

Name: Prathu Baronia
Electrical Engineering, IIT Bombay
Specialization: Microelectronics
Current Location: Hyderabad

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Dual Degree(B.Tech+M.Tech), 2014 - 2019
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WORK EXPERIENCE

Innovation System Engineer (Jul'19 - Present)

Oneplus Software R&D Centre Private Ltd, Hyderabad

- Increased THP zeroing efficiency by 60% in the upstream Linux Kernel with this [patch](#) in memory subsystem
- Held the Innovation and Research POC position for the BSP Stability and Performance team for 3 months
- Individually carried out the complete kernel and device tree porting for Android R for OnePlus-Nord
- Reduced process time by 5x by developing auto-porting tools. Received Employee of the month award for it
- Have been awarded Employee of the month award thrice for innovative and exceptional contributions
- Initiated a documentation drive in BSP team, was the knowledge wiki maintainer and the highest contributor

TECHNICAL SKILLS

Programming Languages & HDL	ARM Assembly, C, Shell Scripting, C++, Python, VHDL
Debug and Design Tools	T32, Crash utility, GDB, Vivado HLS, Xilinx SDK, TI CCS, Intel Quartus

SCHOLASTIC ACHIEVEMENTS

- Secured All India Rank 241 in JEE-Advanced-2014 with a percentile of 99.8 among 1.2 lakh candidates
- Scored 342 out of 360 in JEE-MAIN-2014 with a percentile of 99.92 among 12.7 lakh candidates
- Achieved All India Rank 163 in prestigious KVPY fellowship, 2014 conducted by DST, Govt. of India
- Awarded Merit Certificate in National Standard Examination in Astronomy-2014 and National Standard Examination in Chemistry-2014 for being among Top 300 students across the country

PROFESSIONAL & RESEARCH EXPERIENCE

Embedded System Engineer (May'17 - Jul'17)

Greetude Energy Pvt. Ltd, Bangalore

- Designed a Remote Billboard Surveillance System, providing periodic images on Google drive and AWS Bucket
- Developed a control and debug interface for the site and circular logs for energy consumption and crashes
- Devised a Smart Metering System for transmission & logging of standard power parameters onto the main server logs
- System included synchronously reading internal registers and space efficient circular logging of the parameters

Linux Port to Indigenous AJIT Processor (Jul'18 - Jun'19)

Guide: Prof. Madhav P. Desai, IIT-Bombay

- Member of Embedded Software Design team of India's first in-house designed and fabricated processor
- Generated and tested an exclusive AXI-Lite interface DDR Memory controller for a 32-bit Sparc V8 processor
- Conducted memory marching tests on the Xilinx Virtex 7 Series FPGA board with a prototype Microblaze processor
- Developed a PCIe - AXI interface and verified it with a custom userspace C driver for PCIe-AXI peripherals
- Generated exclusive Memory mapped AXI Stream FIFOs through High Level Synthesis tools

KEY COURSE PROJECTS

Android 5 Port to ZedBoard (Jan'18 - May'18)

- Ported Android 5(Lollipop) to ARM Cortex A9 to build a bare bone IoT infrastructure on Zedboard
- Developed First Stage bootloader, Second Stage bootloader and an Android patched Kernel for the Zedboard
- Designed exclusive HDMI hardware block and a GPIO core using programmable logic segments

Hexapod Navigation using WiFi RSSI (Feb'18 - Apr'18)

- Designed a 1.5m × 1.5m indoor localization network using Xbee radios for closed space settings
- Achieved an average location accuracy of 90% for indoor setting with an error bound of ±10cm
- Calculated location by taking a moving average of Trilateration algorithm results on target to node distances

Walk Smart Vision (Jan'17 - Apr'17)

- Designed a 3-level navigation system for the visually impaired people using a Star network of Xbee radios
- Conveyed critical obstacle information to the user through surficial vibrations proportional to the proximity
- Demonstrated performance in a populous setting with successful navigation by blindfolded novice users

Real Time Audio Compression using MDCT (Mar'17 - Apr'17)

- Achieved 5x compression by redundant data removal using Modified Discrete Cosine Transform
- Improved 80% efficiency for storage and transmission of audio signals while conserving 95% signal information
- Developed a compression block and a wireless socket block to compress & transmit the audio in real time