Name: PHANI KRISHNA KURRA

E-mail: [Narayana@1stobject.com](mailto:Narayana@1stobject.com)

Mobile: +1 972-734-5159

**Experience Summary:**

* Have 11 years of professional experience in the **Aerospace** and **RailRoad** industry, working mostly in the Independent Verification and Validation of Safety Critical Real Time Embedded Systems.
* Have a good understanding of the below standards for Safety Critical Systems
  + DO-178B/C Avionics Safety standards, DO-331
  + Railway safety guidelines and CENELEC standards for Railway Control and Safety Systems (EN50128, EN50129), NFPA safety standards and UL 94 standard.
  + Power Systems – Intelligent Electronic Devices (IEDs), IEC61850 standard in Power system Protection and Control Systems.
* Worked extensively on various Verification and Validation activities like Static Analysis, Dynamic Analysis, System Level Testing, Requirements based Testing, Product Verification for various avionics products.
* Capable of easily adapting to new Systems and Environments. Worked on shell scripting, perl scripting, python, ADS2 scripting, SSLI scripting, VBA, programming in C, C++.
* Experienced in design and execution of various test cases and test plans.
* Very good experience working on Requirement Management Systems like IBM Rational DOORS and configuration management tools like Microsoft Visual Source Safe, Tortoise SVN, Serena Configuration Management System(PVCS).
* Highly motivated and possess the collaborative skills to drive teams by having a focussed strategy.
* Strong passion to learn new things and share knowledge by training the teams to update their competency.

### SKILLS PROFILE:

**System Development Languages:** C, C++, Python, Perl, ADS2 Scripting, VBA

Testing Tools: ADS2 Scripting, VectorCAST, Logiscope, Understand for C++, PCM600, IET600, SAB600, microcode, OMICRON IEDScout, Modscan32, ASE test set, SATEEN, Wireshark

Proprietary Tools(Specialized

Knowledge): TIU Server, TIU Client, Code TEST(SC Coverage tool), EASE, HEAL,DESK IT, PC Sim, Source Selection Tool, DEOS, VectorCover integrated to Honeywell EPIC architecture for Structural coverage collection, VALFAC bench(Unix based environment)

Hardware Test Tools: OMICRON Power amplifier, ABB AC 800M PLC, ABB COM600 (Gateway for scada Systems), IFR4000.

Operating Systems: Linux, Windows XP, Win 7, Mac OS X, DEOS(Honeywell proprietary Real Time Operating System)

Special Software: IBM Rational DOORS, SVN, Microsoft Visual Source Safe, Microsoft Visio, Selectyourdon,

Serena Configuration Management System(PVCS), JAMA, JIRA.

Communication Protocols: ASCB(Avionics Standard Communication Bus -Honeywell Proprietary), PEER (Ansaldo STS proprietary), ARINC 429, RS422, RS232

Modbus, DNP 3.0, IEC61850, AFDX.

Certifications: Design for Six Sigma Green Belt Certified.

Developed a Kanban (Visual management of work status) Tool to automatically update the work status to Configuration management using the Six Sigma Concepts

<https://drive.google.com/file/d/0B-A-5EOsAEMfSHVBTjRaMTJDZG8/view?usp=sharing>

Python programming certification

<https://www.coursera.org/account/accomplishments/certificate/LMNR699QQY>

Other interests: Strong passion towards learning new things and sharing the knowledge by teaching and training people in the team.

Completed three MOOCs from [www.edx.org](http://www.edx.org) and [www.coursera.org](http://www.coursera.org)

