care

Kilde: SSB

...what's happening in Japan ?

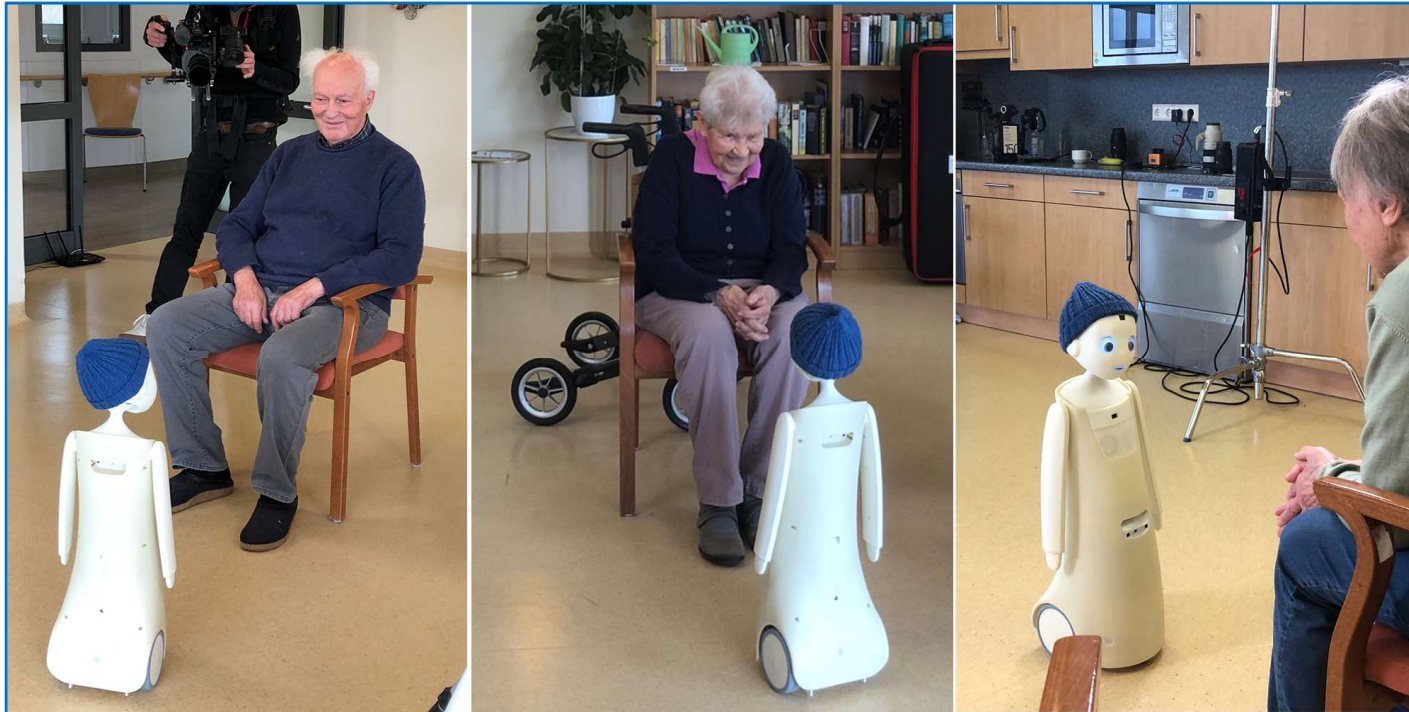


2024-11-26

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...what's happening in Europe ?

