NATA TRADING AND TECHNOLOGY JSC

COMPANY PROFILE

PRESENTED BY: LE VAN HOC

NATA., JSC

204, ALLEY 155, TRUONG CHINH STREET, PHUONG LIET, THANH XUAN, HANOI

ABOUT NATA

Company Overview

Founded in May 2010 in Hanoi, Vietnam, NATA is a leading Vietnam provider of high quality alarm & monitoring management solutions.

NATA provides easy-to-use solutions that improve efficiency, reduce costs, and maximize space. The company designs, manufactures and tests its own products, and provides friendly technical and sales support in Hanoi, Ho Chi Minh city, Viet Nam.

NATA products are being used by some leading Telecom companies in Vietnam.

NATA is completely truthful in providing the information about products' quality and origin to our customers. All of NATA products comply strictly all the registered quality standards.

NATA Mission:

- To create value and make a difference;
- To make the life better

NATA Vision:

- People: Be a great place to work where people are inspired to be the best they can be. To make the people life better day by day.
- Productivity: Be a highly effective, lean and fast-moving organization
- Market: Be one of the top on embedded system companies in Vietnam

NATA Value:

- Passion: Committed in heart and mind
- Quality: What we do, we do well
- Leadership: The courage to shape a better future

About NATA Products

NATA products are easy-to-use, hardware-based solutions that are compatible with commonly available software and drivers. Each product is rigorously tested to ensure long-lasting and proper operation. All products are backed by one-year to three-year warranty on all parts and labor.

Quality Policy

NATA is dedicated to delivering solutions that are of exceptional quality and reliable performance. The company is doing its best to improve the product quality in order to meet or exceed customer's expectations.

Contact Information

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Friendly, Responsive Customer Service & Technical Support

NATA provides complete support and the highest level of customer satisfaction to new and existing customers.

ABOUT NATA

Human Resource

NATA has

- 02 experts in Embedded System
- 01 Master in Electronics
- 03 information technology engineers
- 02 contract engineers
- 01 accountant
- 02 assistants.

Each staff is an important piece of NATA's pictures. We are finding other pieces.

Development Trends

NATA's goal is to be **a leader in Embedded System Design and Integration in Vietnam.**

NATA's target is a stable and reliable developement. We focus on developing technical skills, applying the new technologies in our designs, improving our competition in Embedded System domain.

NATA want to be a part of an ecosystem in which NATA and its partners can help each other to grow up stably. The oursourcing model is not preferred.

Our highest priority is to make the good products, to provide the best services for our customers. The customer's satification is the key to measure our quality.

NATA will do its best to get better day by day.

Characteristic

1. **Specialize in hardware reference design, embedded RTOS and device drivers**
2. **Highly skilled and professional staffs, who worked and/or are working for Vietnam's or foreign research groups, universities, institutes.**

Services

NATA can help to develop the Embedded System Software for new hardware platform in C, C++ or Assembly languages. We can do well the low level drivers, porting OS (Linux or RTOS). Please refer to the experience section to know more about our capacibiliy.

NATA can help to develop the reference design, the hardware board using user's specific MCUs or ICs

ABOUT NATA

Board Of Management

Le Van Hoc

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President, Chief Executive Officer

As NATA's Chief Executive Officer, Hoc is responsible for overseeing the planning, strategy and execution of the company's sales and revenue growth in all market. Prior to founding NATA, he worked at FSOFT JSC and Le Quy Don University.

He has strong embedded design skill, with over 12 years' experience as a Lecturer and an Embedded Software designer at Le Quy Don University, and 03 years' experience as a Training Manager and Solution Architecture for Panasonic and Freescale offshore team at FSOFT company.

Hoc also holds a PhD degree from Moscow Aviation Institute with a researching on "Application of Fractal Mathematics in Detecting Flying Object"

Tran Manh Hung

Business Development Manager

Hung graduated from Le Quy Don University and has over 12 years' experience as a Lecturer at Le Quy Don University before joining NATA.