### CAREER PROFILE:

| Duration | Company & Work Location | Product Information | Key activities/responsibilities |
| --- | --- | --- | --- |
| From Jan 2019 to till date | Bendix King by Honeywell, USA | King Smart Display(KSD 100) | * Responsible for V&V Test development, Test infrastructure development, Test Reviews, Requirement reviews, CR reviews, RFS activities, working on minor STC for Database testing each AIRAC cycle. * Defined and Develop a test strategy to test the product Aerowave – Developed a python server/client mechanism to test the various functionalities using the communications on the product – WiFi, 4G and ethernet. |
| From  Apr 2015 to  till Jan 2019 | Honeywell Aerospace,  Hyderabad, India – 500019 | Honeywell Displays and Graphics(EPIC architecture systems), | * Performing the CR reviews and finding the change and impacted requirements and tests that needs updates. * Developing test files, performing peer reviews, debugging the bench setup issues, fixing the ARINC problems if any with the test bench. RFS and SC analysis for the software load under test. Tracking the program state on a weekly basis and updating the ABM (activity based metrics) sheet. * Converting the integration bench test files to work on mini benches by simulating the necessary data flow from other systems in the integration bench, thus saving time and reducing the hardware dependency. * Driving V&V test strategies with the teams, Leading the Quarterly workshops with solutions to real problems faced while performing daily work activities. * Chair for the Tech Lead Connect session - weekly discussing on the show stoppers for a program or a project and coming up with strategies to fix it. * Key member in Innovation steering team at V&V Displays and Graphics teams in Honeywell India. Test Strategy deployment on Hardware to reduce the test execution times. |
| From  Jul 2014 to Mar 2015 | CMC Center, Hyderabad, India - 500032 | Microtrax, AnsaldoSTS, USA | * Protocol (PEER protocol) testing for Microtrax Product. * Software Hardware Integration testing for Microlok PTC. |
| From  Feb 2014 to July 2014 | Ansaldo STS Inc.,  1000 Technology Drive, Pittsburgh, PA - 15220 | Microcab II, Ansaldo STS, USA | * Test specifications for ATO, ATP and TWC for LA P3010 project. * Reliability Engineering: Spare parts calculations using the SAP database data and a macro to simplify the calculations based on Repairable and non-repairable parts. * Flammability, Smoke Emission and Toxicity analysis for LACMTA and Miami Dade projects. |
| From  Mar 2013 to Feb 2014 | UTC Aerospace Systems,  100 Panton Road, Vergennes, VT - 05491 | Boeing 787 Dreamliner(Dash 9) FQMP(Fuel Quantity Management Program)  UTC Aerospace Systems, USA | * Independent Verification and Validation for Boeing 787 Fuel Quantity Management Program(FQMP) * Requirement Based Testing for the Software FQMP using ADS2 scripting * Structural Coverage Analysis for FQMP using LDRA |
| From  Nov 2011 to Feb 2013 | ABB Inc.,( R&D )  252 Brodhead Road,  Bethlehem, PA - 18017 | ABB 620, 615 series IEDs(REF, REM, RET, RER IEDs).  Legacy products – PCD  ABB Inc., USA | * Product Testing for ABB Relion 620 series IEDs. * Modbus, DNP and IEC61850 communication testing for the various IEDs on the network using microSCADA. * DNP and Modbus point testing automation. * Functional testing of the ABB IED, 615 3U. * ABB Legacy product testing - PCD |
| From  July 2008 to Oct 2011 | CMC Limited, Hyderabad, India - 500032 | Microcab II and Microlok II, AnsaldoSTS,USA | * Independent Verification & Validation of Microcab II and Microlok II in ASTS * Software development to extract raw data in Bloomberg * Windows printer driver testing in Star Micronics. |

**EDUCATION:**

|  |  |
| --- | --- |
| **Degree** | Bachelor of Engineering, (Electrical and Electronics) – First Class with Distinction. |
| **University** | Andhra University |
| **Year and Month** | March 2008 |

**PROJECT DESCRIPTIONS:**

|  |  |
| --- | --- |
| **Project** | **King Smart Display (KSD100), Aerowave – System Level Requirement based V&V testing** |
| **Industry** | **Aerospace** |
| **Customers** | AirWork, Pipistrel, Cessna |
| **Work location** | Bendix King, Albuquerque, NM, USA |
| **Period** | Jan 2019 till date |
| **Position** | Technical Lead Engineer |
| **Responsibilities** | * Developing tests, performing peer reviews, debugging the bench setup issues, fixing the hardware or bus issues if any with the test bench. RFS and SC analysis for the software load under test. * Setting up hardware benches and making the tools compatible to the environment. * Requirement reviews on JAMA. RFS executions. * Working on charts databse testing each AIRAC Cycle. * Leading Automation strategies to reduce the manual efforts and improve the product delivery schedule fidelity. * Designed and developed test framework in python(server – client mechanism) for Aerowave product to test the Wifi, 4G, Ethernet communications on the product. |
| **The Project** | The project involves creating Test specifications and then developing the tests for the requirements identified during the Regression Analysis of the requirement and software architectural changes.  The KSD100 device is a smart flight display that has the full PFD/MFD capabilities along with the touch capability.  The Charts databases on KSD100 were tested on each AIRAC Cycle.  The system requirements were tested and issues were reported out in the JIRA. AMOC standards are followed for FAA approval. |
| **Tools** | Honeywell proprietary tools: VALFAC bench, ARINC429, RS232,  JIRA (issue logging and tracking tool), JAMA (Requirement Management tool), SVN(Configuration Management tool), Serial port monitors like Tera Term. |

