ABHINAV LAL

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WORK EXPERIENCE

Embedded Engineer *Aug 2022 - Present*
TekUncorked AIIoT Pvt. Ltd. *Gurugram, Haryana*

- Part of the core R&D team to develop software for 4 types of IoT utility monitoring devices on an ARM based SBC. Developed embedded software for 200+ devices that were shipped to customer and 10+ test pilots deployed in the field
- Developed driver to parse AT commands over UART for LTE modem, bluetooth communication using sockets in C, MODBUS using libmodbus, database handling using SQLite and IEC-60870-5-104 to communicate with RTU
- Developed multithreaded application software on Linux using posix threads and utilised drivers to aggregate data over MQTT, MODBUS, Bluetooth, TCP/IP sockets and IEC-60870-5-104
- Developed software for test-jigs to eliminate manual testing of hardware by checking all the output data under ±2% error range and asserting inputs to verify responses/actuations over bluetooth and UART
- Managed, mentored and developed desktop application software with developer to establish communication with device and perform configuration over TCP/IP and serial interface
- Added features in legacy firmware for R8C25 microcontroller
- Wrote Software Requirement Specifications for devices based on customer specifications

Embedded Systems Developer Intern *Aug 2021 - Sep 2021*
Embedkari Systems (OPC) Pvt. Ltd. *Bangalore, India*

- Developed custom Linux image using yocto and Buildroot for Raspberry Pi 3B+ and enabled ethernet connectivity in using menuconfig of yocto and interacted with the system shell using serial terminal and FTDI-USB
- Developed u-boot image with TFTP network booting support

Embedded Developer Intern *May 2021 - Jul 2021*
Punar Rehab Solutions Pvt. Ltd. *Bangalore, India*

- Developed drivers for ATtiny814 and STM32F407 to interface modules such as I2C ADS1115 ADC, SPI ADS1118 ADC, TB6612FNG motor driver and UART
- Developed a Python script to interface RFID with Raspberry Pi 3 for authentication

SKILLS

C Programming, Embedded C, Embedded Systems, Firmware, Makefile, Git, Embedded Linux, STM32, ATmega, Device Drivers, Sensors, Debugging, Linux, Python, RS485

PROJECTS

- **EYantra Robotics Competition, IIT Bombay** (*Oct '20 - Mar '21*) Developed a 3-wheeled robot in a team of four members. Responsible for developing firmware and drivers for ATmega328p to interface analog colour sensors, UART for Xbee, PWM for motor driver and GPIO to make the robot follow the circular line and actuate when receives command.
- **Smart Socket and Power Control** (May '22 - Jun '22)
  - Worked in a team of 3 members to develop a socket that can be controlled using a smartphone and provides power control to the user for plugged device, along with it measures voltage, current and power consumed by plugged device using TRIAC, ESP32, ACS712, ZMPT101B and relay.

EDUCATION

Bachelor of Technology in Electrical and Electronics Engineering *Aug 2018 - July 2022*
Maharaja Agrasen Institute of Technology *Delhi, India*

REFERENCES

Mr. Sanjay Adhikari,

Director, Embedkari Systems (OPC) Pvt. Ltd.

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