He is responsible for the business development and trajectory of NATA's products, develop the customer base, finding new opportunities...

Le Dang Giap

R&D Manager

Giap graduated from Hanoi University of Technology in 2006. From 2005 to 2007, he worked for IWICOM Company as a BREW (Qualcomm) developer. He joined FSOFT JSC in Apr 2007 and has over 03 years' experience here working with Panasonic, Kyocera Mita and Freescale.

Since 2010, he joined and worked for NATA as an embedded system developer

From 2011, he held the position of R&D Manager and has the responsibility to do study, research new technologies, opportunities with R&D team.

ABOUT NATA

Knowledge and Experience

NATA's engineers have the strong embedded knowledge and experience in embedded system software development. NATA has also resource with over 15 years' experience in reference design.

Key Knowledge

1. Porting RTOS (uITRON, Linux) to new hardware platforms
2. Develop device drivers: LIN driver, CAN driver...
3. Automation testing
4. Develop embedded software
5. Develop the radiation measurement system
6. Develop alarm and monitoring system
7. Develop modular hardware that meet custom requirement

In addition, NATA has the fast learning skill; the company can approach to new technology quickly.

Experience

Some major projects that our resoure involved as techinical leader and/or project manager:

eSD Project

The aim of the project is to **develop eSD card (embedded SD card) device driver, file system and test them on Panasonic's uITRON OS**

Client: Panasonic – Matsushita
Size: 9 x 2 man-month

Resources:

1. Le Van Hoc: Training Manager, Solution Architecture
2. Nguyen Truong Son: Project Manager
3. Le Dang Giap: Project Technical Leader

EXPERIENCE

Experience – OS/RTOS

eSD Project (continue.)

Responsibility:

1. Study eSD documents
2. Develop eSD device driver (together with the Panasonic eSD team)
3. Implement the testing for eSD device driver, File System and Application

Hardware: UniPhier Audio platform

OS:

1. Windows XP,
2. Panasonic's µITRON 4.0

Tools:

1. Cygwin,
2. DebugFactoryBuilder (developement tool of Panasonic),
3. ICE

Programming Languages: C

Products:

1. Device Driver source code,
2. Test Documents (test design, test report)

EXPERIENCE

Experience – OS/RTOS

FSL_ITRON Project

The aim of the project are:

1. To evaluate any TOPPERS solutions available for ColdFire and provide to Freescale a comprehensive list of supported silicon and all the peripherals supported on each silicon piece.
2. To adapt existing boot code. The boot code will follow the Freescale provided flow diagram.
3. To migrate the provided USB mouse demo to work with TOPPERS.
4. To port all demo applications distributed at FTF Americas to TOPPERS

Client: Freescale

Size: 4 x 3 man-month

Resources:

1. Le Van Hoc: Training Manager, Solution Architecture
2. Le Dang Giap: Developer

Responsibility:

1. To convert source code in C and ASM language from GNU to CodeWarrior environment
2. **To port TOPPERS JSP to ColdFire V1 Microcontroller** (MCF51JM128 – JM Badge Board)
3. **To test the ported RTOS (kernel test)**
4. To develop examples on TOPPERS JSP
5. To **develop the CAN driver on TOPPER JSP** for MCF51JM128 Demo board
6. To **migrate the USB mouse demo to work with TOPPERS**

Hardware: Freescale JM Badge Board (MCF51JM128)

OS:

1. Windows XP,
2. TOPPERS JSP

Tools: Freescale CodeWarrior for Microcontroller v6.2

Programming Languages: ASM, C

Products:

1. Source code of TOPPER JSP RTOS for Freescale JM Badge Board,
2. Source code of demo applications.

EXPERIENCE

Experience – OS/RTOS

FSL_MQX_uITRON_Wrapper Project

The aim of the project are:

1. To verify the correct operation of MQX support for the uITRON wrapper on Kirin3
2. To analyze the overhead and determine feasibility and suggested methods to reduce it
3. Porting TOPPERS FI4 to Kirin3 and conduct a comparision between the ported TOPPERS FI4 and (MQX + uITRON Wrapper for MQX) in term of Code Size, Interrupt Lattency, Kernel CPU Usage per Tick and Task Switch Time.
4. To produce a realease of uITRON for Kirin3 that is tested and ready for commercial use
5. To reduce the overhead so that uITRON wrapper is a commercially viable choice.

