Haifeng Niu

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Education

06/2012-Current:

    Ph.D., Missouri University of Science and Technology, Rolla, US

    Research Area: RFID sensor network, RFID routing and security protocol

09/2010-04/2012:

    M.S., Zhejiang University (ZJU), Hangzhou, China

    Major: Measuring Technology and Automatic Devices, Department of Control Science and Engineering

    GPA: 3.81/4.00, **Major GPA:** 3.89 (ZJU standard algorithm)

09/2006-06/2010:

    B.S., Northeastern University (NEU), Shenyang, China

    Major: Automation, College of Information Science & Engineering

    GPA: 3.79/4.00 (Rank 6/285), **Major GPA:** 3.87 (ZJU standard algorithm)

Project Experience

06/2012-Now (IMS Center)

- Design of Passive RFID tags with multimodal sensors including temperature sensor, humidity sensor, 3D accelerometer, strain gauge and 1 Mb EEPROM.

09/2010-03/2012 (ZJU Embedded Devices Center):

Remote Mobile Water Quality Monitoring Boat: (Apr. 2011 – Nov. 2011)
- **Introduction:** It is a remote operated boat for gathering water quality parameters including temperature, PH, dissolved oxygen, electric conductivity and turbidity. The boat controller is based on TMS320F28035 with wireless location module based on NanoPAN5375. The portable control terminal is based on OMAP3530 (CORTEX-A8 core), embedded with LINUX system.
- **My work:** Total Design; The boat & terminal circuit design; Transplanting embedded LINUX system into the terminal; Wireless ranging algorithm programming

Controller for Microreactors: (Dec. 2010 – May. 2011)
- **Introduction:** The controller is used to keep the flow rate of microreactors by regulating a valve to the pre-set value from host computer. The control system is based on LM3S8962 (Cortex-M3 core), adopted with Fuzzy PID control algorithm. The host computer operation interface is compiled in VC++, communicating with MCU through 485 bus.
- **My work:** I've finished this controller independently. The work mainly includes mechanical layout, circuit design, algorithm design, MCU & PC interface programming and debugging.

Flow Manager: (Nov. 2010 – Mar. 2011)
- **Introduction:** It is an electronic computational device which implements the required algorithms to turn the raw data received from flow meters to which it is connected into volumes at base conditions. This specialty of this manager is its modularity; it has 8 expansion slots for the daughter cards, which enables multi-run flow computing. The host computer is based on S3C6410 (ARM11 core) and the daughter cards MSP430F5438. They communicate with each other through CAN bus.
- **My work:** I'm in charge of the daughter cards, boards used for collecting data from flow meters and sending them to the host computer. The work mainly includes circuit design, programming and debugging.

2008-2010 (NEU Robot Base):

Robot for ABU Robot Contest: (Sep. 2009 – Jul. 2010)
- **Introduction:** The robot is built for Asia-pacific Broadcasting Union Robot Contest. Its task is to transfer bricks to a prescribed place and to use them to build a pyramid in the shortest time.
- **My work:** Designing the travel route and movement of the robot, circuit design, walking control algorithm design and programming. Also, I programmed the PC interface based on Visual C++, to track and displace the real-time position of the robot through wireless UART.

Skills

Languages: C/C++, ASM, Java, SQL
Software: MATLAB, Visual Studio, Altium Designer, IAR Embedded Workbench, SQL Server2008, Solidworks
MCU Application: ARM7, ARM9, MSP430X, DSP, FPGA
Embedded Operating Systems: Linux, WinCE

Awards and Honors

Asia-pacific Broadcasting Union Robot Domestic Contest, Third Prize, 2010
Outstanding Student of NEU, 2010
NEU Scholarship, 7 times, 2006 - 2010