Robotics overview

Agenda

- ABB Robotics
- Milestones
- Motion Control & Safety Innovations
- Integrated Solutions (examples)
- Outlook
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As one of the world’s leading engineering companies, we help our customers to use electrical power efficiently, to increase industrial productivity and to lower environmental impact in a sustainable way.
A global leader in power and automation technologies
Leading market positions in main businesses

~150,000 employees

Present in +100 countries

$42 billion
In revenue (2013)

Formed in 1988
merger of Swiss (BBC, 1891) and Swedish (ASEA, 1883) engineering companies
ABB Robotics
Key facts

- Sales and service operations in 53 countries and more than 100 locations
- 5,500 employees worldwide
- Manufacturing in Europe, Asia and America
- Introduced painting robots in 1969 and the world’s first commercially available electric robot in 1974
- Over 250,000 robots delivered worldwide
ABB Robotics Austria
A strong team for your robotics solutions

- 45 employees in sales, project management, installation, programming and service
- Offer of robot products, robot applications & services
- More than 4000 sold robots in Austria
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Pioneering robotics technology since 1969
“Innovation and technology are part of our DNA”

1969
- Hydraulic paint robot
  Tralfa TR-200

1975
- First electric robot
  ASEA IRB 6 (5 axis)

1980
- Joystick motion control
  S2 Robot Controller TPU

1985
- Dynamic Motion Control
  TrueMove, QuickMove

2000
- Electric Paint Robot
  TR 5400
- Dynamic Motion Control
  TrueMove, QuickMove

1990
- Modular Design
  IRB 6000 range

1995
- High-speed Picker
  IRB 340 FlexPicker

2000
- 500kg robot
  IRB 7600
- Offline programming
  RobotStudio

2005
- Touch screen HMI
  IRC5 controller
- 2nd Gen Motion Control
  TrueMove II, QuickMove II

2010
- Integrated Dressing
  IRB 1600 & IRB 2600
- High-speed Palletizer
  IRB 460

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2011
- Integrated Dressing (ID) Solutions
  IRB 2600ID, SpotPack

- Educational Function Package
  IRB 120 & RobotStudio

- Palletizing Robots & Grippers
  IRB 260 and IRB 760 + 3 FlexGrippers

- ID Welding Robots
  IRB 1520ID

2012
- Clean Room Robots
  IRB 120 Clean room version

- Machine Tending Solutions
  RobotWare & RobotStudio

- Laser Cutting Solutions
  RobotWare & RobotStudio

2013
- Integrated Vision
  Software & Hardware

- Flexible Bodyshop Solutions
  FlexLean and GateFramer

- 2nd Gen High-speed Pickers
  IRB 360 FlexPicker

- FlexPicker Upgrades
  IRB 360 6kg & 8kg

- Press Automation Solutions
  Twin Robot Xbar (TRX)

- Packaging Function Package
  IRB 360 RacerPack

2014
- 7th Gen Large Robots
  IRB 6700 family

- Picking Packing Software
  RobotStudio Picking PowerPac

- New Small Robot Range
  IRB 1200

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Motion Control Technologies & Safety Solutions

- Multi-robot(axis) control with **MultiMove™**
- Programmable user interface with **intuitive joystick** control via FlexPendant
- World leading motion control with **TrueMove™** and **QuickMove™**
- “Next generation safety” with **SafeMove**
Motion Control Technologies

**MultiMove™**

**MultiMove™:**
- Multi Robot (Axis) control
- **Independent** - individual axis control
- **Coordinated** – in a cooperative manner

**Application Examples:**
- Dual robots welding on work objects rotated by an positioner
- Multiple robots together lifting a heavy object
- One robot holding a work piece while another robot is processing the work piece
Motion Control Technologies
Second Generation TrueMove™

TrueMove™:
- Followed motion path is the same whatever the robot speed is
- Eliminates the need for path tuning
- Online speed parameter adjustment
- What you program is what you get – at any speed.
Motion Control Technologies
Second Generation QuickMove™

QuickMove™:

- **Self-optimizing motion control** to achieve the best possible performance throughout the cycle based on several factors like payload, movement direction, speed etc.
- **Optimizes** the servo parameters

High max. speed of single Axes ≠ short cycle time!
New generation in robot
Safe Move – active limitation of the robot workspace

- Safe axis & cartesian speed (robot, elbow, TCP) during automatic modus
- Safe stop
- Safe Cartesian zones
- Safe orientation
- Human-Machine Interaction/Collaboration
- Reduced stop-times
- Higher flexibility
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Integrated Vision
Find it, Check it, Trace it

- Minimal installation time due to pre-installed camera
- Easy calibration
- Easy, intuitive and fast programming
- Robust and reliable
- Resolution 800x600 or 1280x1024, autofocus, integrated lighting
- Embedded vision processing
Integrated Force Control
FlexFinishing™ – Force Control

For machining processes like grinding, deburring and polishing and other mechanical finishing processes

Features:
- Integrated Force Sensor – signals directly connected to axis computer
- Turnkey Function Packages
- Dedicated FC Machining GUI
- Lead by hand programming
- Automatic Path Generation
- FC Speed Change
- FC Pressure Process
Integrated Application Software
RobotWare for ease-of-use

- Spot Welding
- Arc Welding
- Laser Cutting
- Plastics (injection molding)
- Diecasting
- Machining force control
- Machine Tending
- Assembly
- Packing
- High speed picking
- Press Tending
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Manager your robots – Anytime, Anywhere
Smart simplicity for robots

**Programming**
- **Robot Studio Simulation**
  With touch-enabled user interface taking advantage of new PC models

**Supervision**
- **Remote Service**
  MyRobot for smartphones

**Commissioning**
- **Robot Studio Online**
  Apps for editing, calibration, jogging, and management, that will run on industrial tablets

**Operation**
- **Operator Panels**
  Operator Panels compatible with IRC5

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YuMi ® allows the “real” collaboration between human and machines

- Official market launch at Hannover fair 2015