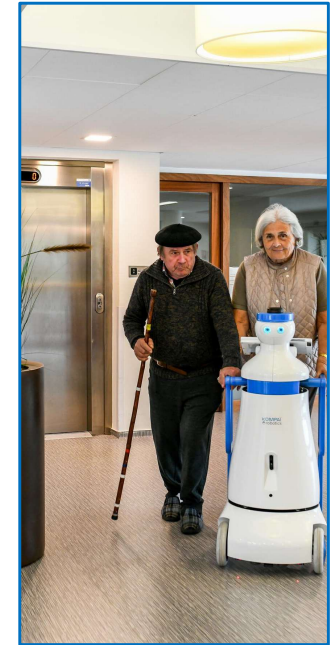


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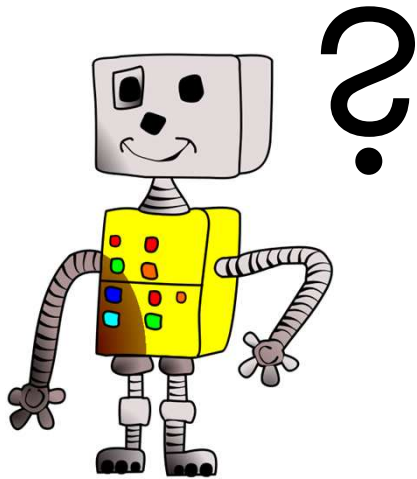
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...what's happening in Europe ?



...and **Why** should we introduce robots, that are...

- ...working slower than a human...
- ...is less flexible than a human...
- ...requires quite structured conditions to successfully perform the task...
- ...can not communicate like a human...
- ...can not offer a "warm hand"...



...let's take a look at the daily tasks in the nursing home....

- 07:30 – 08:00 Morning meeting
- 08:00 – 12:00 Wake up
- 09:00 – 09:30 Breakfast
- 12:00 – 14:00 Lunch and prepare for dinner
- 14:00 – 15:00 Dinner
- 15:00 – 16:00 Sleep / TV / ...
- 15:30 – 16:00 Handover
- 16:00 – 16:30 Prepare for evening meal
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- 22:00 – 22:30 Handover
- 23:00 – 07:30 Monitoring / surveillance



...and consider the strengths of the robot...

- Performing multiple tasks
- Can actively initiate tasks for the patients
- Time scheduled
- Working 24/7 (ex charging)
- Never tired
- Never sick



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...and look at potential contributions from the robot....

- **07:30 – 08:00 Morning meeting**
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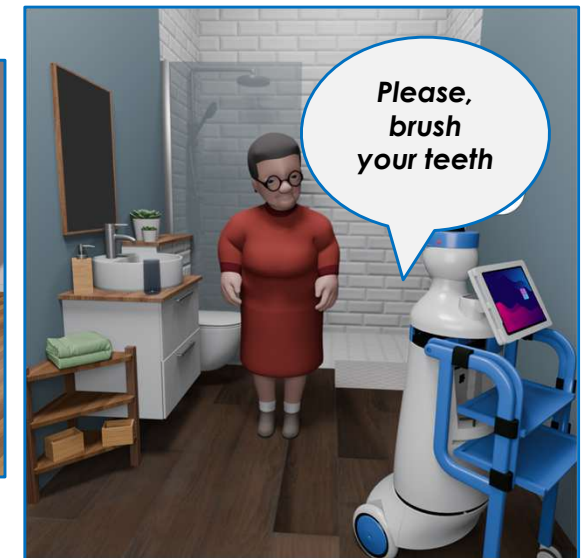
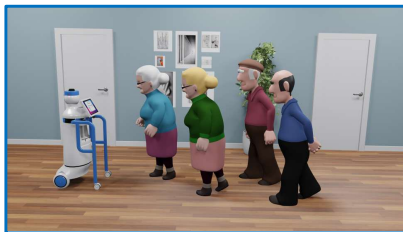
- *Collecting info from the patients in their rooms*
- *Sending the info to the morning meeting*
- *The morning meeting can schedule the day according the patients' wishes*
-



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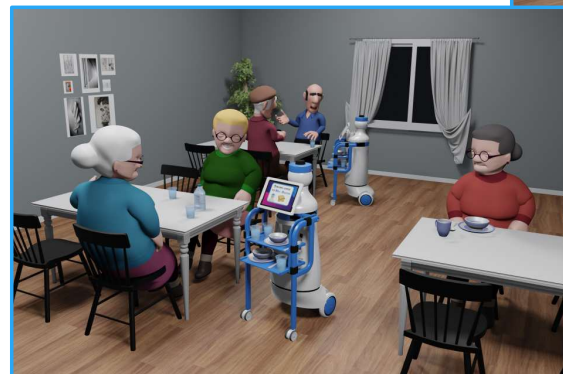
- **Facilitate the nurses' tasks (towels, accessories,.... to the rooms)**
- **Collection of the laundry from the rooms**
- **Set-up On-line doctor**
- **Motivate patients to do the daily tasks**
- **Guiding of patients to the dining room / hairdresser / pedicure**
-



