

Projects

- **Round Robin Scheduler for Multicore System**

- Implemented round robin algorithms in Linux kernel, replaced CFS scheduler of Linux kernel.
- Implemented load balancing between eight cores and tested on Artik10 board.

- **SNU Source Code Plagiarism Detector**

- Wrote a tool that turns GCC parse trees into abstract syntax trees
- Compare different abstract syntax trees according to Tree Edit Distance algorithm
- Designed and tested an equation that draws conformance rate based on all compared scopes
- Visualized conformance by Graphviz and Neo4j

- **Software Refactor SURFEX and UWG**

- Migrate UWG modules into SURFEX software.
- Constructed automatic test program to verify correctness of the merged software
- Programmed windows powershell scripts to enable automatical installation and configuration.

- **SnuPL/1 Compiler**

- Developed scanner, parser, semantics checker and code generator.
- Compiled into intel x86 assembly instructions
- Tested and debugged all components against SnuPL/1 code set.

- **Geo-tagged Filesystem based on EXT2**

- Designed a new filesystem which grants permission only when location condition matches.
- Characterized inode of EXT2 and add gps information at every file creation and modification.
- Characterized e2fsprogs ext2 utilities and tested the filesystem on Samsung Artik10.

- **Embed tiny-yolo on Raspberry Pi for Face Detection**

- Train tiny-yolov3 with WIDER-Face dataset on darknet.
- Migrated and characterized darknet onto Raspberry Pi

- **Rotation Based Read-write Lock**

- Designed a new synchronization mechanism relating to rotation information of the device.
- Constructed two circular lists keeping information of waiting readers and writers.
- Tested the mechanism on Samsung Artik10.

- **Crop monitoring system with STM32 Data Collection**

- Set up RTOS web server on STM32 to broadcast collected data.
- Programmed STM32 to activate and control sensors including DHT11 and y169.