PerfectVIPs

Nikunj Patel

PROFESSIONAL SUMMARY

- **6** year of experience in **Embedded Software Development.**
- Experience in **defining** and **gathering requirements, designing** and **developing Software,** developing **test plans and test automation strategy** for various products.
- Experience in platform software development and verification which includes **Device Drivers, BOOT, Hypervisor BSP.**
- Experience in developing **Automated test environment for platform software verification.**
- Experience in **End-to-End IOT device** and **cloud APIs testing**.
- Experience in developing **AWS Lambda function.**
- Experience using **Python**, **C**, **CMM and TCL languages.**
- Experience on **ARINC429, I2C, SPI** & **NVMe** protocols.
- Experience in Device monitoring related **Health Monitoring Device Driver** verification.
- Experience in continues integration tool **Jenkins.**
- Experience in **Multicore Architecture** based **RTOS Embedded System**.
- Experience in platform **software development and verification.**
- Experience in **system level testing** of **flight control computers**.
- Expert in complete life cycle of **Airborne mission specific compliance DO-178B/C**.
- Good knowledge of **storage products** and **storage protocols.**
- Good understanding of **Embedded Technologies** and **RTOS.**

PROFESSIONAL EXPERIENCE

Company: PerfectVIPs **Sr. Embedded Engineer** **Jun 2019 - till date**

Company: eInfochips-An Arrow Company **Sr. Engineer** **Apr 2013 – Nov 2016 | Jun 2017 - Jun 2019**

PROJECT DETAIL

Project: Air-Ground Communication System (AGCS)

Description: **AGCS** is a **secure air-to-ground modular data transmission system** with **dual CPU architecture** for **hardware**-partitioned access. **AGCS' modular design** is easily **upgradeable** and consists of an **airborne communication server (ACS ACD+AISD), wireless connectivity module (CM), remote media device (RMD),** and **ground-server software (GSS),** creating a complete air-to-ground, secure **data transmission system**. The **ACD partition controls** the launching and execution of services and controls the **ACD-facing interfaces** to **avionics**. The **AISD** partition is **hosting connectivity software** for **air- ground communication** and interfacing with the **connectivity module (CM).**

Roles & Responsibilities:

- Developed **Automated verification test environment (TAF)** using **python, C** and **shellscript.**
- Developed basic services and **ACD/AISD partition software** from **high level requirement**.
- Handled the **configuration management** related activities, **ramp up** activities and mentoring 4 members.
- Responsible for important **decision-making.**
- Supported team members for technical query and its **resolution.**

Tools & Technologies: **C, Python**

Platform & OS: **IMX6 ARM, T20280 PowerPC, Linux, SE Linux**

Project: CCAR (Common Core Avionics Refreshment)

Description: The project involves next generation avionics display system with **multicore architecture** for **cockpit display system**. The project includes development and verification of the **platform software** as per **DO-178C Level –A.**

Roles & Responsibilities:

- Understood the **multicore architecture** to develop and verify the **platformsoftware**.
- Implemented **test case** and **test procedure** for **Hypervisor BSP module**, **I2C device Driver, Health monitor device driver (HMDD), Health monitor library API** and different **RTOSapplications.**
- Implemented **framework** using **Trace32 Lauterbach scripts (.cmm)** and **C language** toverify **Hypervisor BSP.**
- Verified the driver using different approaches like **Test driver, Stubbed Driver** and **Testapplication.**
- Implemented the **test case** and **test procedures** to verify the **actual device drivers** in **C**and **Python framework**
- Implemented **structural coverage GAP** analysis and fixed to get the **full coverage.**

Tools & Technologies: C, Python, TRACE32, IBM Rational (DOORs), PREP, JIRA(ALM)

Platform & OS: Freescale – T2080(Power PC e6500), LynxOS, Vxworks-653

Project: Boeing 737 MAX Display System

Description: The project is to perform **platform software Development** and verification activity for **Boeing 737 Max aircraft's cockpit display system software** as per the **DO-178B level** - A compliant. It includes the development of the **automation test framework** to verify the different modules.