|  |  |
| --- | --- |
| **Project** | **Displays and Graphics EPIC Systems(Control Abstraction Layer Functionality) – Requirement Based Testing** |
| **Industry** | **Aerospace** |
| **Customers** | Embraer JETS, Dassault JETS, Augusta Helicopter, Pilatus |
| **Work location** | Honeywell Technology Solutions Lab, India |
| **Period** | Apr 2015 till Jan 2019 |
| **Position** | Technical Lead Engineer |
| **Responsibilities** | * Performing the CR reviews and finding the change and impacted requirements and tests that needs updates. Estimating the hrs and planning for the program execution. * Developing tests, performing peer reviews, debugging the bench setup issues, fixing the ARINC problems if any with the test bench. RFS and SC analysis for the software load under test. Tracking the program state on a weekly basis and updating the ABM (activity based metrics) sheet. * Setting up hardware benches and making the tools compatible to the environment. * Driving V&V test strategies with the teams, Leading the Quarterly workshops with solutions to real problems faced while performing daily work activities. * Chair for the Tech Lead Connect session weekly discussing on the show stoppers for a program or a project and coming up with strategies to fix it. |
| **The Project** | The project involves creating Test specifications and then developing the tests for the requirements identified during the Regression Analysis of the software changes. CALF is a functionality in the D&G that is responsible for logging the events from various systems in the cockpit (MCDU) and other knobs and controls, this information is processed and sent to the other functionalities like GGF(Graphics Generation Function) that displays the corresponding data on the PFD(Primary Flight Display) or MFD. CALF is also responsible to process the received data from other systems like Weather Radar(WX), TCAS, TAWS etc., and process and enable/disable certain functionalities as per the software implementation. |
| **Tools** | Honeywell proprietary tools: Test Automation System, TIU(Test Interface Unit) client, TIU Server, Work flow automation tools to analyze SC coverage reports from the CodeTEST tool, Vector Cover, PCSim  ARINC simulation using external breakout box connections  Serena Configuration Management, JIRA (issue logging and tracking tool), ASPIRE (peer review process tool). ESCAPE tools, HEAL tool, DESK IT(DEOS[Digital Engine Operating System] – Honeywell Proprietary Embedded Real Time Operating System) |
| **Innovation Drive** | 1) Leading an innovation idea - A simulation environment (Cockpit Displays) porting from Windows 7 to RTX64 (RTOS); after a thorough analysis it was understood that there could be up to 40% increase in productivity and a 60% less dependency on hardware.  2) Developed a software to interface the test unit to the DEOS specific library calls, so that the runtime debugging can be achieved. This helps in debugging the software during software development. |

|  |  |
| --- | --- |
| **Project** | Microlok PTC |
| **Industry** | **Railway Signaling** |
| **Client** | Ansaldo STS, Pittsburgh, PA - 15219 - USA |
| **Work location** | CMC Center, Hyderabad, India |
| **Period** | Jul 2014 – Mar 2015 |
| **Position** | Team Leader |
| **Responsibilities** | * Developed test specification to test the software requirements for the product microlok PTC. Identifying the tools required for testing. * Executed the test and reported the issues to the customer on a daily basis. * Handled a team of 5 resources to meet the deadlines of the project. * Conducting client meetings and updating the progress to the onsite coordinator. |
| **The Project** | The project involves creating Test specifications and then executing the tests to test the software requirements for the product microlok PTC.  PTC (Positive Train Control) is the standard with the US railways by 2015 and all the existing interlocking systems should be migrated to PTC systems. This product has two vital processors (Altera and Xilinx) both doing exactly the same task. This is a 2oo2 system which helps in achieving highest level of safety standards. Only if the outputs process by two processors are same, then the desired action is taken. |
| **Tools** | Alter Nios II IDE(8.1), Xilinx Platform SDK(9.2), HEX editor, USB blasters(Altera and Xilinx),Communication processor web interface, IBM Rational DOORS, Tortoisesvn, Microlok Development system, Microlok application programs. |

