

A. Electronic Engineering Field:

Design & Construction of hardware for:

* Analogue & Digital signal conditioning

* Precise measurement of electric signals

1. pH, pM, Potential, Current, Conductance ... applications

2. Semiconductor Colorimetry & Photometry

3. Thermometry (thermocouples, semiconductors, resistors)

4. Pressure Transducers

* Low/High Speed Data Acquisition Systems

5. Electrocardiography (ECG), signal monitoring ...

6. Modbus, Standard HART protocol ...

* Low current programmable Switching Power Supplies

7. driving Light Sources, pulse plating, ...

* Small size programmable High Voltage sources

8. driving Photomultiplier Tubes (PMT), Piezo valves, ...

* High Frequency Ultrasound (sonochemistry & sonography) Transducer handling

* Applying some Electronic Power components

9. Triacs, Thyristors, MOSFET & Bipolar Transistors ...

* Microcontroller based systems (8bits AVR – 8/16 bits XMEGA – 32bits ARM)

10. Embedded control & interface

11. Real time processing & control

12. Store & Handle large size of "logged data & events" on small size "Nonvolatile memory" Chips

13. portable applications

Experiences

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Design & Execution:

* CCD Imaging & Processing

14. Colorimetry

15. Some image processing techniques

16. Scientific Camera design & construction

* Instruments & Equipments Interfacing

Start-Up & Service of Instruments & Equipments

B. Computer Engineering Field:

Design & Execution:

* SBPC based projects

Implementing Industrial Biscuit PCs

Experiences

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* Real-Time Embedded Programming

* Multi-Thread Programming

Software Tools:

Current Tools:

* Qt SDK (C++): application (customized & general software for Data Acquisition, Control, Chemometrics, Image Processing, etc ...) development for versatile range of operating systems (Embedded linux, Desktop linux, Desktop Windows) & computers (miniature ARM microcontrollers to powerfull 64 bits processors) in open-source platform

* Altium Designer: Schematic and PCB design for Electronic Boards

* AVR Studio 5 + AVRGCC: the Integrated Development Environment (IDE) for developing and debugging Atmel Tiny, Mega & Xmega microcontrollers

* LTspiceIV: Simulating & Designing Analogue Circuits

Previous Tools:

* Programming in C, Pascal, Basic & uC Assembly

Experiences

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- * Visual Basic, C#: Microsoft Programming Tools
- * Delphi: Rapid PC application development
- * MATLAB: a high-level technical computing language

General Tools:

- * Microsoft Word, Excel, PowerPoint, Visio: general purpose applications
- * Microsoft FrontPage: Web Design application

Operating Systems:

- * Dos, Windows, Linux, Embedded Linux

C. Chemical Engineering Field:

Instrument Design, Programming & Start-Up:

- * CataTest (the System used for Determinations of different variables for researching on Catalyst improvement, such as: Reacting Temperature, Pressure, Feed Flow; Catalyst Selectivity, Activity, Screen and Life span, etc)

Experiences

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* Fouling Mitigation Experimental Setup (in oil industry equipments)

*Gas Separation Setup (in petrochemical industry equipments)

Software Tools:

* Solid Works: a 3D Mechanical CAD program (newcomer)