Client: Freescale

Size: 5 x 3 man-month

Resources:

1. Le Van Hoc: Training Manager, Solution Architecture
2. Cao Huu Tinh: Project Manager
3. Le Dang Giap: Project Technical Leader

Responsibility:

1. To make the project plan
2. To solve technical solutions
3. To port TOPPER FI4 to Kirin3
4. To develop benchmark suite to evaluate: Kernel CPU usage per TICK, Interrupt Response, Task Switch Time
5. To evaluate TOPPERS FI4, MQX, MQX with uITRON Wrapper on Kirin3

Hardware:

1. Freescale Kirin3

OS:

1. Windows XP
2. MQX

Tools:

1. Freescale CodeWarrior for ColdFire v7.1

Programming Languages: ASM, C

Products:

1. Source code to evaluate MQX, TOPPERS FI4 and MQX+uITRON Wrapper
2. Evaluation report

EXPERIENCE

Experience – OS/RTOS

FSL_MQX_Test_Automation Project

MQX is Freescale's RTOS solution for 32bits MCUs. It includes core RTOS as well as I/O drivers. RTCS is the software driver of MQX implementing TCP/IP protocols. Kirin3 is the first MCU supported by MQX RTOS/RTCS**. To reduce possible functional regression, regression test is required each time there is a major release, especially to support new MCUs**. This project perform regression test for latest MQX release to support MCF51CN128 (Lasko) which belongs to ColdFire V1 MCU Family.

However, this kind of regression test is quite time-consuming. This is mainly due to the large number of test programs and the fact that the tester has to manually download each of the test programs to the MCU, run it and collects test result in sequence. To improve test efficiency, Freescale decides to make use of V&V automation test system. V&V system is the Test Automation system originally developed and used by Freescale MSG/Auto R&D team. To apply the V&V test automation system, test programs shall be adapted to be in line with its' system specification.

Client: Freescale
Size: 08 man-month
Resources:
1. Le Van Hoc: Training Manager, Solution Architecture
2. Le Dang Giap: Project Technical Leader
Responsibility:
1. To study Perl language to implement the test scripts
2. To setup the testing environment for executing the automation test
3. To write the test cases, test scripts
4. To review test results and bugs found by the testing team
Hardware:
1. Kirin3 board
2. Lasko board
OS:
1. Windows XP
2. MQX
Tools:
1. Freescale CodeWarrior for Microcontroller v6.2,
2. CodeWarrior for ColdFire v7.1,
3. Perl IDE,
4. V & V system
Programming Languages: C, Perl
Products:
1. Test scripts
2. Test design, test code and test report

EXPERIENCE

Experience – OS/RTOS

Porting Linux to OMAP5912OSK Project

This project targeted to **port the Linux kernel to OMAP5912OSK platform**; get the experiences about porting Operating System. **Understand the multi cores platform, the communication methods in multi cores platform**. **Demonstrate DSP function, communication between two tasks: one on Linux (ARM 920), one on DSP Gateway (TI DSP)**

Client: Confidential

Size: 1.5 man-month

Resources:
1. Le Van Hoc: Training Manager, Solution Architecture, Project Manager
2. Le Dang Giap: Developer

Responsibility:
1. To port Linux 2.6.12 kernel to OMAP5912OSK
2. To port DSP Gateway to OMAP5912OSK
3. To write sample to demonstrate DSP function of OMAP5912OSK

Hardware:
1. OMAP5912OSK board

OS:
1. Windows XP
2. VMWare
3. Redhat Linux
4. Linux kernel 2.6.12

Tools:
1. GCC tool chain for ARM,

Programming Languages: ASM, C

Products:
1. Ported Linux 2.6.12 source code
2. Demo applications

EXPERIENCE

Experience – OS/RTOS

FSL_Benchmark Project

The aim of the project is to perform the EEMBC and Dhrystone benchmarks on Freescale EVBs and some competitive EVBs (NEC, Renasas, TI and Infineon). The result of benchmarking will be analyzed to make some pictures of the comparison.