Roles & Responsibilities:

- Understood the **BOOT firmware** and **Power on built** in **testsequence.**
- Understood **EDAC Test.**
- Understood of the **Test setup** using **Wind Riverdebugger**.
- Developed **test automation framework** using **TCL scripting language** and **gdb command** to verify the **BOOT module.**
- Developed requirement based **test case** and **test procedures** for the **BOOTfirmware**.
- Reviewed the **test case** and **test procedures**.

Tools& Technologies: C , TCL, Wind River Debugger, IBM Rational (DOORs, Clear Quest), PREP, gdb Commands, NVMe

Platform & OS: Freescale – P3041, Vxworks-653

Project: Primary Flight Control Computer (PFCC)

Description: This project is to perform the **system level verification** of **Primary Flight Control** computers for the **Bombardier aircrafts. PFCC controls** the **aircraft's primary surfaces** like **ailerons, rudders, elevators** using **Fly** by **wire system.**

Roles &Responsibilities:

- Understood about the **Flight control computer system** in**aircraft.**
- Developed **python scripts** to verify **functional** requirements considering **Black box systemtesting**
- Implemented **Fly-by-wire Interface Simulation tool (FIS)** to execute **python scripts, modify input signals** and **validate output**
- Reviewed the **test cases** and **test procedures**.

Tools& Technologies: Python, IBM Rational (DOORs, Clear Quest), PREP, Fly-by-wire Interface Simulation (FIS)

Protocol: A429, TTL

Project: AFDX Switch Software Verification

Description: This project is to verify the **AFDX Ethernet switch software** of **DO178B Level A: Avionics Full Duplex Ethernet Switch** used for communication in aircrafts.

Roles & Responsibilities:

- Developed **automated script** to gather result of **test procedures logs** in **cvs** form to easily keep tracking on **~4000 test cases**.
- Performed **Structural Coverage Analysis** of **sourcecode**.
- Performed other analysis like **stack** and **memory analysis, re-entrantanalysis.**
- Performed **RFS activity** for the certification.

Tools& Technologies: C, Python, TCL, CodeTest, IBM Rational (DOORs, Clear Quest), PREP, Wind River debugger

Company: Volansys Technologies **Engineer** **Dec 2016 - Jun 2017**

Roles & Responsibilities:

- Designed and Developed **automation framework** to test the **IoTdevice**.
- Wrote design document of **automationframework**
- Developed and enhanced **automationframework.**
- Generated **Robot Frame work specific XML** report and integrated with**Jenkins.**
- Developed **AWS Lambda function** for capturing the data.

TRAINING DETAILS

- Completed **Classroom Certification training** for **Linux and Device Driver** in Oct 2012-Mar 2013

AWARDS

- Received **"Pat on the Back"** Awards for **demonstrated team dedication** and**commitments**
- Received **Best Team award** for the **Project appreciated byclient.**

TECHNICAL SKILLS

Protocol Knowledge:	**I2C, SPI, NVMe, ARINC429**
Standards:	**DO-178B (Level A)**
Cloud Platform:	**AWS Lambda**
Programming Languages:	**C-language, Basic level C++, DataStructures**
Scripting Languages:	**Python, CMM, TCL/TK**
Tool/IDE:	**ClearQuest, PREP, DOORS, RTRT, Code Test, ALM,Jenkins**
Configuration/Version Control Tool:	**SVN , GIT,JIRA**
Debuggers:	**Trace32, Wind River, pycharm (python Debugger)**
RTOS:	**Lynx OS**
Operating System	**Windows, Linux**
Role:	**Developer, Tester**

EDUCATION

B.E. in Electronics & Communication Engineering from Gujarat Technological University in May 2012 with 7.86 CPI