Renesas Technology Europe
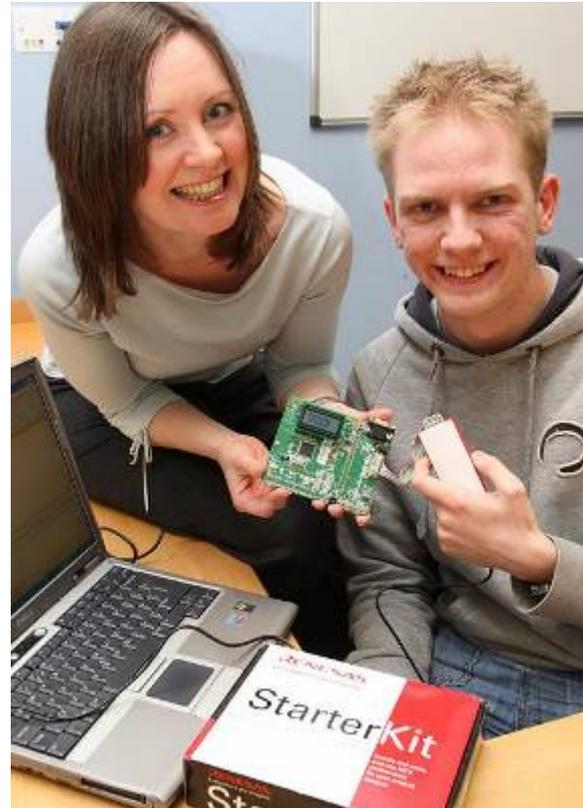
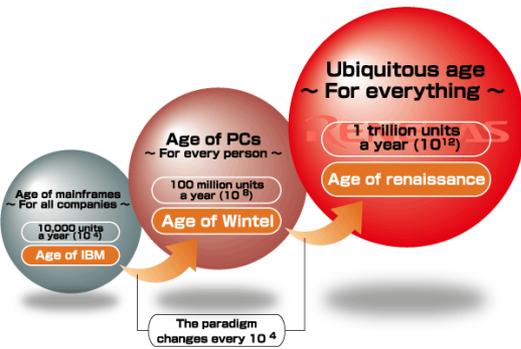Promotion Programs

Andrea Nuyken / Francesco Anwander

02/09/2008

Facts about Renesas

'Everywhere you imagine'

- support the world of ubiquitous networking and make life easier for people - everywhere

- Established 2003 as joint venture of Hitachi and Mitsubishi Electric

- 26.000 employees worldwide

- Renesas is the *No 1* MCU and *No 1* Flash MCU Supplier W/W.

- Renesas has more than *23 %* MCU market share W/W.

- Renesas has more than *12 Years* Flash MCU Production experience.

- Renesas manufacture over *20* Million Flash MCU's per month.

- Total shipment reaches *2 Billion* by 2008 devices worldwide.

- Highly reliable Flash MCU proven into major Automotive makers.

Everywhere you imagine. RENESAS

Goals of Renesas University Program

■ Support university professors and teachers to setup labs & teach courses with Renesas microcontrollers across Europe.

■ Enable students' education close to the industrial environment by providing free of charge development tools - Renesas Starter Kits - and the benefits from a worldwide Renesas support infrastructure

■ Focus on universities with best in class engineering reputation teaching microcontroller architectures and programming.

■ Provide universities contacts to global companies, design houses and of course other European universities working with Renesas products.

■ Renesas' target is to increase its share-of-mind amongst the European engineering community and to be a positive member of this community.

3

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Renesas' Partner Universities in EMEA

The Renesas Europe (RTE) University Program

- The RTE University Program was launched in February 2007

- It has achieved its target of partnerships with 30 universities across Europe within only 16 months.

- More than 3000 students have been familiarised with Renesas MCU.

- All Renesas product families like SuperH, H8S(X) and M16C are engaged in lecturing, labs and students' work

- University projects show a wide application portfolio: Robotics, motor control, Zigbee, environmental care, instrumentation, medical tools

Everywhere you imagine. **RENESAS**

Enhanced education

- Renesas sponsors starter kits for students thesis, final year projects and university labs.

