BHANU PRAKASH VELIVELA

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CAREER OBJECTIVE

Passionate and skilled in Embedded Systems, Hardware Testing and Troubleshooting PCB's, eager to contribute innovative solutions for technological progress. Seeking a full-time opportunity to apply expertise and drive exceptional results. Highly motivated professional committed to advancing the future through technology.

Experience

SPAB Technologees | ***Client: ICOMM Tele.LTD*** **September 2019 – December 2021**

Design Application Engineer *Hyderabad, India*

- Developing firmware using Zephyr RTOS and STM32 micro-controller. Debug and test custom board circuits.
- Taken part in software backend process (Node Red). Visualize data stored in database on open-source web applications.
- Set up developing environment and software. I used LTSpice for generating clock signal for use in synchronizing a circuit's operation. I test the Correctness of Circuits as per the change requests provided by the Client.
- **SKILLS:** I2C, Modbus, UART, Computer Hardware Troubleshooting, Node.js, Grafana.

System Test Engineer

- Collaborated with senior engineers to troubleshoot and debug hardware and software issues, contributing to the successful completion of projects that deals with, Printed Circuit Board Assemblies to failed component using test equipment like ATE, ICT, JTAG, AOI, ESD Tester, Digital Oscilloscope, Korad KA3305P DC Power Supply and ETC.
- Conducted testing, debugging,troubleshooting and validation procedures to ensure the reliability and performance of embedded systems using several test methodology, power generators, digital multi-meters and KiCAD EDA.
- Actively participated in meetings to analyze testing processes and implemented improvements for increased efficiency.
- **SKILLS:** Team Collaboration, Adaptability, Test Automation, Selenium, Android Studio, TestRail, Keil uVersion.

University of Houston **August 2022 – November 2022**

Graduate Assistant *Houston, Texas*

- Ensuring an optimal examination environment necessitates diligent oversight of exam administration, precise scheduling of exam timetables, and vigilant supervision of undergraduate tutors. Such measures foster an atmosphere conducive to effective academic assessment, enabling students to perform at their best.
- **SKILLS:** Analytical Skills, Management, Problem-Solving, Operational Planning, Positive Can-do Attitude.

Electronics Corporation of India Limited (ECIL) **May 2019 – June 2019**

Embedded Systems Engineer *Hyderabad, India*

- Build and integrate the Software in RFID and Face recognition-based smart attendance system.
- Developed a sophisticated system that utilizes simple linear regression and facial recognition to capture and store bio-metric data.
- **SKILLS:** Prototyping, Simulink, Algorithms, Attention to Detail, Product Development and Technical Leadership.

Academic Projects

Binary Math Challenge Game with Hardware Security (FPGA and ROM): | *FPGA, Verilog* **August 2023**

- Engineered a mental binary math game on an Altera Cyclone V FPGA using VHDL, allowing for hands-on engagement.
- Integrated on-chip ROM IP and RAM IP to implement Multi-Player game play with authentication and score tracking.
- Programmed the FPGA using Intel Quartus and performed block-level verification using ModelSim simulator.
- Designed and implemented various digital logic elements such as Timers, Flip-Flops, State Machine, Counters, ETC.
- **SKILLS:** Team Player, Innovative coding, Fast Paced, Empathy, Communication, Program Management.

Embedded Driver Development of F2806x peripherals - GPIO, SPI, I2C, CAN: **January 2023**

- Developed peripheral drivers in C for TMS320F28069 MCU configuration and control GPIO pins.
- Leveraged internal peripherals including EXTI, NVIC, and RCC to provide full peripheral management capabilities.

Design and verification of APB (AMBA) protocol in UVM based system verilog. **December 2022**

- Utilized UVM methodologies to create reusable verification components, testbenches, and functional coverage models for exhaustive protocol verification. Implemented the APB protocol based on AMBA standards.
- Software Used: Cadence Conformal, QuestaSim, EDA playground, Microsoft Office.

Human activity recognition with an open CV and deep learning. **October 2022**

- Developed a model to recognize activities from a series of observations on the actions of subjects and the environmental conditions and selecting sensors, collecting, and preprocessing data, designing the deep learning model, training, and testing the model using ResNet, neural networks concepts, and deploying the model for real-time activity recognition.

Hardware Testing Automation Framework Development. **June 2022**

- Implementing a robust automation framework to streamline hardware testing processes, integrating lab equipment such as Fluke 87V Digital Multimeter, Tektronix TBS1052B Digital Storage Oscilloscope, Korad KA3305P Variable DC Power Supply, Rigol DSA815-TG Spectrum Analyzer, Agilent 33250A Function/Arbitrary Waveform Generator.
- Integrated LabVIEW-based graphical user interfaces (GUIs) for intuitive control and monitoring of lab equipment parameters, facilitating seamless interaction and data collection during hardware testing.

Processor performance of SPEC2000 Benchmarks using Simple Scalar Simulator. **May 2022**

- Evaluated the performance of SPEC2000 using the various given benchmarks and compared their performance in terms of CPI (Cycles per Instruction), No. of references and miss rated with different sets of Cache Configurations.
- Selecting appropriate benchmarks, DIMM's, configuring the simulator, running simulations, collecting, and analyzing performance data, and drawing out conclusions about the performance of the benchmarks.

IOT-based Paralysis Patient Monitoring System. **November 2021**

- The project involves the use of sensors like ESP32, ADXL335- accelerometer Adafruit, MAX30100 Heart rate sensor, and Oximeter. And Blynk technology to collect, display and transmit data on vital signs, hand gestures, and movements.
- This real-time data is then analyzed to provide insights and support caregiving for remote assistance and intervention.

Web Based Data Acquisition System. **April 2021**

- Utilizing ESP32, Blynk, and a range of sensors including DHT11, IR, gas, analog, and pulse input levels, to create web-based data acquisition. This enables us to remotely monitor and control different sensors and devices in real-time from any web-enabled device.

Technical Skills

Programming Languages: Embedded C, System C, TLM 2.0, VHDL, C, C++, RTL Design, Java, Python.

Designing Software: MATLAB, ArduinoIDE, AutoCad, CAPL Scripting, MASM Assembly Language, KiCad,GIT.

Analytical Tools: Cadence, Altium, Xilinx Vivado, Quartus, CANape, CANoe, Jenkins, Eclipse, dSPACE, Modelsim.

Protocols: I2C, SPI, LIN, CAN FD, APB, Flex Ray, TCP/IP, LoRa, CoAP, UART.

Education

University of Houston (UH) **GPA: 3.467**
Master of Science in Computer and Systems Engineering *Houston, Texas*

Gandhi Institute of Technology and Management (GITAM) **GPA: 3.576**
Bachelor of Technology in Electrical Electronics, and Communication Engineering *Hyderabad, India*

Relevant Coursework

- RTOS and IOT
- Hardware Verification
- VLSI Design and Testing
- Electronic Circuits
- Digital Image Processing
- Digital Control Systems
- Cyber Security
- Microprocessor
- Micro-controllers
- Digital Circuits
- Digital Logic Designs
- Advance Hardware Design
- Computer System Architecture
- Data Communication Networks
- Digital Communications
- Principals of Internetworking

Publications and Certifications

- Certification course from **Cadence design systems** on **"Designing with the 3D-IC Integrity Platform"**.
- Awarded Certificate in Microcontroller Programming Embedded C and Assembly Language.
- **Certified from Coursera:** Interfacing with the Raspberry Pi, Cryptography, Packet Switching Networks, Introduction to Linux, and Python Programming Language.
- **Hewlett Packard Enterprise Data Science Institute(HPE DSI):** Cluster Computing, Machine Learning.