Thuta (Zack) Aung

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Education

University of Michigan **Graduated: April 2019**

Bachelor of Science in Engineering in Computer Engineering GPA: 3.1/4.0

Advanced Engineering Coursework:

- Data Structures and Algorithms
- Embedded Systems Research
- Logic gate designs, and electronic circuits
- Controls Systems Analysis and Design

Experience

Smart IoT Sensor Interface Design (ANSI-C, C++ and python) **Ann Arbor, MI**

Research Assistant -Department of Electrical Engineering and Computer Science April 2018- Present

- Printed Circuit Board Prototyping: designed, selected, and tested Arduino shield for an IoT device with over 3 different power planes using Eagle while keeping track of components used using BoM
- Integrated versatile multiple piecewise linear regression algorithm to optimize speed and SRAM memory usage while increasing the accuracy by a factor of 1000 times
- Customized Arduino's SPI library after identifying that Arduino's default clock speed could be further optimized to match our ADC's sampling frequency
- Simulated, and tested calibration algorithms using Matlab and VS code for optimal calibration methods
- Researched and implemented 87.5% efficient encoding schemes for 2G SMS data packets
- Ported Arduino firmware code into FreeRTOS environment within Atmel SAM3X8E for burst and one-shot sensor modes through Linux environment
- Assisted the team with designing APIs while considering various constraints such as memory, runtime and user requirements
- Designed, simulated and tested various analog sensors with our IoT device to cover the generality and special cases to publish in a tools research paper
- Worked remotely with full control over the project in a team of 2-5 on Fridays for over a year while using Git to maintain control over different firmware versions

Projects

Advanced Embedded Systems (Python and C++)

- Implemented Rate-Monotonic Scheduling with semaphores, and deferred interrupts in Arduino and Raspberry-Pi FreeRTOS to build a simple self-navigating robot that records distance, controls the wheel movement, and displays the status of the robot onto LCD screen.
- Coded H-bridge linux device driver and simple tennis ball image recognition OpenCV in Raspberry Pi to build a robot that finds a ping pong ball and accurately navigates itself towards it.
- Designed, selected and debugged a PCB comprised of a Bluetooth module, FTDI chip, and Atmega2560 with a rechargeable circuit for low powered, portable spine posture correcting device, Spinosaurus

Introduction to Embedded System and Designs (Verilog, and C)

- Designed timers in Verilog with APB3 interface and implemented virtual timers using linked lists
- Implemented pulse width modulated servo with interrupts using MMIOs
- Incorporated IMUs, IR and flex sensors in conjunction with interrupts to build a tracking tripod that can be controlled remotely through finger gesture

Data Structures and Algorithm (C++)

- Proficiently used STL libraries, and priority queues to simulate stock markets and 3D maze solvers
- Implemented sorted array PQ, binary heap PQ, and pairing heap PQ to analyze and assess the best suited PQ for simulating simplified stock markets
- Effectively used multiple data structures such as deque, priority queues, and hash tables to minimize the tradeoffs between data access runtime and total memory allocation
- Implemented Prim's algorithm and nearest arbitrary insertion for TSP problem

Skills

- Applications: Microsoft VS, Linux, Quartus, Matlab, Simulink, Multisim, Mathematica, LaTex, Eagle, Git.
- Programming Skills: C++, C and beginner level in Java, Python.
- Language Proficiency: English, Burmese, Chinese, Japanese (Beginner).

Leadership Experience

BridgeBurma (http://www.bridgeburma.com/) Yangon, Myanmar

Co-Founder, Marketing Manager April 2018- Present

- Led weekly student ambassador meetings, conducted contextual analysis for website UI testing, and conducted several surveys for profiling the targeted student market