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Theme 2: Relation between applications of robots and their performance
3) Home use

Communication Robots for Home Use



Predict the future of the Home Robot from functions of past & present robots

<http://www.sony.jp/products/Consumer/aibo/products/ers7m3/design.html>
<http://www.softbank.jp/robot/consumer/products/spec/>
http://palmigarden.net/site/koseiteki_palmi/pg122.html
<https://robohon.com/special/>
<http://www.sharp.co.jp/cocorobo/products/rv200.html>

AIBO by SONY (1999)

A canine-like entertainment robot
“Living in harmony with human & robots”



Sensors

- Touch sensors, a stereo microphone and a color CCD sensor

Communication with humans

- Responding to physical touch
- Reacting to voice commands
- Remembering family faces

Features

- AI program will form AIBO's character by communication. Every AIBO will have his/her own character.

<http://www.sony.jp/products/Consumer/aibo/products/ers7m3/about01.html>

Pepper by SoftBank (2015)

A human-shaped personal robot that reads emotions
“Close to you & makes you happy”



<http://www.softbank.jp/robot/consumer/products/>

Sensors

- Touch sensors, microphones, a color CCD camera and a 3D area sensor

Communication with humans

- A wide-ranging conversation ability with the crowd AI system
- Recognizing emotions by analyzing human voice tones and facial expressions
- Showing Pepper's feelings with gestures and by the display

Features

- Pepper tries to entertain the user with conversation and gestures by recognizing the user emotion.

Palmi by Fujisoft (2015)

A human-shaped communication robot

"Help for happy and rich human life"



Sensors

- Touch sensors, microphones, a color CCD camera and a 6 axis motion gyro and acceleration sensor

Communication with humans

- A human-like conversation response with a 0.4 second interval
- Recognizing sentences for smooth conversation
- Remembers human faces, names and past dialogues

Features

- Palmi provides a customized information service from analyzing past dialogues by the crowd AI system.

<http://robots.dmm.com/robot/palmi>

COCOROBO by SHARP (2012)

A robot cleaner with feelings

Communication functions as a high-value-added



Sensors

- Microphones, IR sensors and super sonic sensors

Communication with humans

- A voice controlled robot
- Exhibits COCOROBO's feelings with dance & illumination

Features

- A delightful home appliance with practical function

<http://www.sharp.co.jp/cocorobo/products/rxv95a.html>

RoBoHoN by SHARP (2016)

A human-shaped mobile phone

"Heart moving phone"



Sensors

- A CCD camera, microphones and acceleration sensors

Communication with humans

- Can be easily operated by voice
- Identifies people by facial recognition
- Plays music & can dance

Features

- A friendly human-style small sized mobile phone
- Communication and Information service will be provided by the crowd AI system

<https://robohon.com/special/>

Summary

Purpose the Home Robot

= To make a relationship between robots & humans



◎A Human animal like design

1. Human-like communication derived by sensors and AI software
2. Charming gestures to expose a robot's feelings
3. A rounded shape for safe domestic use
4. For the prevention of accident, overload protection or other safety mechanisms are utilized

Evolution of the communication robot

Primitive word recognition ••• AIBO, COCOROBO



Sentence recognition by crowd AI ••• Pepper, Palmi



Human interface with emotional recognition ••• Pepper

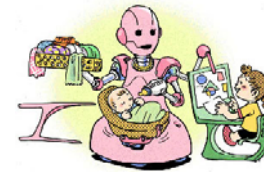


Advanced communication ability and Crowd AI system enable the robot to serve as personal concierge or adviser

Future of the home robots

Required Functions

1. Perfect voice recognition, or conversation ability
2. Accurate visual recognition for things and circumstances
3. Precise and versatile motion of arms & fingers



- a house keeper
- a concierge
- a baby-sitter
- a private tutor
- an entertainer