|  |  |
| --- | --- |
| **Project** | RAMS(Reliability, Availability, Maintainability and Safety) – LACMTA and Miami Dade Metros |
| **Industry** | **Railway Signaling** |
| **Client** | Ansaldo STS, Pittsburgh, PA - 15219 - USA |
| **Work location** | Ansaldo STS, Pittsburgh, PA - 15219 - USA |
| **Position** | Team Member |
| **Responsibilities** | * Prepared the Test specifications for ATO, ATP and TWC for LA P3010 project and Miami Dade Metro projects. * Reliability Engineering: Spare parts calculations using the SAP database data and a macro to simplify the calculations based on Repairable and non-repairable parts. * Performed the Flammability, Smoke Emission and Toxicity analysis for LACMTA and Miami Dade projects.   Worked on IBM Rational DOORs to have the traceability for the test cases to the requirements under test. |
| **The Project** | The project involves creating Test Specification documents for the ATC system which includes ATP, ATO and TWC systems.  The system requirements should be tested and hence a test specification document is created with the procedures to test each requirement.  For the spares calculations, the contract documents have the details of the customer requirement of the spares. MTTF has been calculated based on earlier field experiences by Ansaldo and thus an approximation for the required spares can be estimated which helps in a smoother operation cycle for the customer. |
| **Tools** | TWC Simulators, IBM Rational DOORS, Tortoisesvn, VBA |

|  |  |
| --- | --- |
| **Project** | **Independent Verification and Validation of FQMP software for Boeing 787 Dash 9 Dreamliner.** |
| **Industry** | **Aerospace** |
| **Client** | UTC Aerospace Systems, Vergennes, VT - USA |
| **Period** | Mar 2013 – Feb 2014 |
| **Position** | Team Member |
| **Responsibilities** | * Setting up the General Processor Module (GPM) with the Fuel Quantity Management Program (FQMP) build. * Tested the Software requirements by writing Test Cases, Test scenarios and then scripting using ADS2 (Avionics Development Software) scripting language. * Executed the Test scripts on the Test computers connected to GPM * Updating the Test Cases and Test Scenarios in the DOORS and linking them correctly to the requirement under test. * Using subversion to store the ADS2 test scripts and the resultant log files. * Using LDRA to do the structural coverage analysis. * The data obtained from the LDRA has been analyzed to see the number of holes (missing coverage). * Data Coupling and Control Coupling using understand for c++ and perl scripts to extract the data needed for the analysis.   Did the RFS and SC for the final cert load for 787 Dash9 FQMP software. |
| **The Project** | The project involves Requirement Based Testing for the Software requirements of the Boeing 787 FQMP. Test cases, test scenarios and test scripts (ADS2 scripting) are developed to test the requirements. The Structural Coverage Data from the GPMs is fed to LDRA for the completed structural coverage analysis of the FQMP. If any holes (missed coverage) are found, then test cases/ test scenarios were added based on the criteria and then checked for 100% code coverage without compromising the requirements.  Data and Control coupling has been done for the FQMP software. |
| **Tools** | ADS2 scripting, LDRA, IBM Rational DOORS, Tortoisesvn, Perl scripting, vba, understand for c++ |
| **Work location** | UTC Aerospace Systems, Vergennes, VT, USA – 05491 |

|  |  |
| --- | --- |
| **Project** | Functional Testing for REF 615, Legacy Products(Power Control Device -PCD) |
| **Industry** | Power Systems – Substation Automation(Medium Voltage) |
| **Client** | ABB Inc., R&D Bethlehem , PA - USA |
| **Work location** | ABB Inc., R&D Bethlehem, PA -USA |
| **Period** | Nov 2011 – Feb 2013 |
| **Position** | Team Member |
| **Responsibilities** | * Setting up the IEDs on the network * Using tools like PCM600 to write the SCL file to the relay. * Setting up GOOSE communication between the IEDs. Using IET600 to configure GOOSE. * Configure the microSCADA so as to poll the IEDs to get the required parameter information from the IEDs over IEC61850 protocol. * Creating SATEEN scripts to automate the point testing. Using IED scout, SATEEN and VBA to create the scripts needed to test the Modbus and DNP 3.0 points. * Functional Testing of the 615 3U product. * Prepared the test plan for the PVC(Product Verification Center) Testing. |
| **The Project** | The project involves verification of the Product (ABB Digital protective relays or IEDs) using different communication protocols like IEC 61850, DNP 3.0 and Modbus. |
| **Tools** | ABB proprietary tools: PCM600, IET600, SAB600, microSCADA, SATEEN.  Other tools: Modscan32(Modbus) , ASE test set(DNP 3.0),  OMICRON IED scout, |
| **Work location** | ABB Inc., R&D Bethlehem, PA -USA |