Client: Freescale
Size: 10 man-month
Resources:
1. Le Van Hoc: Training Manager, Solution Architecture
2. Le Dang Giap: Project Manager
Responsibility:
1. To make project plan
2. **To study EEMBC and Dhrystone benchmarks**
3. To **port EEMBC and Dhrystone benchmarks to Freescale EVBs**
Hardware:
1. Freescale MPC55xx Development boards (MPC5517g, MPC5566, MPC5633m, MPC5674)
2. Infinenon Development board (TC1797)
3. NEC Development board (NECV850)
4. Renasas Development board (SH7211)
5. TI Development board (TMS470)
OS:
1. Windows XP
Tools:
1. Freescale CodeWarrior for MPC55xx version 2.2,
2. Development tools from NEC (CubeSuite & Aplilet2), Renasas, TI and Infineon,
3. Green Hills toolset
4. Dhrystone, EEMBC source code
Programming Language: ASM, C
Products:
1. Ported source code of Dhrystone on Freescale, Infineon, NEC, Renasas and TI platforms
2. Ported source code of EEMBC on Freescale, Infineon, NEC, Renasas and TI platforms
3. BenchmarkResults and Analyzing Report

EXPERIENCE

FSL_LIN Project

The aim of the project is to **develop LIN 2.1 and J2602 drivers** for Freescale devices.

Client: Freescale
Size: 54 man-month
Resources:
1. Le Van Hoc: Training Manager, Solution Architecture
Responsibility:
1. To analyze requirements
2. **To make project plan**
3. **To write design documents**
4. To code LIN 2.1 and J2612 drivers
Hardware:
1. HCS08 family: MC9S08AW60, MC9S08DZ128, MC9S08EL32, MC9S08SG8, MC9S08SG32, MC9S08QD4
2. HCS12 family: MC9S12XEP100, MC9S12XDP512, MC9S12XF512, MC9S12XS128, MC9S12P128, MC9S12hy64
OS:
1. Windows XP
Tools:
1. CodeWarrior,
2. CANoe,
3. CANcaseXI
Programming Languages: ASM, C
Products:
1. Source code of LIN driver for Freescale devices
2. Test code
3. Test design and test report

EXPERIENCE

Experience – Device Drivers

FSL_eNVM Project (eNVM: embedded Non-Volatile Memory)

The aim of the project is to develop and test the driver for the embedded non-volatile memory. The driver allow applications to use non-volatile memory (Flash) in the same way as using EEPROM. The embedded applications can utilize the advantages of non-volatile memory (big in size, small footprint, high endurance, high read-write cycles, higher speed…) for its specific purposes (logging, configurations…) instead of using EEPROM.

Client: Freescale

Size: 10 man-month

Resources:
1. Le Van Hoc: Training Manager, Solution Architecture
2. Le Dang Giap: Project Manager

Responsibility:
1. **To develop the driver for new Freescale devices**
2. **To test and fix bugs of the driver**
3. To **review and update test cases, develop test code for the driver**

Hardware:
1. MPC5674F Evaluation board (EVB)
2. xPC5607B EVB
3. S12XHY EVB
4. xPC5604B EVB
5. MCF51JF128
6. MCF51FD256
7. MPC5644K EVB (K2)
8. MPC5644P EVB (Panther)
9. MPC5646M (Mckinley)
10. Kinetis (K40) TWR (Tower Board)
11. Kinetis (K60) TWR
12. Kinetis (K70) TWR
13. …

