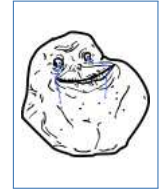


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Curriculum Vitae

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✉ asd@alumni.nus.edu.sg



Education

Bachelor of Engineering (Electrical Engineering)

Aug 08 – May 12

NATIONAL UNIVERSITY OF SINGAPORE (NUS)

Specialization track: Embedded Systems

Award

NUS Faculty of Engineering Annual Book Prize

May 11

Best Student in EE3208 Embedded Computer Systems Design

Experience

Hardware Engineer (R&D)

Sep 12 – Aug 14

AGFDGFGSTECHNOLOGYPTE LTD

- Hardware Design: redesigned GPRS/3G modems and telemetry terminals to meet new requirements in functionality and cost.
 - Main components including 32-bit ARM microprocessor, Gemalto Cinterion M2M module, high-speed RS232 port and RS485 port with auto direction sensing.
 - Handled most of the product development phases including schematic capture, prototype, PCB design, and production transfer.
- Firmware Development: maintained and developed new features for the battery-powered GPRS/3G datalogger as well as other telemetry products.
 - Quickly took over and developed the required firmware features for the datalogger and successfully delivered the project within 3 months after joining.
 - Utilized the TCP/IP stack of Gemalto Cinterion module to establish GPRS/3G connection to back-end server for log data transfer and setting synchronization.
 - Maintained C code state-machine structure to meet low power consumption requirement ($15\mu A$ in sleep mode, $30mA$ during GPRS/3G data transfer).
- Mechanical Design: designed the plastic case for two products:
 - Modem terminal case: certified IP51 rating (dust proof and dripping water protection), with detachable mounting clip for wall or DIN rail mounting.
 - Battery-powered GPRS/3G datalogger case: designed for outdoor use with IP68 rating (dust tight and water submersion), with considerations for easy chemical flow during encapsulation process and hidden SIM card cover to avoid tampering.
- Technical Support: attended to booth visitors during IoT (Internet of Things) Asia 2014 exhibition; provided support (phone/email/on-site) to after-sale inquiries.

Firmware Test Engineer (Intern)

May 11 – Aug 11

ATGTS DTS AER SINGAPORE PTE LTD

- Assisted the firmware development team to test new releases of gasdgsdgdgdsdgdgs.

Other projects

Image processing for detection of product tampering using a camera

Aug 11 – May 12
NUS Final Year Project

- Proposed and implemented a new anti-tampering method (using OpenCV library) based on Scale Invariant Feature Transform (SIFT) image registration, Gaussian Mixture Model (GMM) background subtraction, and morphology operations.
- Successfully demonstrated the idea of using computer vision and image processing to detect several types of tampering such as removing of components or fixing small intrusion objects.

Hardware Accelerated PRESENT Cipher

Jan 12 – May 12

- Implemented the hardware encryption/decryption engine of the 64-bit PRESENT ultra lightweight cipher on Xilinx Spartan 3E-1600 development board, including 3 variations: area-optimized, speed-optimized and 4-stage pipelined.
- Designed a Microblaze-core system with PRESENT cipher engine, VGA output and RS232 port to visualize result and compare the speed between hardware accelerated and traditional software implemented PRESENT cipher.

Talking Digital Multimeter

Jan 11 – May 11

- Designed an auto-range digital multimeter (voltage/current/resistance measurement) based on an Intel i80188 embedded computer system platform, featuring 6-digit display and 8Ω speaker to read aloud measurement result.
- Implemented the whole firmware in assembly language, including the time-multiplexed 7-segment LED driver and speech synthesis.

8051 Microcontroller Sequencer Block

Aug 10 – Dec 10

- Designed and implemented the sequencer block of the Intel i80C51 microcontroller on Xilinx Spartan 3A evaluation board, including the full instruction set and interrupt handling.

Computer skills

Programming: C/C+, Assembly (Intel x86), Matlab, VHDL, JAVA, PLC

Tools: Altium Designer, SolidWorks, Xilinx ISE

Others: MS Windows, MS Office, L^AT_EX, Linux

Interests

I like playing the guitar (fingerstyle, intermediate level), hiking with friends in nature reserves or historical sites.