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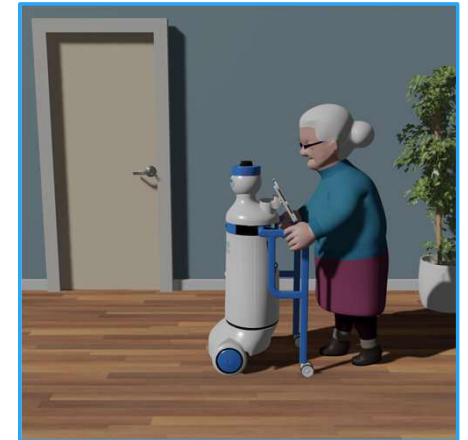
- *Transport of food from the kitchen to the dining room*
- *(Serving dinner)*
- *Entertainment*
- *.....*



...and look at potential contributions from the robot....

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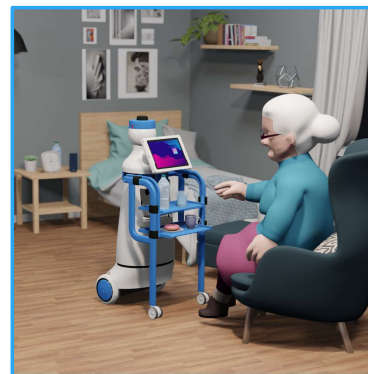
- **Entertainment**
- **Mental or physical training**
-



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- **Guiding / services for visitors**
- **Entertainment**
- **Mental or physical training**
- **In-room service**
- **Remote conversation with relatives**
-



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- **Supply of the local storages in the departments**
- **Transport of the laundry to the laundry room**
- **Night watch**
-



...robot night watch...



...and challenges when using robots in nursing homes....

Security:

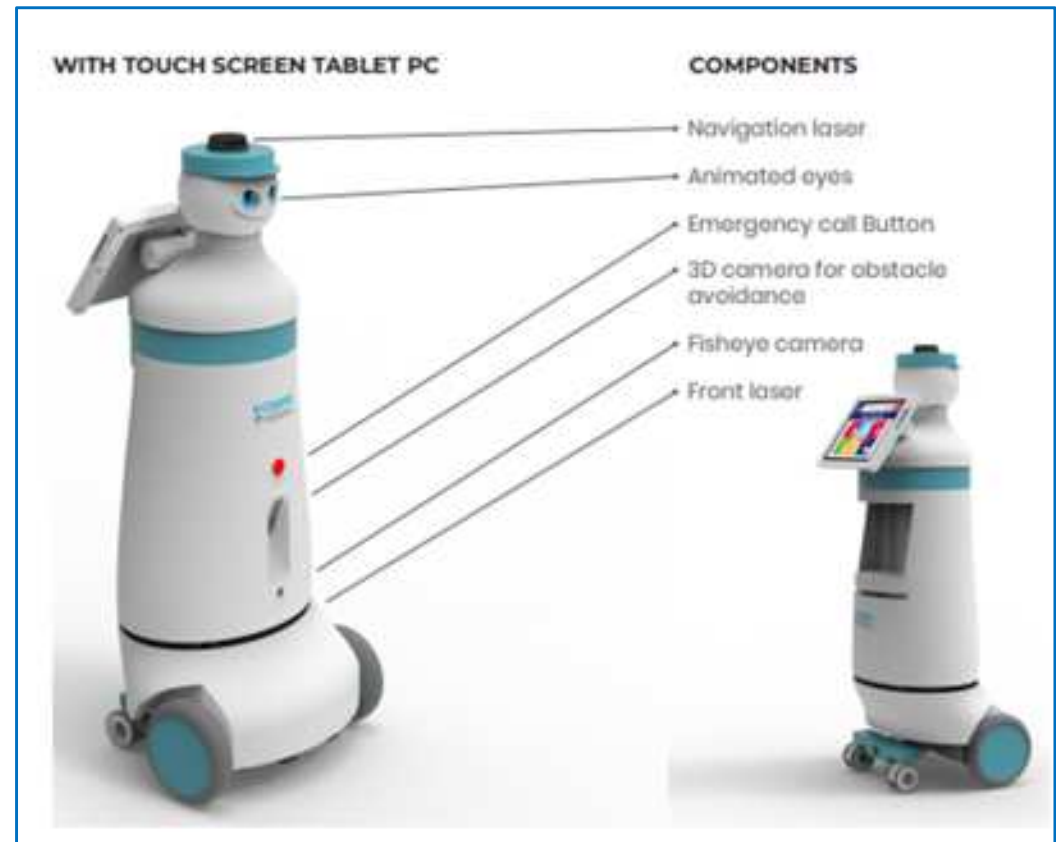
- Data protection vs. remote connection
- GDPR