OS:
1. Windows XP

Tools:
1. Freescale CodeWarrior,
2. Diab compiler
3. Lauterbach TRACE32 & TRACE32-ICD
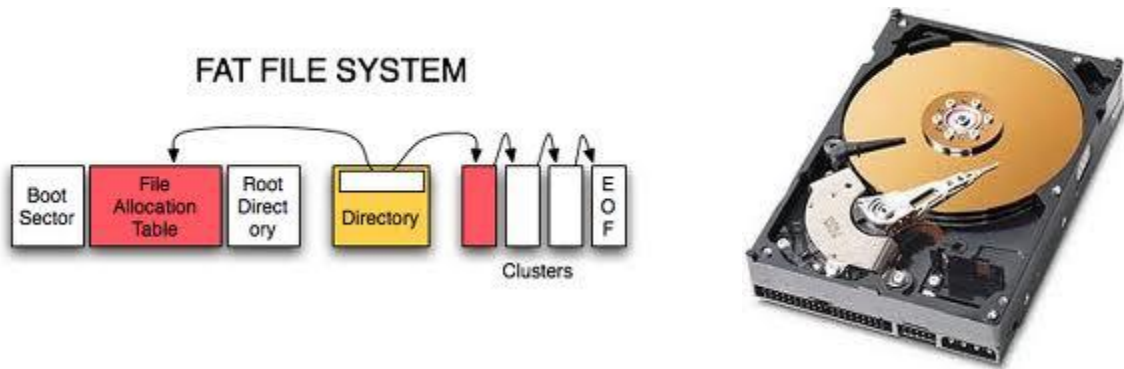4. Green Hill

Programming Language: ASM, C

Products:
1. The eNVM driver for Freescale devices
2. Test design, test report and test code for the driver

EXPERIENCE

Experience – File System

FatFs Project

The aim of this project is to develop a FAT32 file system for training. This FAT32 file system run on an Embest AT91RM9200 Evaluation board. This file system is not a full-featured file system. Only some features are implemented such as direct access to sectors, clusters, header, list file, read file content, change directory…

Client: Internal

Size: 03 man-month

Resources:
1. Le Van Hoc: Training Manager, Solution Architecture

Responsibility:
1. To study Perl language to implement the test scripts
2. To setup the testing environment for executing the automation test
3. To write the test cases, test scripts
4. To review test results and bugs found by the testing team

Hardware:
1. Embest AT91RM9200

OS:
1. Windows XP
2. Redhat Linux 9
3. Linux kernel 2.6.20

Tools:
1. GNU toolchain (cross compiler) on Linux,

Programming Languages: C

Products:
1. Source code of FAT32 file system
2. Test code, Test report
3. Training document

NATA PRODUCTS

NATA PRODUCTS

NATA-SAM01

Information

The aim of this project is to create a new alarm and monitoring system for the BTS (Base Transceiver Station). This system can detect some alarm factors such as

- Fire by Heat Rise aspect
- Fire by Smoke aspect
- Detect the movement in the room
- The user press the breaker
- The temperature is out of normal range
- The relative humidity is out of normal range
- The AC power is down
- The AC power is out of normal range
- The Power Engine is started

Hardware:

- ARM 32bit MCU
- LCD, Keyboard,
- Switching Power Supply
- I2C interface with sensors
- ADC
- Control Solid State Relay
- Siren
- Bell
- LED on the front side of the device
- Send the signal to the OMC (Operations and Maintenance Centre) via wired connection

OS:

- Windows 7
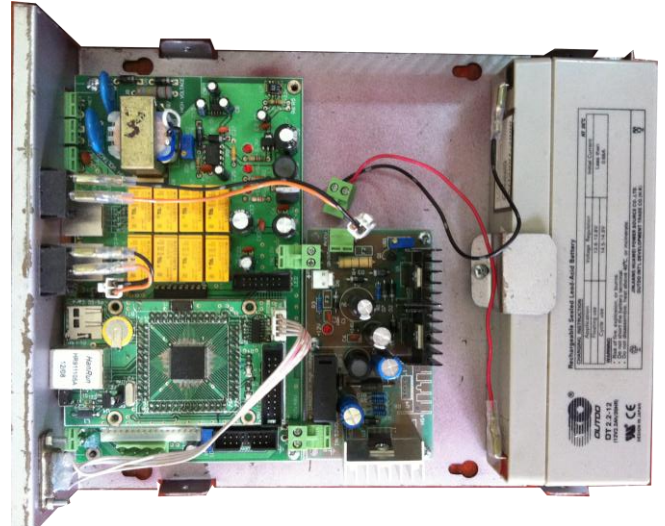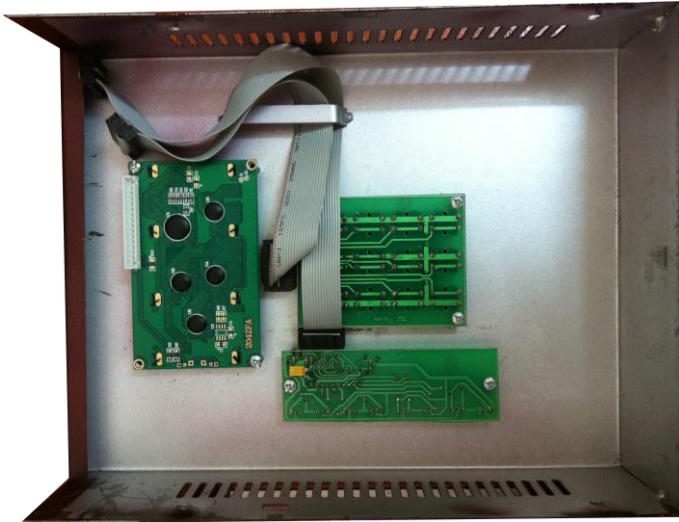- RTOS for ARM 32bit MCU

Programming Language: C

Products:

- A complete system (hardware + software + sensors) with interfaces to an temperature and humidity sensor and some external sensors

NATA-SAM02

The aim of this project is to create a new alarm and monitoring system for the BTS (*Base Transceiver Station*). NATA-SAM02 provides the local and remote alarm and monitoring for BTS. It has ability to detect some major factors like NATA-SAM01 and some major improvements such as

- ✓ Redesign the power parts to use 48VDC instead of ~220VAC
- ✓ Redo the mechanic design to reduce the size and more easier to assemble and deploy
- ✓ Add more protection level to avoid the mistake of the stuff can harm the device
- ✓ Add more feature to control the air conditioner
- ✓ **Add the Ethernet connection**
- ✓ **Support SNMP**
- ✓ **Support SD card**

Hardware:

- ARM 32bit MCU
- LCD, Keyboard,
- Switching Power Supply
- I2C interface with sensors
- ADC
- **TCP/IP, SNMP protocols**
- **SD card**
- Control Solid State Relay
- Siren
- Bell
- LED on the front side of the device
- Send the signal to the OMC (Operations and Maintenance Centre) via wired connection

OS:

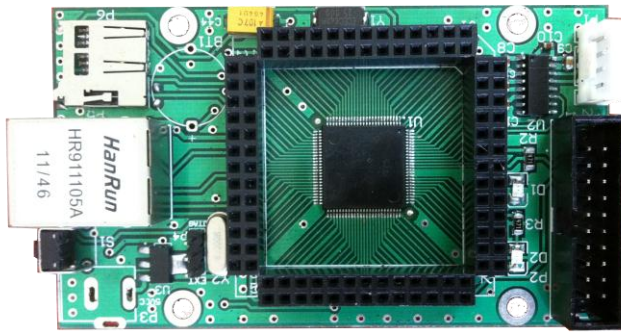- Windows 7
- RTOS for ARM 32bit MCU

Programming Language: C

Products:

- A complete system (hardware + software + sensors) with interfaces to an temperature and humidity sensor and some external sensors, **supports TCP/IP, SNMP protocols, SD card**

OpenVision

OpenVision is an integrated solution. It includes both hardware systems and the management software. The major features of this solution are:

- ✓ Can monitor the radiation rate dose and dose in the living environment
- ✓ Can measure and monitor the quality of the air, the water... in the environment
- ✓ All the device (sensors, processing device...) in OpenVision system **supports TCP/IP and SNMP protocols**
- ✓ OpenVision is very flexibility, the user can add more devices easily
- ✓ The manager can view the data on the web
- ✓ The manager can receive report, alarm by SMS, Email or Voice call

OpenVision is suitable for monitoring the radiation and quality of the air in a large area or the industrial environment.

