Care Robotics: Evolution of the Field from an International Perspective

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Robotic aid system for bed ridden patients

- First robotic aid system in the world
- Developed by prof. Funakubo in 1980
- Concept is important
Robotic Aid System for Bedridden Patients
VIDEO

Robotic Aid System for Bedridden Patients

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Robotic aid System

- First robotic aid system in the world
- Basic concept is same as present systems manipulator, mobility, interface etc.
  - Too big system
  - High cost
  - Human or robot
Mobile robot
Stanford Univ.
Prof. Leifer
Overview of the Mobile Robot

- Mobile Unit
- Manipulator
- CCD Camera with Zoom lens, Pan and Tilt Table
- Small CCD Camera
- Hand
- US Sensors
User Interface

3D Image of the Mobile Robot

Camera View

Mobile Unit Control Buttons

Camera Control Buttons

System Control Button

Mobile Robot Status

Image of the User Interface
Figure 1: Quadriplegic employee uses DeVAR to perform daily living and vocational tasks in the office setting.
Figure 1.
Using the Manus for independent living.
Figure 2.
Using the MANUS at the workplace.
MANUS
wheelchair mounted manipulator

- Beautiful mechanical design
- Small size & light weight
- High cost (4,000,000 Yen)
- Joystick interface is not good
- Needs new communication tool
Robotic aid for eating
**Handy 1**

**Profile of a World Breakthrough**

Why try to design an Automated Eating Aid? Accidents and diseases cause thousands of people to need assistance every year, leaving them with no alternative but to rely on the help of others. Designing tools for them is both a challenge and a necessity.

Handy 1 was developed to help in the kitchen and assist in daily living. The device is a robotic arm that can be programmed to perform tasks such as opening and closing doors, turning on and off lights, and carrying out various other actions.

**Initial User Assessment - Preparation for use**

Handy 1 presents the user with the option of selecting a suitable eating position, allowing them to maintain a comfortable and safe position.

**Towards the development of other skills**

Skill Development

Because users must learn to lift and move independently around their environment, they must learn to use the device correctly. Handy 1 provides the necessary assistance to help users develop independence and confidence.

**Future Development**

Continuous developments are planned for Handy 1, with a future program aimed at driving and giving users and retrofit options.

**COLOUR OPTIONS**

- **Red**
- **Blue**
- **Pink**
HANDY1

- Robotic aid to eating
- Low price (5000 EUR)
- First practical application
- Not almighty
My Spoon

Video

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The actual Care Robotics System

- One task robot was developed in practical use.
- Interface between human and robot is important.
- Hand and image processing is important factor.
- How to reduce the cost, mass production?

What we expect to Care Robotics System?