Sanchayan Maity
http://sanchayanmaity.github.io
Email : maitysanchayan@gmail.com
Mobile : +91-725-935-0149

Summary

Passionate about Linux and Open-source. Have made contributions to upstream Linux mainline kernel and u-boot. Primarily interested in Embedded Linux device driver & application development with other interests in the domain of functional programming languages and distributed systems. Envision myself playing a challenging role by making a contribution to the growth and success of the organization through my technical and personal skills. Goal oriented and strong believer in team work and collaboration.

Skills

- **Advanced Knowledge**: C, Linux Device Drivers, Linux System Programming
- **Intermediate Knowledge**: OpenEmbedded/Yocto, buildroot, u-boot, FreeRTOS, gdb, git, Qt, emacs, vim
- **Basic Knowledge**: Haskell, Rust, Scheme, C++, Python, SQLite, mySQL, PostgreSQL

Experience

- **Toradex** Bangalore, IN
  Linux Development Engineer. Responsible for BSP development, maintenance & customer support. Aug 2014 - Present
  - **u-boot**: Responsible for up-streaming u-boot boot-loader support for Toradex Colibri Vybrid module based on NXP Vybrid processor.
  - **u-boot USB**: Implemented USB host support in u-boot boot-loader for NXP Vybrid processor.
  - **remoteproc/rpmsg**: Implemented remote processor communication support using remoteproc/rpmsg subsystem in Linux on NXP Vybrid processor. Vybrid is an asymmetric heterogeneous multi-core processor with both Cortex A5 and Cortex M4 core on same SoC die. This project involved the implementation of a driver to allow the A5 and M4 cores to communicate using shared memory in SRAM.
  - **OpenAMP**: Implemented OpenAMP support in FreeRTOS for NXP Vybrid processor. Open Asymmetric Multi Processing (OpenAMP) framework is required to allow a FreeRTOS application on Cortex M4 to communicate with Cortex A5 running Linux. Vybrid is an asymmetric heterogeneous multi-core processor with both Cortex A5 and Cortex M4 core present on same SoC die.
  - **SPI DMA**: Feature enhancement project to implement DMA support in SPI driver for NXP Vybrid processor.
  - **USB OTG**: Implemented USB On the Go support using Linux extcon subsystem for NXP Vybrid & iMX6 processors.
  - **DAC**: Implemented driver for on-chip Digital to Analog Converter (DAC) peripheral of NXP Vybrid processor.
  - **ADC**: Feature enhancement project to implement Industrial IO buffer support for on-chip peripheral Analog to Digital Converter (ADC) driver on NXP Vybrid processor.
  - **NVMEM**: Implemented driver support for On-chip One Time Programmable peripheral on NXP Vybrid processor in the Linux NVMEM subsystem.
  - **Resistive Touch-screen Driver**: Implemented resistive touch screen driver using Vybrid's on-chip ADC peripheral on Colibri Vybrid System on Module.
- **Toradex** Bangalore, IN
  Windows Embedded Compact (WinCE OS) Development Engineer *Jan 2013 - July 2014*
  - **AWS RDS Library**: Developed a mySQL client library in C from scratch for Windows Embedded Compact(WinCE) OS which allowed the use of mySQL with Amazon Cloud Web Services (AWS) RDS on Toradex modules.
  - **AWS SNS Library**: Responsible for maintaining Amazon Cloud Web Services (AWS) Simple Notification Service (SNS) library which is used for fully managed publisher subscriber messaging and mobile notifications service for coordinating the delivery of messages to subscribing endpoints and client on WinCE OS.
  - **AWS SQS Library**: Responsible for maintaining Amazon Cloud Web Services (AWS) Simple Queueing Service library (SQS) which is used to send, store and receive messages between endpoints without losing messages or requiring other services to be always available.
  - **AWS Demos**: Responsible for developing demos showcasing Amazon Cloud Web Services (AWS) library functionalities on Toradex System on Modules.
  - **Point of Sale**: Developed a demo Point of Sale application using C# and SQLite for showcasing the use of Toradex System on Modules in Point of Sale domain.

- **Access Control System**: Developed a demo Access Control System application using C# and SQLite for showcasing the use of Toradex System on Modules in security domain.

- **Godrej & Boyce - Security Solutions Division** Mumbai, IN
  Assistant Manager *July 2010 - Jan 2013*
  - **Biometric Access Control System**: Responsible for hardware schematic design, board bring-up and firmware development of complete Biometric Access Control System product on TI's Cortex M4 platform.
  - **Timespan Legacy Access Control System**: Responsible for maintenance and feature enhancement of Godrej Timespan Legacy Access Control System based on 8051 based micro-controller.

Education

- **Illinois Institute of Technology** Chicago, IL
  Master of Science in Computer Science; GPA: 3.5; Distance Learning Mode *Jan. 2015 – May. 2018*
  - **CS425**: : DATABASE ORGANIZATION: A
  - **CS450**: : OPERATING SYSTEMS: A
  - **CS542**: : COMPUTER NETWORK I: B
  - **CS550**: : ADVANCED OPERATING SYSTEMS: A
  - **CS551**: : OS DESIGN & IMPLEMENTATION: A
  - **CS570**: : ADVANCED COMPUTER ARCHITECTURE: A
  - **CS579**: : ONLINE SOCIAL NETWORK ANALYSIS
  - **CS535**: : DESIGN & ANALYSIS OF ALGORITHMS
  - **CS584**: : MACHINE LEARNING
  - **CS585**: : NATURAL LANGUAGE PROCESSING
- **K. J. Somaiya College of Engineering** Mumbai, India
  Bachelor of Engineering in Electronics; Percentage: 67% *Aug. 2006 – June. 2010*

MS Projects

- **gem5 Simulator Project**: Implement and simulate various cache replacement policies in gem5 simulator.
- **RDBMS Performance Testing**: Evaluate performance and automate the testing of PostgreSQL using TPC-H specification. Wrote an application in Clojure for the same.
- **Terminal shell for Minix**: Implement ASH terminal shell in Minix OS.
- **DHT Evaluation**: Empirical evaluation of our implementation of Simple Distributed Hash Table against Redis, Cassandra and Mongo.
- **Distributed Hash Table**: Implement a simple distributed hash table.
- **File Sharing System**: Implement a simple peer to peer file sharing system.
- **MINIX IPC Message Queues**: Implement Inter Process Communication (IPC) using message queues in Minix OS.
- **xv6 File System**: Modify xv6's filesystem to increase the maximum file size.

Languages

- **English**: Fluent
- **Hindi**: Fluent
- **Marathi**: Basic
- **Bengali**: Basic

Interests

Technology, Open-Source, Functional Programming, FPGA
Distributed Systems, Computer Architecture, Operating Systems