OpenVision is the result of a project that have the investment of the Ministry of Industry and Trade.

Hardware:

- ARM 32bit MCU
- LCD, Keyboard,
- Switching Power Supply
- I2C interface with sensors
- ADC
- **TCP/IP, SNMP protocols**
- **SD card**
- Siren
- Bell

OS:

- Windows 7
- RTOS for ARM 32bit MCU
- Visual Studio 2010, 2012

Programming Language: C, VB.NET

Products:

- A complete system includes Hardware (devices and SNMP sensors) and Management Software (Server Software and Web management software)

NATA-AIC-FOOT-PEDAL

Information

NATA-AIC-Foot-Pedal is a custom-made device. It is similar to a common USB MIDI Foot Pedal on the market with some additional specific features from NATA's customer.

NATA-AIC-Foot-Pedal can be used as an MIDI input commander to control the audio programs on PC. In this project, NATA-AIC-Foot-Pedal is used to control WaveLab 6 from Steiberg.

The additional feature is NATA-AIC_Foot-Pedal automatically send the command to control WaveLab 6 to go back for some time.

NATA-AIC-Foot-Pedal implements the USB Audio class. It is a custom USB MIDI device.

Hardware:

- 16bit MCU
- USB protocol
- USB Audio (MIDI) class

OS:

- Windows 7
- Development Tools

Programming Language: C

Products:

- A plug and play foot pedal device, powered by USB connection
- Device can work with WaveLab 6 smoothly

NPL09-M5

Information

NPL09-M5 is another NATA's custom-made device. The aim of this device is to detox your body, help your body balance, and improve the health. This device has some major features:

- To balance the biology electronic ions of the body
- To help improve the efficiency of using the east traditional medicines
- To detox the body using water
- To massage the body using the electronic pulse with some difference levels
- …

This device's operations are based on the researches of the Nobel Prize in Chemistry 2003 of Peter Agre and Roderick MacKinnon.

This device underwent clinical tests in some big hospitals in Vietnam and proved its efficiency on improve the patients heath. This device also got the approvals of the Ministry of Health of Vietnam for manufacturing and sale in Vietnam.

Hardware:

- 16bit MCU
- ADC

OS:

- Windows 7
- Development Tools

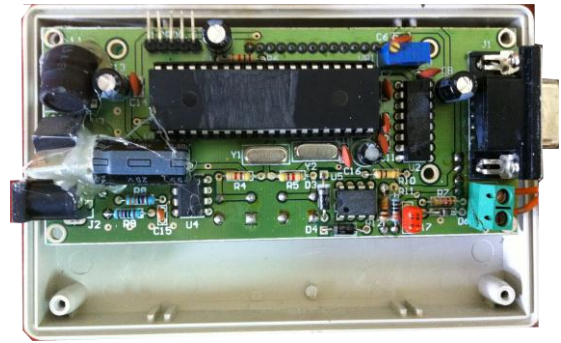Programming Language: C

Products:

- A complete device (see images above)

Approvals:

- Approval of the Ministry of Health of Vietnam for manufacturing and sale

NATA-TIMELOGGER

Information

NATA-TIMELOGGER is used to measure the working time of the machine. It **detects the state of the machine (working or not) automatically**. We designed and made this device on the contract with one of our customers. They want to **manage the working time of all their machines for evaluating the depreciation cost**.

The working time will be maintained when the power of NATA-TIMELOGGER is down, and continue counting when NATA-TIMELOGGER is powered up again.

Hardware:

- 16bit MCU
- ADC

OS:

- Windows 7
- Development Tools

Programming Language: C

Products:

- A complete device (see images above). It can detect the working state of the machines and automatically count the working time.