**Narasimha Marella**

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# Career Focus:

A passionate Electrical and Computer Engineering graduate with a hands-on experience in verification, validation, and testing of a wide variety of electronic control units of OEM’s and supplier companies from unit to vehicle level. Skilled in utilizing my technical, organizational, and communication skills to meet the requirements of the organization.

# Education:

**Master of Science, Electrical and Computer Engineering GPA of 3.53**

Oakland University, Rochester, Michigan Graduation Date: May 2020

# Bachelor of Technology, Electronics and Communication Engineering GPA of 3.36

Lovely Professional University, India Graduation Date: May 2017

# Technical Skills:

**Programming Languages:** C, Embedded C, C++, Python, Verilog

**Tools:** CANalyser, CANape, LabVIEW, AutoCAD, MATLAB, Simulink, FCA-CDA, ETAS-INCA, Xilinx, PSpice, Proteus.

**Communication Protocols:** CAN, UART, Ethernet, I2C

**Microcontrollers and Hardware:** Arduino, ATmega, Power Supplies, Multimeters, Waveform Generators, Digital Oscilloscope, Hipot Tester, Electrical Machines, Lifetime testers, Simulators, and Environmental Test Chambers, Lab Equipment Instrumentation.

# Work Experience:

***End of Line Test Engineer***

**Client: FEV North America**

**Contractor: Precision Resources Co., Inc Feb 2020 – Present**

* Responsible for performing End of line Testing on 48V Inverters – PEU Power Electronics units of Hybrid Vehicles at Eaton Marshall, MI eMobility lab and Test cells.
* Test and analyze inverter performance to Manufacturer requirements, using End-Of-Line bench/test equipment.
* Flash Inverter units with latest software using CANape and CANlyser and perform testing according to the different testing methodologies like AC -DC Hi-pot testing, passive discharge testing, input sensing Voltage and Temperature testing, PWM Duty testing, Resolver Excitation, Insulation Resistance, and RL load 340 Amp testing using approved procedures.
* Performs voltage, current and impedance PCB board checks on power boards, current sensor boards, and control boards of Inverter units before unit assembly. Submit a complete and detailed report of inverter test results.
* Daily meetings with the requirements and software team to maintain and share the testing results met with the requirements.

***Electrical Hardware Engineer***

**Preferred Engineering, Rochester Hills, MI, USA May 2020 – Feb 2020**

* Responsible for design and manufacturing the end-of-line electrical testers according to OEM (GM) customer requirements matrix to test the car components like door pads, rear fascia, engine, headlights, taillights, radars, and sensors
* Execution of designing and reviewing the 2D electrical schematic drawings of tester and harness using AutoCAD and perform Failure mode and Effects Analysis.
* Designed and manufactured end-of-line testers to test the components of rear fascia, engine and door pads of GM Corvette C8.
* Performs frequent GM Corvette manufacturing assembly plant as technical supplier support to troubleshoot the tester failures during the launch of new vehicle programs.
* Configures and simulates the electrical tester’s PLC input and output setup for enabling plant PLC communications to the tester.
* Completed training on NFPA 70E Electrical safety in the workplace from 360 degrees training and Lockout and Energy control for GM contractors from Macomb Community College as a part of GM Electric Charging Station project.
* Validates and releases the tester’s hardware and software before delivering the end-of-line testers to assembly plants.
* Facilitates internal communications between Engineering, sales, quality, manufacturing, and assembly.

***Quality and Test Engineering Intern***

**Continental Automotive Systems, Auburn Hills, MI, USA May 2019 – May 2020**

* Experienced in performing Environmental, Durability, and Electrical testing on electronic modules with published test plans and procedures using Lifetime Testers and Environmental Chambers.
* Hands-on experience in testing and validating the electronic control modules like BCM, ECM, Powertrain, ADAS, Key fobs, Park Assist Sensors, TPM, HUD, and Instrumental Clusters according to the OEM test plans and requirements.
* Performed the test setups using the lifetime testers and harnesses to make all the connected ECM’s are in Hardware-in-loop.
* Skilled in performing different quality environmental tests like Power Temperature Cycle, Humidity Thermal Durability, Water Intrusion, High Thermal Humidity Endurance, Salt Fog, Dust, and Vibration using Lifetime Testers.
* Supported in performing acceptance of the lifetime test equipment, ensuring repeatability and reproducible of the test results, and completes readiness reviews prior to each validation during DV/PV process.
* Familiarized with problem solving methods such as 8D root-cause analysis and fishbone diagrams focused on finding the errors and corrective actions to maintain robustness/durability requirements.
* Assisted in test report process by uploading files, loading test data and information, providing test summary and observations.
* Supported in program coordination of test plans, including samples, fixtures, schedules, witnessing tests, and sample reviews.
* Attended weekly and monthly department meetings for ongoing, continuous improvement, and new projects support by following 5S standards.