- This investments directly enhances the quality of the students education as they use state-of-the-art tools and MCU.

- The students will be better prepared for their professional career due to the hands-on experience.
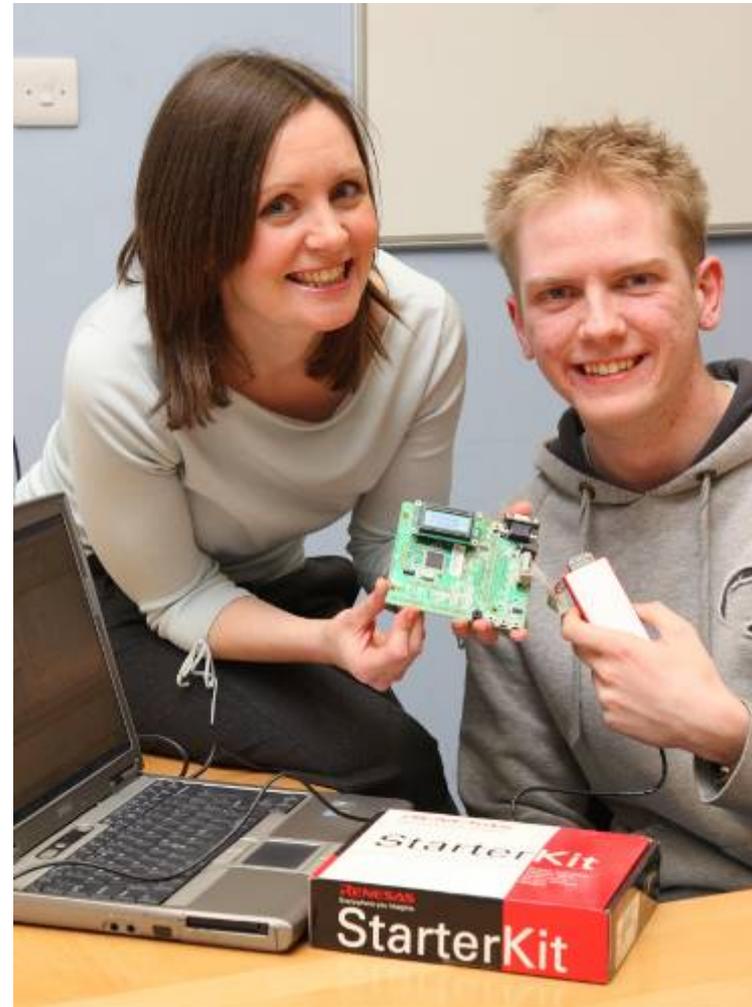
Renesas FAE Claire Steed introduces an M16C Starter kit to a student at Strathclyde University, UK.

Everywhere you imagine. RENESAS

Renesas University Website   www.renesasuniversity.com

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Renesas Interactive – the training website for Renesas products

http://www.renesasinteractive.com,

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Renesas Interactive - Virtual Lab

http://vl-web1.vl-techonline.com - TechOnLine - Microsoft Internet Explorer provided by RTE IS 1.0 Browser

■ Free Access to Registered Users

■ Available Online 24/7

■ Easily accessed from your PC using only a Web Browser

■ A full suite of Audio Visual Training Courses covering all Renesas MCU Families and application related information

■ A "Virtual Lab" Development Environment which allows as User to run actual Renesas Hardware & Software over the Web and is not a simulation

■ Global Certification Program for Distributor FAEs

Logout   Invite Participant   VirtualLab Tutorial   Quick Start   User's Manual   Schematics   Software Manual   Hardware Manual

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Renesas' expectations on Partner Universities

- Universities within the RTE University Program are expected to provide yearly reports to review the outcome reached with the provided tools.

- Universities are continuously informing Renesas about the ongoing projects

- Those are recorded and implemented into the daily business and PR.

- Under this worldwide initiative, students and teaching staff of leading engineering schools receive access to products, application notes, course material and software.

- Additionally, Renesas offers academic staff support in publishing articles and writing books that cover Renesas products.

