

Gautam Patel

ENIOR EMBEDDED SOFTWARE DEVELOPER

Markham, ON - Email me on Indeed: indeed.com/r/Gautam-Patel/5fc26616e81a127c

WORK EXPERIENCE

SENIOR EMBEDDED SOFTWARE DEVELOPER

TYCO Security Products - Toronto, ON - September 2010 to Present

Development of embedded software for module acting as gateway between main security panel and central station, communicating over GSM/GPRS and Ethernet networks.

Participation and Achievement:

- I gained excellent experience working with uCOS-II RTOS ported on Cortex-Mx and ARM micro-controllers; GSM/GPRS modems and Ethernet communication over TCP/IP, UDP. Designed and implemented various proprietary protocols for interactive user sessions that include AES 128 bit and 256 bit encryptions. Successfully integrated InterNiche communication stack and implemented GPRS TFTP to support remote firmware download. Extensively worked on device drivers such as DMA, UART, Timers and PHY.

FLEXTRONICS - April 2010 to August 2010

Development of embedded software for power deck lid module using model based design and auto code generation. Matlab and SimuLink were used for model based design.

Software Developer - Product Engineering

FLEXTRONICS - Newmarket, ON - May 2005 to August 2010

Power Deck Lid Module (April 10 – Aug 10) – FLEXTRONICS – Development of embedded software for power deck lid module using model based design and auto code generation. Matlab and SimuLink were used for model based design.

Vehicle System Interface Module (Jan 09 – Jan 10) – FLEXTRONICS - Development of a module that acts as a gateway between vehicle system bus and external after market modules.

Power Sliding Door and Lift Gate Control System (May 05 – Jan 10) – FLEXTRONICS - The challenge was to control the sliding door and lift gate of the minivan in a way user feels the technology! And support fancy features like door activation by key fob or handle pull.

Participation and Achievement:

- Worked extensively on power sliding door system and rear latch control system for Chrysler minivan. Designed and implemented software strategy for detecting motor short circuit faults to ground or battery while running. This was unique and proprietary short detection strategy that helped us meet a mandatory customer requirement and allowed us to claim special government tax benefit under new innovation category in R&D.
- Involved in embedded software development for Freescale HC9S12 (16-bit) microcontroller having two CAN communication channels, High speed CAN transceivers, VECTOR CAN drivers, KWP2000 protocol. Used software development tools such as Cosmic C-cross compiler, Zap debugger, CANalyzer, Diagnostic tool...
- Participated in customer requirement analysis, creating software requirement specifications and development plan, design and implementation of embedded software based on requirement, testing and debugging of the software on the test fixture or real system. Perform root cause analysis and corrective actions on software defects.
- Used quality procedures such as ISO / TS 16949 and automotive SPICE for the product development and life cycle management that included peer reviews of design, following coding guidelines, documentation and maintaining software version control (Serena PVCS)...

- Communicate project progress to customer in weekly meetings. Support production for In-circuit and End of line test implementation...

Ecall - Telematics communication box (Jul 08 – Jan 09) – FLEXTRONICS - This is a project based on latest trend in the automotive market where online services like emergency call and map directions are provided to the automobile user on the go.

Participation and Achievement:

- Technology - A module with wireless controller (Wavecom Wireless Processor Q26 Extreme) supporting (GSM/GPRS/Edge, UMTS, HSDPA), An ARM (Atmel AT91SAM9263) based 32 bit microcontroller, CAN, UART, USB communications, AUTOSAR compliant real time OS.
- Working on Linux kernel, GNU tool chains and Cygwin environment that will be used for new ARM controller based projects.

Advanced Software Developer

Delphi Automotive - Bangalore, Karnataka - July 2002 to February 2005

Device driver layer development for Power train ECU (Jul 02 – Feb 05) – DELPHI - This project was part of the Power Train Controller development. The development of device driver and hardware IO layer required for layered software architecture design to access various simple and complex input/outputs used by the Power Train application running on top of OSEK RTOS.

Participation and Achievement:

- There were number of challenges designing portable device driver layers to meet the absolute real time requirement for handling of time critical SPI and CAN communications, handling interrupts and optimizing code to meet the throughput and memory constraints.
- Participated in customer requirement analysis, software design, debugging and testing.
- Followed SEI-CMMi software quality management procedures throughout the development cycle.
- Worked on 32-bit micro-controllers such as Freescale MPC5xx (PowerPC), Infineon Tri-core TC1765, and 16-bit Freescale HCS12 (Star12) microcontroller family, Infineon XC2200 family.
- Software tools: C – Cross compilers # Cosmic, Diab, and Tasking. Debuggers # Cosmic-Zap, Lauterbach, SDS and Ashling Pathfinder. Software version control # CM Synergy. Testing tools # Logic Analyzer, Digital Oscilloscope, CANalyzer, ETAS and MDS.

Executive - R&D

SECURE METERS LTD - August 1997 to October 2001

with state of the art Smart Energy Metering products that are used in industries, generating stations, distribution system and households.

Prepayment Energy Meters - These are 1PH - 3PH prepayment energy meters. Customer pays for the electricity at vending stations, gets 10 to 20 digits token that is keyed in from the key pad on the meter. The token contains DES encrypted information such as amount, TOD (time of day) tariff, customer id, supplier id etc.

Summation Meter Development - The project involved one main meter (Summation meter) used for summing the concurrent energy demand from number of meters connected via RS485 bus and applying tariff based on maximum demand. Also, it saved year round billing events and load profile for reading by external tool.

Panel Meter Supporting MODBUS communication protocol - The meter used in industrial metering panels and provided with display and MODBUS communication for online monitoring. It supported various electrical parameters like Voltage, Current, Active Energy, Reactive Energy, Power factor, maximum demand etc.

Participation and Achievement:

- Technology - Worked on hardware built around 8051 family microcontroller, proprietary energy metering RTOS based on patented technique for measuring electrical signal. Communication standards used were RS232, RS485, and IIC.
- Participated in customer requirement analysis, Software design, debugging and testing as per standards that are based on ISO 9000- 9001 quality procedures.

- I learned the fundamentals of software engineering, software design and architecture concepts and their real time implementation. Also, learned software languages used in embedded software such as assembly, C, C++. It also gave me ample opportunity to learn about Energy metering system standards including Class, Accuracy and Testing.

EDUCATION

BE in Electrical Engineering

MS University

1992 to 1996