***Graduate Teaching Assistant***

**Oakland University, Michigan, USA Sep 2018 – May 2019**

* Conducted lab sessions for 80 students, on interfacing hardware-software of Embedded Systems w. FPGA’s, analog and digital circuits under the course 'Introduction to Electrical and Computer Engineering.
* Assisted and instructed students in implementing digital circuits on FPGA using VHDL and in performing functional and timing simulation and mentored them in their projects.
* Proctoring for exams, grading the exams, uploading the grades on the online web portal.

***Program Analyst Trainee (PAT)***

**Cognizant Technology Solutions, Pune, India Jan 2018 – May 2018**

* Underwent practical training on SAP ERP 6 where different transaction codes were used to configured, monitor, and performed troubleshooting of the SAP technical environment and database.
* Debugged and monitored database and transported the imports into the SAP system through transfer requests on a request basis.

# Career Projects:

**Corvette C8 Engine End-of-Line Tester:**

* Designed 32 channel tester to test the sensors, actuators, and ECMs are connected to the engine body and cross-body harness.
* Familiarize with chassis body harness drawings and able to create the functions to test the components connected to the engine.
* Created functions in the software for the sensors like Fuel injectors, Engine oil Temperature, Mass Airflow, Camshaft Position, Crankshaft Position, Throttle body, Manifold Absolute, Knock, and O2 sensors.
* Simulated the plant communication to the tester using the PE software and launch the client app through TCP/IP protocol.
* Designed the electrical drawings for the test equipment including EOL tester and supported harnesses and connectors.

**Automatic data transfer from LTT (Lifetime Testers) to Lab Server: Ethernet Protocol & Beyond Compare**

* Assigned IP addresses to every tester in the lab and drag those on to the network through default gateway using IPV4 protocol.
* Determined the source and destination path in beyond compare to compare files on the client and the network side virtually.
* Abled to transfer newly logged data from testers to network database using a file transfer protocol after comparison.
* Accomplished the project by turning into an automatic data transfer of new data every day using windows time scheduler.

# Academic Projects:

**ADAS-Traffic Sign Detection and Collision Avoidance for an Automated Vehicle: Arduino & MATLAB**

* Created the system with MATLAB (Simulink) to track and recognize traffic signs on the road with the help of a camera and a robot vehicle which is used to test and verify the successful working of the prototype design.
* Used Arduino Controller to control the vehicle which is also interfaced to MATLAB using Serial Communication also integrated with an ultrasonic sensor used for collision avoidance system.

# Smart Serving Robot (Restaurant Management System): Bluetooth & Arduino

* Designed an autonomous robot which acts as a waiter and moved according to the input given by the chef and stopped automatically at a customer table in a restaurant to serve food.
* Built an obstacle detection system as a part of a project to prevent the robot from accidents while serving food.
* Achieved semi-automation of the robot by interfacing Arduino with Bluetooth technology.

# Sonar System: LabVIEW & Arduino

* Built a cost-effective Sonar system, one of the safeties and surveillance applications that detect the obstacle in its range.
* Created a dedicated block diagram and user interface at the front panel to interface between ultrasonic sensor and servo motor.
* Coded separately for ultrasonic sensor and servo motor and combined later to reach the goal as one model in LabVIEW.
* Created a graphical user interface for the whole system at the front end and dedicated block diagram on the backend in LabVIEW.

. **Achievements and Activities:**

* Presentation on “Different methods and test cases of testing ADAS features” Oakland University, 2019
* Stood Second place in Final Capstone project expo, Lovely Professional University, 2017
* Received the second prize in Wireless Maze Solver, Chandigarh University, 2016