Physical safety:

- Patients' health conditions vs. efficiency
 - Impaired cognitive skills
 - Unforeseen behavior
 - Brittle bone structure
- The strict **PLd** performance level is required
- A safe robot, is not the same as a safe application of the robot

Emergency:

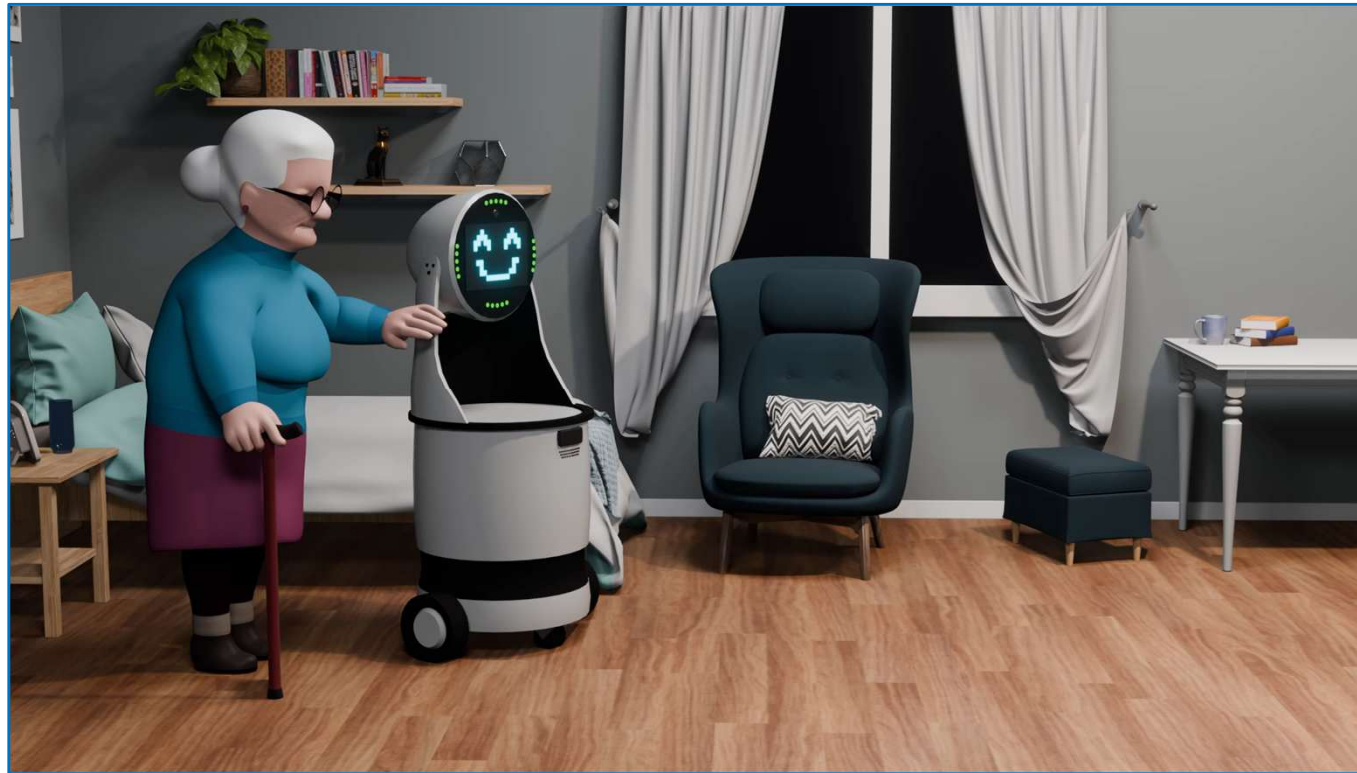
- High degree of robotization vs. emergency response