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APPENDIX:
Renesas University Program and Project examples

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Ranked among the top universities of Science and Technology in Europe

INSA sees a great benefits to teach their students on the Renesas 16-bit & 32-bit architectures

INSA Lyon effectively prepares their students to work for international companies and have about 1000 industry contacts.

Projet de Réalisation Technique

Commande numérique d'un moteur à courant continu

Rapport

Auteurs :
Julien MUSELLI
Benoît SKLENARD

Tuteurs :
Xuefang LIN-SHI
Dominique TOURNIER

Département Génie Electrique - Janvier 2008

Everywhere you imagine. **RENESAS**

High score with Renesas….!!
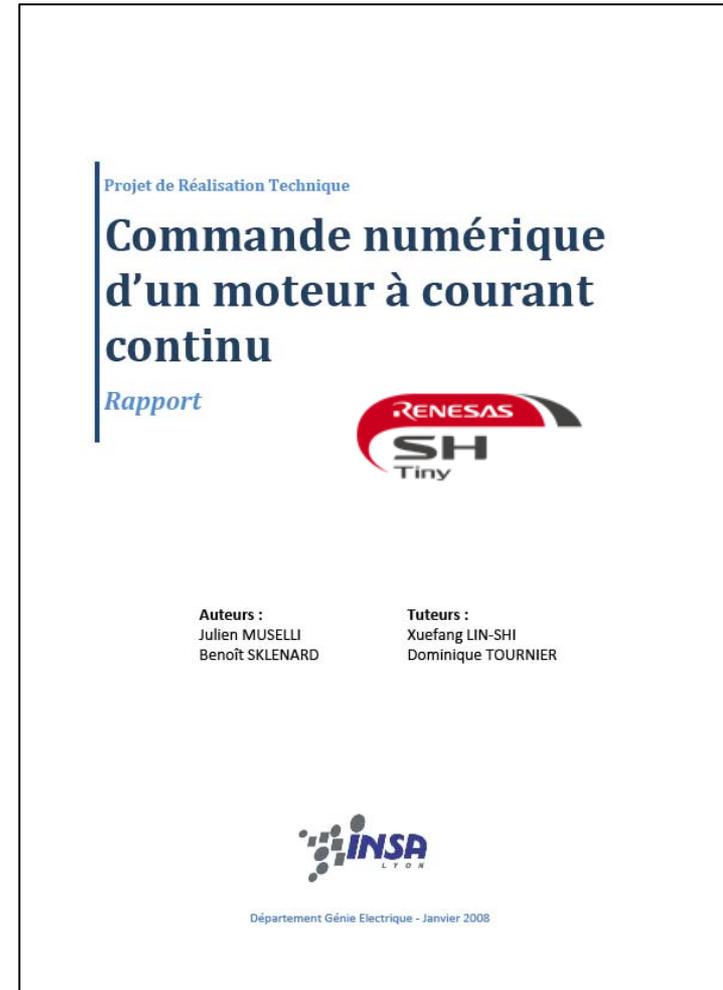
Eurobot Recycling Rally Contest
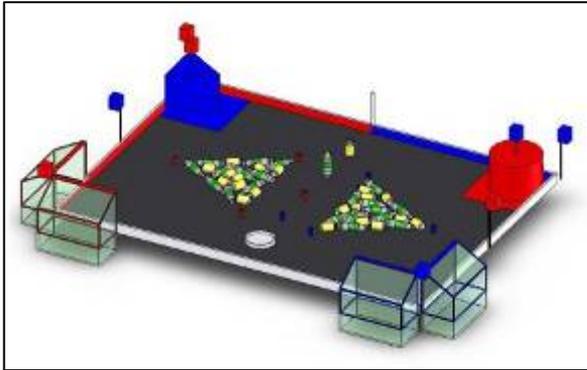
Waste, Sort & Win! The robot which sorts the most waste into correct bins will be the winner.

