GOKUL VASAN

Embedded Linux [Kernel] Developer

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PROGRAMMING

C • OOC

Yocto • Bitbake • Make

Git

C++ • Python • Quartz • Shell script

LINUX SUBSYSTEM

MemoryManagement

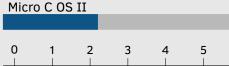locking • Diagnostics • LITMUS-RT

Scheduler • Signalling

USERSPACE PLATFORMS

Cisco's Reference Platform • E-Gold

LG-Wise

RTOS

OSEK • OSE166

Micro C OS II

0   1   2   3   4   5

- 0-1 : Novice (Needs help)
- 1-2 : Advanced beginner (Comfortable)
- 2-3 : Competent (independent)
- 3-4 : Proficient (tutor)
- 4-5 : Expert (visionary)

Education

2014 - 2017	**MSc., Informatik** (GPA: 2.0) Technishe Universitat kaiserslautern , Germany *Specialisation*: Embedded systems
2002 - 2006	**BTech.,Information Technology** (GPA: 2.0) Anna University, India
2006-2007	**Post Graduate Diploma in Embedded Systems** Cranes Varsity, India
2008	**Certification on basics of networking** IIIT-B, India
2011	**Certificate course on Linux Device Drivers** emertexe, India

Experience

6.5 Years industrial experience + **2.5** Years Research assitant		
Company	**Duration**	**Designation**
Chair of Real Time Systems @ TUKL	Sep 2014 - Jul 2017	Research assistant (HiWi)
CISCO Sytems	Aug 2011 - Feb 2014	Software engineer II
LG Electronics (LGE)	June 2008 - July 2011	Senior Software engineer
Cranes Software Systems(LGE)	Sep 2007 – June 2008	Trainee

Awards

- **"Spark award"** from CISCO sytems.
- **"Certificate of Excellence"** from LG Electronics.
- **"Award for Innovation"** from LG Electronics.

Patent and Publications

- **Patent:** Method for making buzz call (Indian patent number: 2235/CHE/2009).
- **Poster presentation:** Download accelerator at **DevCon Monacco** from Cisco Systems.

Personal information

Nationality	Indian
Date of birth	07 January 1985
International Languages	English (Fluent), German (A2)
Organizational skills	Good coordination and management skills, Self-determined and Persevere

Projects

Tools Created
Quiescent aware task en-queuing [QUITE] • Generic kernel module that enqueues less important tasks only when the real payload is below a **specified** cut-off threshold. • specified threshold is made task specific criterion.
Job table generator and parser for slot shifting scheduler • Uses UUnifast and Ripoll to generate tasks. • Generates job table and creates interval table from tasks for slot shifting scheduler.
Software watch dog • Hrtimer based kernel implementation. • Generic framework to which task registers, sets and resets. • If task doesn't reset within the registered time, core dump is collected by diagnostics framework.
Heap analyzer for E-Gold platform • Tool which logs the heap status whenever malloc and free. • Logs Filename, line number, Date with time when heap fails to allocate.
Ulog: Controlled Syslog interface • Online switch for user space module logging.
Lockless fifo based seperate kernel trace tool • Separate logging mechanism for debugging schedulers and memory management.

Project name	Dynamic watermarking the page reclamation algorithm in Linux kernel using programme phase behaviour
Company/Institution	Master thesis @ Technical University of Kaiserslautern (TUKL) [Micro electronics group]
Software approach	Agile
Platform	Linux
Language and tools used	C, Git, Yocto

Description and contribution:

* Online programme phase detection algorithm to trigger page reclamation.
* Design and implement a new resource stealing policy for page reclamation algorithm.
* Design and implement double chance algorithm, an approach to avoid thrashing.

Project name	slot shifting scheduler implementation in Linux kernel (LITMUS-RT patch)
Company/Institution	Research assistant @ TUKL [chair of real time systems]
Software approach	Agile
Platform	Linux
Language and tools used	C, Git, busybox

Description and contribution:

* Design and implement slot shifting scheduler for LITMUS-RT based Linux kernel.
* Make the slot shifting scheduler into generic framework independent of OS, with portability wrappers.
🔴 **source Link:** gokulvasan/Slot-shifting-in-LITMUS-RT-Kernel-2.6.