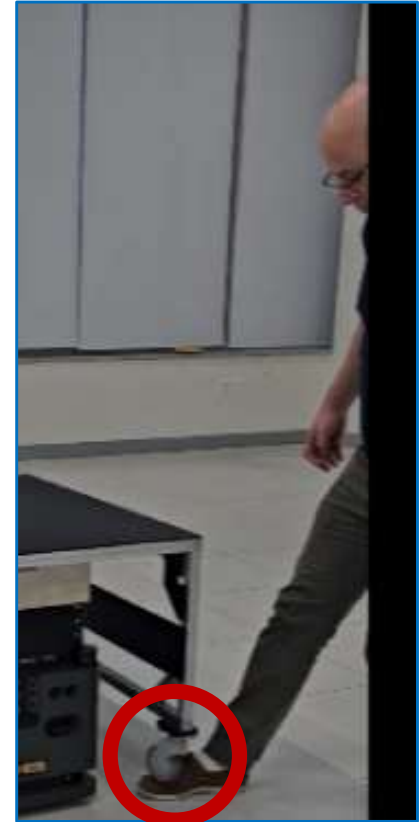
...and some words about emergency....



...and some words about safety....



...and some words about safety....

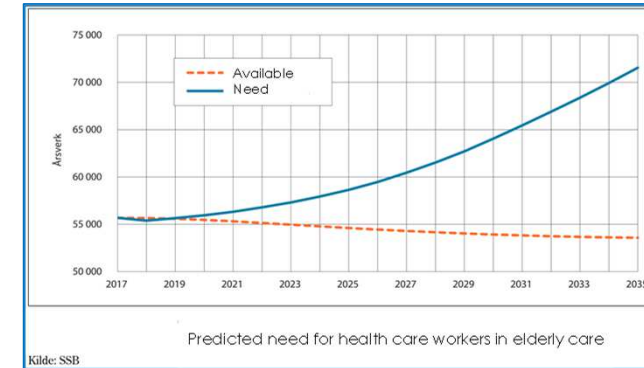
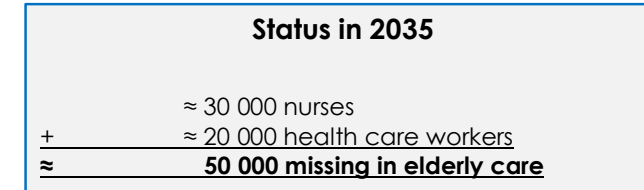


...and some final words about safety....



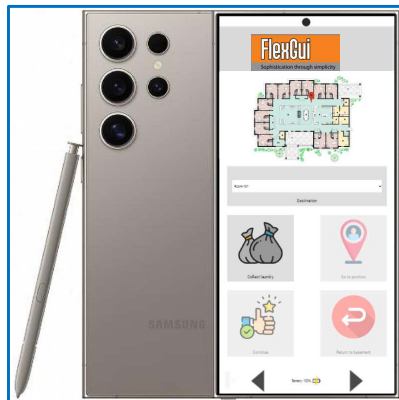
...and what are the potential achievements ?

- Basic considerations:
 - Health care personnel should spend their time for patient care
 - Today, >50% facilitation / logistics work in nursing homes (2-3 hours walking per day + ad-hoc coordination)
 - Robot tasks: Logistics, patient guiding, in-room service, on-line doctor, day- and night watch,
- 2024:
 - 25% of 143 000 \approx 37 000 man years in nursing homes
 - 10% robot services \approx **3 700 man years released for care**
- 2035:
 - 25% (?) of 193 000 \approx 50 000 (?) man years in nursing homes
 - 10% robot services \approx 5 000 man years \approx **40% of the missing resources in 2035**
- In addition
 - Enhanced quality of the services / patient centered services
 - Enhanced physical and mental activation / life quality
 - Enhanced patient safety
 - Enhanced robust against sickness absence / overtime
 - More meaningful working day for the health care personnel



...and are service robots difficult to use ?..... **NO !!!!**

- Just select your task by **a simple button press on the mobile phone / tablet**
- FlexGui 4.0 gives **same user interface to all robots**
- The robots **find their way** by themselves



Contact



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