INSA Lyon Robot run on the **M32C/83** device took place at the Eurobot competition and won the 3rd place amongst the competition of 200 teams from 22 different countries over Europe

Everywhere you imagine. RENESAS
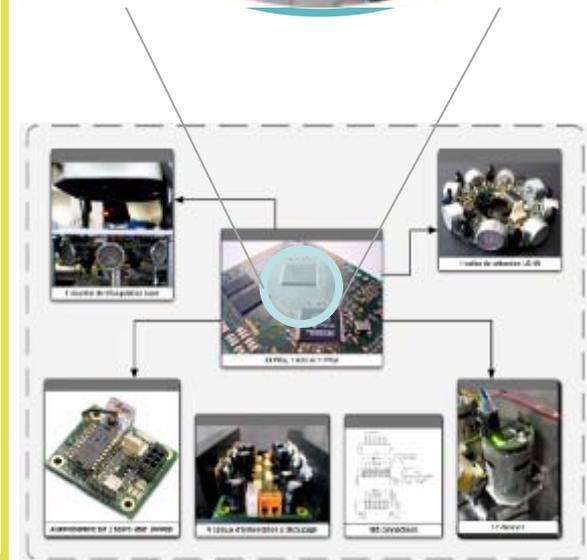
University meets industry…

Students of the INSA University demonstrated during 3 days their Robot based on M32C at "Embedded World 2008"

Their waste recycling robot inspires many visitors.

Everywhere you imagine. RENESAS

Polytech'Clermont-Ferrand
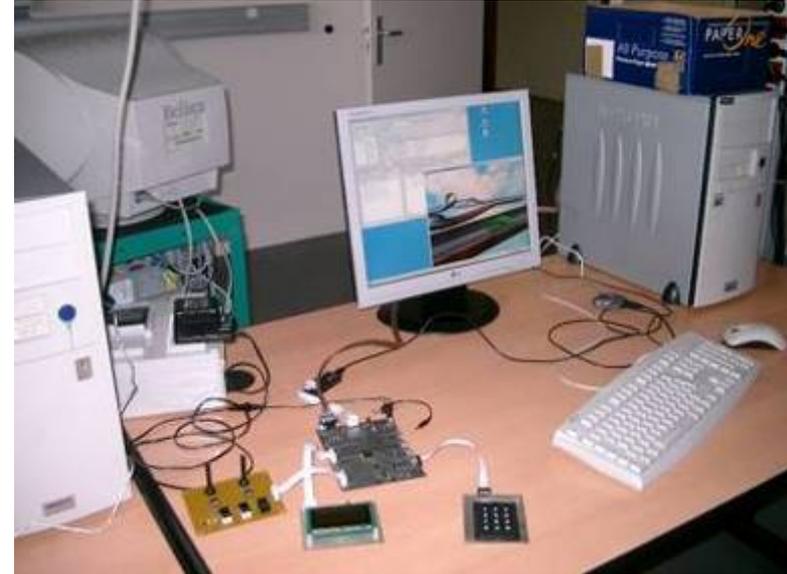
Up to 200 hours practical work per year in Polytech Clermont-Ferrand Lab based on M32C + real-time kernel to drive a specific simulation car game on PC

Everywhere you imagine. RENESAS

Polytech'Clermont-Ferrand

CUST Clermont-Ferrand
Réseau Polytech
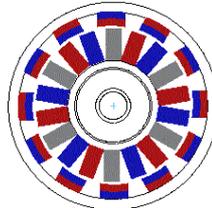
Direct Torque Control (DTC) for a Permanent Magnet
Synchronous Motor (PMSM)

by
Romain Gaudillard GE3 CET POLYTECH CLERMONT
Christian Jury GE3 CET POLYTECH CLERMONT
Cedric Renault GE3 STICC POLYTECH CLERMONT

Contents

1. Command rules
   - Status
   - Issues and Problems
   - Solutions chosen
   - Hardware and software
   - Future (Next steps for the oncoming weeks)
2. Power card
   - Description
   - Status
   - Issues and Problems
   - Future (Next steps for the oncoming weeks)
   - The cost

Motor Control developments: with Renesas SH Tiny
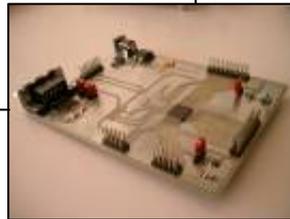
ENGINEERING SCHOOL POLYTECH'CLERMONT-FERRAND

Polytech'Clermont-Ferrand

Locating algorithms for
positioning system on
ZigBee

GE2 Placement report 2007-2008
from 1st May to 31st July 2008
RENESAS TECHNOLOGY Ratingen

30/07/2008

Supervisor: M. SMOLINSKI Daniel
Teacher: M. JAMES Michel
Trainee and author: Miss ABRAHAMSE Fanny

RENESAS
Everywhere you imagine.