Project name	Capacity shifting: Optimization of slot shifting by desynchronizing slots
Company/Institution	Research assistant @ TUKL [chair of real time systems]
Software approach	Agile
Platform	SimSo
Language and tools used	Python, Git

Description and contribution:

* Design and implement desynchronized slot shifting scheduler called **capacity shifting**.
* On average scheduling overhead is reduced by 40% and in best cases overhead is reduced by 60%.
🔴 **source Link:** gokulvasan/capacity shifting.
🔴 **Paper:**slideshare/capacity shifting

Project name	Improve slot shifting's aperiodic task guarantee algorithm performance from O(N^2) to O(N)
Company/Institution	Research assistant @ TUKL [chair of real time systems]
Software approach	Agile
Platform	SimSo and Linux kernel
Language and tools used	Python, Git

Description and contribution:

* Make use of off-line spare capacity computation to improve the existing online performance of aperiodic guarantee algorithm.
* Asymptotically reduced computation from O(N^2) to O(N), where N is length of relation window.
* Improved performance and eased implementation.
🔴 **source Link:** gokulvasan/capacity shifting/guarantee algorithm.

Project name	File Browser for Infineon's E-Gold
Company/Institution	LG Electronics
Software approach	Waterfall model
Platform	IFX E-Gold (OSE166)
Language and tools used	C and Rational Clearcase

Description and contribution:

* Implemented a common MIDI, MP3, JPEG support interface for File Browser.
* Implementation of Radix sort for display.
* Filter support mechanism, On-Click execution.

Project name	Mp3 driver, middleware and player implementation in Infineon's E-Gold platform
Company/Institution	LG Electronics
Software approach	Waterfall and Agile [Hybrid approach]
Platform	IFX E-GOLD, OSE166
Language and tools used	C, Rational Clearcase

Description and contribution:

* Owner of the whole MP3 module.
* Solely designed and scripted the mp3 player from scratch as a whole.
* Implementation includes: Driver, File system traversal, ID3 V1 and V2 parsing, Display sorting .

Teams

Team name	Diagnostics and Linux kernel team
Company/Institution	Cisco Systems
Software approach	Kanban
Platform	Reference platform, Linux kernel
Language and tools used	C, C++, Git, OpenEmbedded, Code collaborator, CDETS

Roles and Responsibilities:

* Back porting linux kernel patches.
* Fix issues related to platform Diagnostics module.
* Hardening the software stability by introducing new debugging features.
* Integrating busybox into platform.
* Energy star compliance certification.

Team name	BSP Team
Company/Institution	LG Electronics
Software approach	Waterfall
Platform	Android(V1.5) and Linux kernel
Language and tools used	C, Git.

Roles and Responsibilities:

* Porting linux kernel to new hardware platforms.
* Fix issues related to call related RPC.
* **Chipset:** OMAP4430, MSM7x27 .

Team name	Call Team
Company/Institution	LG Electronics
Software approach	Waterfall
Platform	E-Gold, LG-Wise, **RTOS:** OSE166, Nucleus
Phone Models	LG7, Ruby, Angela (GS155), GB130, Spring Roll (GU200), GB125, Papaya (T300), Plum (T310).
Language and tools used	C, C++, Rational Clearcase

Roles and Responsibilities:

* Fix call 3gpp standard related protocol issues.
* Member and coordinator of Code review committee.
* Member of Wise optimization platform.

Team name	Lab coordinator @ Real time systems Lab
Company/Institution	chair of Real time systems @ TUKL
Software approach	None
Platform	Linux, OSE
Projects	synchronization techniques, Device Drivers, SCHED_DEADLINE, Cgroups, RTOS applications & resource aware RTS.
Language and tools used	C, C++, Rational Clearcase

Roles and Responsibilities:

* Coordinate and tutor students.
* Propose and design new projects.
* Prepare questionnaire for exam.

I hereby declare that all the information above is true to the best of my knowledge.

Date: 13-Sep-2017.

Yours truly,
L.J.Gokul vasan