Name: Prathu Baronia **Email: prathu.baronia@praton.me**
Current Location: Hyderabad **Mob no: 7738695845**

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**

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**

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** $\times$ **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** $\pm$**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**

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

POSITIONS OF RESPONSIBILITY

Teaching Assistant | Electromagnetic Waves (Jul'18 - Apr'19)

- Evaluated **answer scripts** and **conducted practice sessions** for a batch of **100+** students in the course
- **Managed logistics** and assisted the professor in **ensuring smooth functioning** of the course and exams

Overall Music Coordinator | Performance Arts Festival'18 (Feb'18 - Apr'18)

- Secured the **First place** in Performance Arts Festival'18 out of four teams comprising **600+students**
- Won the award for **Best Music** and a **Special mention for Organizing skills** out of **100+ students**
- Was the **principal composer** of the **background score** and an **original composition**.