|  |  |
| --- | --- |
| **Project** | Independent Verification & Validation of Microcab II |
| **Industry** | Railway Signaling |
| **Client** | Ansaldo STS, US |
| **Period** | July 2009 – Nov 2011 |
| **Position** | Team Member and also lead a team of 5 for the certification of the final software load. |
| **Responsibilities** | * Analysis of source code changes in a Verification stand point. * Change Analysis and Impact Analysis * Performed Static Analysis of the source code. * Followed CENELEC EN5018, EN 50129 standards * Developed the requirements based Module Tests using VectorCAST tool. * Designed the test cases with all the constraints like Equivalence Class Partitioning and boundary value analysis along with statement coverage * Involved in Unit Testing for one load. * Analyze the requirements as per the Software Design Document * Preparation of test specifications and test reports * Responsible for the certification of the software – presenting the process involved in V&V, test cases and test procedures and test results. |
| **The Project** | The project involves Safety Certification of Microcab II platform software, a railway product designed to perform Automatic Train Protection and Automatic Train Operations. The certification requires the product to be compliant with a set of European standards called the CENELEC standards (EN 50126, 50128 and 50129). |
| **Language** | C,C++ |
| **System Software** | Microsoft Visual C++ |
| **Tools** | VectorCAST,Logiscope,Understand for C++ |
| **Work location** | CMC Centre, Hyderabad, India |

|  |  |
| --- | --- |
| **Project** | Independent Verification & Validation of Microlok II |
| **Industry** | Railway Signaling |
| **Client** | Ansaldo STS, US |
| **Period** | April 2009 – July 2009 |
| **Position** | Team Member |
| **Responsibilities** | * Analysis of source code * Followed CENELEC EN5018, EN 50129 standards * Involved in the requirements based Module Testing using VectorCAST * Designed the test cases with all the constraints like Equivalence Class Partitioning and boundary value analysis along with statement coverage * Analyze the requirements as per the Software Design Document * Preparation test specifications and test reports * Involved in the Design phase updating like the Data Flow Diagrams. |
| **The Project** | The project involves Safety Certification of Microlok II software, a railway signaling product designed to perform basic interlocking control for way side and Automatic Train Protection Systems. The certification requires the product to be compliant with a set of European standards called the CENELEC standards (EN 50126, 50128 and 50129). |
| **Language** | C |
| **System Software** | Visual C++ |
| **Tools** | VectorCAST, Selectyourdon |
| **Work location** | CMC Centre, Hyderabad, India |

|  |  |
| --- | --- |
| **Project** | Bloomberg |
| **Industry** | Stock Market |
| **Client** | Bloomberg , US |
| **Period** | December 2008 – March 2009 |
| **Position** | Team Member |
| **Responsibilities** | * Building shell scripts and C/C++ programs to extract the data coming from the Stock Exchanges and generating the .csv files corresponding to the data. * Analyzing the code to find the ticks generated and sent to the ticker plant |
| **The Project** | The Bloomberg project is related to the Stock Exchange Data Extraction, Conversion and Real Time delivery of data to the customers.  The raw data coming from the various stock exchanges are parsed and ticks are generated for the corresponding data fields received. These ticks are then sent to the ticker plant and from there the data is transferred to the client terminals in real time. |
| **Language** | C,C++,Python |
| **System Software** | UNIX |
| **Work location** | CMC Centre, Hyderabad, India |

|  |  |
| --- | --- |
| **Project** | Windows Printer Driver Testing |
| **Industry** | Point of Sale Printers |
| **Client** | Star Micronics, Japan |
| **Period** | July 2008 – November 2008 |
| **Position** | Team Member |
| **Responsibilities** | * The printer driver is tested on all the windows operating systems (Windows 2000, XP, Vista both languages English and Japanese) * The installation and working of the driver is tested by connecting the POS printer to the PC through Serial, Ethernet, Parallel and USB ports. |
| **Language** | C++ |
| **System Software** | Windows 2000, XP, Vista |
| **Work location** | CMC Centre, Hyderabad, India |

**PERSONAL DETAILS:**

|  |  |
| --- | --- |
| **First Name** | PHANI KRISHNA |
| **Last Name** | KURRA |
| **Gender** | Male |
| **Nationality** | Indian |
| **Marital Status** | Married |
| **Years of Work Experience** | 11 years |
| **Current Designation** | Advanced Embedded Engineer (Aerospace), Honeywell Technology Solutions |
| **Email-ID** | phani.e3@gmail.com |
| **Mobile** | 505-585-2321 |
| **Hobbies** | Reading books, learning through MOOCs, following ted videos, riding motorcycles, cooking. |