*During her 3 month placement in Renesas
Miss Fanny ABRAHAMSE from Polytech Clermont
Ferrand was focusing on Location Algorithms for a
positioning system on ZigBee*

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University of Applied Sciences Vaasa

■ 2007 Vaasa started teaching M16C Renesas family and equipped their laboratories with Renesas RSK starter kits running training projects and supporting student thesis on Renesas technology.

■Vaasa also plans to use Renesas processor TBD) as a platform for their RoboCup team. (more at www.puv.fi and http://robotics.puv.fi)

Everywhere you imagine. RENESAS

Faculty of Computer Science and Electrical Engineering
Center for Adaptronics

FACHHOCHSCHULE KIEL
University of Applied Sciences

■ Various R&D activities with support of Renesas :
- ■ Wireless sensor networks with Zigbee
- ■ Realtime visualization of Zigbee sensor data
- ■ New antenna solutions to increase the range of Zigbee applications

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Hochschule für Technik, Wirtschaft & Kultur
Fachbereich Elektrotechnik und Informationstechnik

Lecturing & developments focus on microcontrollers and signal processor applications.

Under guidance of Prof. Sturm an international team of students has developed and installed an M16C based radio amateur beacon on top of the
Memorial to the Battle of the Nations, Leipzig

Renesas contact Prof. Sturm, has been awarded as one of 10 best professors in Germany.

Universitat Politèctica de Catalunya, Barcelona (Spain)

Belen Matilla talking to Spanish T.V.

Lab of university UPC Sarti, Cataluna

Special plastic boxes for RSKs

■ The professional lab of universtiy "UPC Sarti" in Vilanova, Cataluna: Renesas M32C/87 and R8C/25 RSK´s and E8 to be connected to the PC and used by the students.

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Tomsk State University of Control Systems and Radiolectronics

TUSUR is one of the leading universities of the Russian Federation, training highly qualified specialists in a wide range of engineering specialties. The university provides training of approximately 15,000 students in 36 specialties including different branches of economics and information technologies, electronics and computer engineering, programming, automation and control systems, etc. The University Faculty staff comprises 430 lecturers, many of whom are recognized for their achievements.

TUSUR has setup the Renesas lab of 8 working desks

■ TUSUR are the 1-st Russian University that started the Renesas education program followed by MIEM Moscow and St. Petersburg Politechnical University.

■ In Renesas Laboratory at the Department of electronic systems TUSUR formed a group of 14 students of the 3-rd year who began study the SuperH platform. The next group of the 3/4 year students will be formed this September 2008.

■ Department of electronic systems are going to start a lecture and lab course for Master's program on M16C and SH. Some student are already developing a project of PC Oscilloscope and mobile robot based on RSK7201

Everywhere you imagine. **RENESAS**
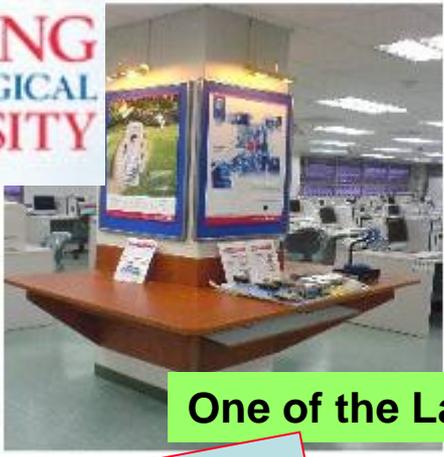
Institute of Energy Conversion Technology

Prof. Herzog and his team investigate solutions to improve the design and optimization process of electrical drives in mechatronic systems

Students' work from TU Munich

Everywhere you imagine.

