Einführung KUKA Roboter GmbH

- Dr. Johannes Kurth

- 44. Sitzung FA 4.13 Steuerung und Regelung von Robotern

Overview

- Introduction
  - KUKA Roboter GmbH
  - Industrial Robots and their applications

- Innovation leadership

- KUKA on the way from Industrial to Service Robotics
  - Strategy
  - Mobile Manipulation

- KUKA Products for Research & Education
  - KUKA Lightweight Robot
  - Fast Research Interface
  - youBot
KUKA Robotics – Product range
Leading supplier to the Automotive industry

- Long-standing customer relationships
- Ability to customize standard products
- Joint solution developments
- Innovation leadership
- Market leadership
- Technological innovation and cost reduction drive customer demand
- High quality requirements for export cars drive demand in Asia
KUKA Robotics – Automotive

- Assembly
- Coating & bonding
- Cutting
- Deburring
- Handling
- Machining
- Machine tending
- Measuring & testing
- Welding
- Polishing & grinding
- Palletizing & order picking
- Spot welding

KUKA Robotics – Automotive
KUKA Robotics – General Industry

- Aerospace
- Beverages
- Chemical & plastics
- Electronic products
- Entertainment
- Food
- Glass, ceramics & mineral products
- Logistics
- Medical
- Metal products
- Milling & Deburring
- Mining
- Print & paper
- Testing
- Wood & furniture
- Printing
- Paper
- Logistics
- Electronic products
- Entertainment
- Food
- Glass, ceramics & mineral products
- Logistics
- Medical
- Metal products
- Milling & Deburring
- Mining
- Print & paper
- Testing
- Wood & furniture

www.kuka-robotics.com
KUKA – Worldwide Presence

- KUKA Roboter GmbH, Germany
- KUKA Automatisme + Robotique S.A.S., France
- KUKA Roboter Italia S.p.A., Italy
- KUKA Roboter Schweiz AG, Switzerland
- KUKA Robotics Hungária Ipari Kft., Hungary
- KUKA Roboter do Brasil Ltda., Brasil
- KUKA de México S. de R.L. de C.V., Mexico
- KUKA Robotics Corp., USA
- KUKA Robot Automation Korea Co. Ltd., Korea
- KUKA Robot Automation Taiwan Co. Ltd., Taiwan
- KUKA Robot Automation Sdn. Bhd. South East Asia Regional Office, Malaysia
- KUKA Robot Automation (M) Sdn. Bhd., Thailand
- KUKA Roboter GmbH Österreich, Austria
- KUKA Sistemas de Automatización, Portugal
- KUKA Robots IBÉRICA, S.A., Spain
- KUKA Automatisering + Robots N.V., Belgium
- KUKA Flexible Manufacturing Systems (Shanghai) Co. Ltd., China
- KUKA Sveisanelegg + Roboter, Norway
- KUKA Svetsanläggningar + Robotar AB, Sweden
- KUKA Automation + Robotics, United Kingdom
- KUKA Robotics (India) Private Limited
- KUKA Robotics Japan
- KUKA Robotics Rus OOO, Russia

- Agencies in:
  Argentina, Australia, Chile and South Africa
KUKA Robotics – Innovation leadership

1973
Electromagnetic Robot with six axes: „Famulus“

1985
Single-arm Robot without parallelogram

1996
Real time PC based Robot controller

1998
Long-Range Robot

1999
Heavy payload Robot

2000
Robot remote diagnostics via Internet

2003
Entertainment Robot

2004
Co-Operative Robots

2005
Safe Robots

2006
Light-Weight Robot

2007
Robot Titan (1,000 kg)
KUKA on the way from Industrial to Service Robotics

Production Assistant: work space sharing with worker, flexibly relocatable, safe, intuitive operation

Robots for General Industry and Professional Services

Today

Future

Entertainment

Medicine

Personal Robots

Robots as multipurpose tools for manufacturing SMEs

Food

Logistics

www.smerobot.org

www.kuka-robotics.com
Production Assistant: work space sharing with worker, flexibly relocatable, safe, intuitive operation

Robots as multipurpose tools for manufacturing SMEs

Robots for Automotive Industry

Entertainment

Medicine

Food

Logistics

SMErobot

PHRIENDS

DESIRE

BRICS

CARE

euRobotics

supported by cooperative research projects

Today

Future

www.smerobot.org
EUROP – Strategic Research Agenda

Aim:

promoting robotics development and business activity in Europe

published on 7 July 2009

>2000 hard copies distributed
>3000 downloads (ca. 140 / month)

www.robotics-platform.eu/sra
EUROP – SRA: Application Scenarios cover all market sectors

- Worker
- Co-worker
- Logistics
- Surveillance & intervention
- Exploration & inspection
- Edutainment

- Industrial
- Professional services
- Domestic services
- Security
- Space
KUKA Products for Research & Education

- KUKA Lightweight Robot
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Fast Research Interface (FRI)

purpose:
- to remotely control the LWR
- to enable researchers to combine their own control algorithms and peripherals with the unique features of the LWR (researchers can focus on their research!)
- Cyclic timeframe: range 1 - 100 ms

examples:
- DLR: connect LWR to haptic input device
- TUM: mobile dual handed manipulation
- KUL: peer-to-peer haptics
KUKA youBot – new mobile manipulator for research and education

- omnidirectional mobile platform
- 5-DOF manipulator
- two-finger gripper
- real-time EtherCAT communication
- open interfaces
- arm and platform can be used independently

KUKA youBot at AUTOMATICA
www.kuka-youbot.com

KUKA youBot arm and labyrinth – remotely controlled by Nintendo Wii controller
© University of Augsburg Software Engineering
youBot – Desktop Mobile Manipulator for Education and Research

### youBot arm & gripper

- 5 axes
- 2-finger gripper
- height: 655 mm
- mass: 7 kg
- payload: 0.5 kg
- magnesium cast
- 24 Volts

### youBot platform

- 4 KUKA omniWheels
- length: 580 mm
- width: 360 mm
- weight: 20 kg
- payload: 20 kg
- steel structure
- 24 Volts

### youBot System with 1 arm

### youBot system with 2 arms
Thank you for your attention!

Questions?

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