Global Renesas University Program

Everywhere you imagine. RENESAS

One of the Lab – Computer Engineering

Various Interesting Projects

Final Year Project

2nd Year Design Project

Detection of different **exhallations**
(H8S/2377 MCU)
(Final Year Student project)
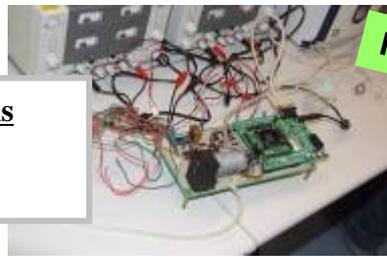
Testing of **hearing** capability
(H8S/2377 MCU)
(Final Year Student project)

Final Year Student project
Sensor network using SLP

2nd Year Projects using SLP CPU Board –
Java Programming in PC, controlling
Obstacle-avoidance moving robot

Moving Robot picking up **color balls**
Using H8S/2377 MCU
(Final Year Student project)

Everywhere you imagine. **RENESAS**

Use of H8/38086 SLP MCU
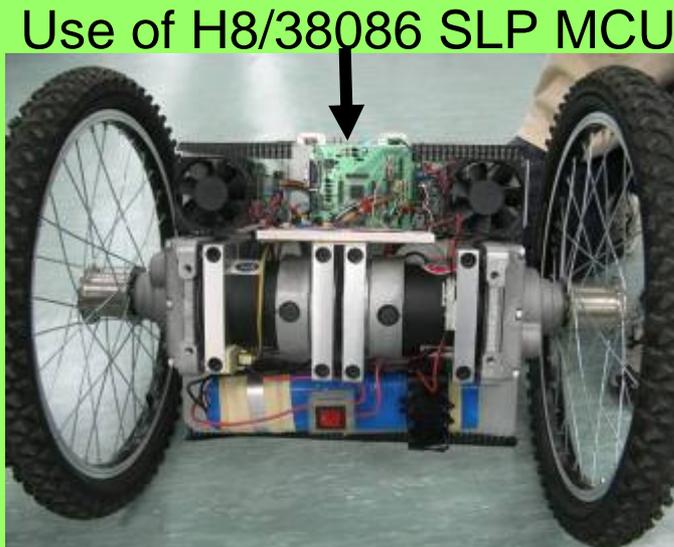
Undergraduate Final Year Project - 1 person Output

Amazing Projects

2nd Year Lab lesson
-Creation of general application on training board

Text Editor

Printer control

Lift simulator

Function Generator

DC Motor – PID controller

Tetris Game

Everywhere you imagine. **RENESAS**

3

Anna University
MCU Subject   : R8C
Students   : about 350 per year

Started in Year 2006

ANNA UNIVERSITY
PROGRESS THROUGH KNOWLEDGE

Renesas Lab

Local Partner :

FRONTLINE ELECTRONICS

Everywhere you imagine. **RENESAS**
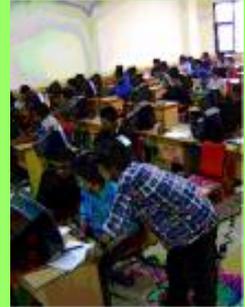
6

Engage into having Renesas Tool and Lab in 4 main university
1. Malang (BCS Computer)
2. Surabaya (STTS, Mr. Budhy)
3. Jakarta (Trisakti University)
4. Semarang (Diponegoro University)

Main Activity: Conducting Courses

Lomba Robotika ITN Malang 2006
Yang Tercepat Mencapai Kejayaan
HIMPUNAN MAHASISWA ELEKTRO S-1
INSTITUT TEKNOLOGI NASIONAL (ITN) MALANG
24 Mei 2006 di Lobi Gedung Elektro Kampus II ITN Malang

Started in Year 2005

Local Partner :

RENESAS PROMO INDONESIA
Tinggi Teknologiku Maju Bangsaku

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Renesas Technology Europe