**Sowmya Gangadhar**

**Software Engineer**

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**Summary:**

* Self-motivated professional with **13+ years** of versatile experience in analysis, design and development of client/server, web based and N-Tier application with hands on UI development and design.
* Experienced in the programming of the web, windows and distributed applications like **C#, .Net Core, WPF, Python, JavaScript, HTML5, Tibco Spotfire, Splunk, ServiceNow**.
* Holds experience as RPA developer and has undergone Solution Architect training.
* Expert in ideation, development and implementation of solutions that will reduce efforts/costs.
* Extensive experience in analyzing systems requirement, procedures and problems to automate and improve existing systems and review system capabilities.
* Subject Matter Expert (SME) in Data management tools to analyze the data coming from multiple sources, making it available for various users to perform the analysis and identify the data gaps which are causing the alarms and trips.
* Experienced in handling multiple activities in Implementation, Rollouts, Upgrade, Production Support and Testing.
* Expertise in developing Web and restful API’s and integration with various applications.
* Worked extensively and has in-depth knowledge on the GE Proprietary tools and software solutions like Cimplicity, ControlST, Workstation ST and iHistorian.
* Experienced in troubleshooting S2C data transfer issues on OSM and APM.
* Expertise in developing business logics for identifying the issues within the system using **Python**.
* Experienced in developing Rest API’s using Python and deploying using Flask.
* Experience in building RPA solutions using Robotic Process Automation techniques (UiPath RPA) and visualizing the results using **Tableau, Splunk** and processing data using SQL jobs and business intelligence.
* Worked on Business Intelligence tools like **SQL Server reporting services (SSRS)** and **Tibco Spotfire** for reporting.
* Extensive experience in building dashboards to monitor infrastructure, configure real time alerts and to enable advanced troubleshooting capabilities using **Splunk**.
* Expertise in writing SQL queries, stored procedures and database server performance tuning and optimization of Complex **SQL** queries.
* Expertise in continuous integration and continuous delivery using Jenkins and is well versed with **full Agile, Scrum and waterfall methodologies**.
* Working experience with different databases including **Microsoft SQL Server, PostgreSQL and PLSQL.**
* Hands on with tools like MS Visio for prototyping and wire framing
* Built CI/CD pipelines Performed version control and coding collaboration with Git tools; reviewed pull requests for peers; created and maintained well-organized design notes and documentations for projects.
* Expertise in debugging an application using the debugging tools provided by Visual Studio.Net IDE and browser’s developer tools like Firebug and chrome developer tools etc.
* Proven strength in trouble shooting, problem solving, coordination ­­and analysis.

**CERTIFICATIONS:**

* Certified Splunk power user.

**EDUCATION:**

Bachelor of Technology in Electronics and Communications Engineering – 2010.

**AREAS OF EXPERTISE:**

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| --- | --- |
| **Languages** | C#.NET, ASP.NET, SQL, and PL-SQL. |
| **Core Technologies** | .NET Framework 3.0, 4.0 & 4.5, ASP.NET 2.0/3.0, C#.NET, ADO.NET, MVC 3/4, Win Forms, Web Forms, Web Services, LINQ, WCF, WPF, Web API, .Net Core, Entity Framework, Web Sockets, oAuth API integration, Python |
| **Web Technologies** | ASP, HTML, HTML5, Java Script, jQuery, AJAX, CSS, CSS3, Angular,, Nodejs, Bootstrap, TypeScript |
| **Database** | SQL Server 2014/2012/2008/2005, SSIS, SSRS Reporting, Oracle |
| **Protocols** | SOAP, FTP, TCP/IP, HTTP |
| **Application/Web Servers** | MS IIS 8.0/7.0/6.0, Flask |
| **Source Control** | SVN, Git, GitHub  |
| **Development Tools** | MS Visual Studio.NET 2005/2008/2010/2012/2013/2014, PyCharm, Anaconda, Jupyter Notebook |
| **Operating Systems** | Windows 10/8/7/Vista/XP, UNIX, Linux |
| **Requirement Management Tool** | Rally, MS Word, MS Excel |
| **UML Tools** | Visio |
| **Unit Testing Tools** | MSUnit |
| **Build Tools** | MSBuild |
| **Defect Tracking Tool** | HPE’s QC  |
| **Continuous Integration Tool** | Jenkins |
| **Other Tools/technologies** | SOAPUI, Postman, SAML, OAuth, Splunk, Tibco Spotfire, UI Path RPA |

**PROJECT EXPERIENCE:**

**GE Power, GA July 2021 – Till Date**

**Project #1: M&D Ops Tools**

GE Gas Power Services is involved in the business of turbine manufacturing, leasing and selling of turbines. Fleet Management is part of their business for monitoring the health of turbines by continuously diagnosing different parameters or tags collected centrally from the different sites spread over the world with the help of an OSM (Onsite Monitor Machine). These data are validated by different IR(s) based on the turbine availability and performance and report the occurrence of any type of Trips or Alarms by automatically creating a clarify case and sends all related information to the corresponding Fleet Management Specialist engineers for further analysis, monitoring, diagnosis, and resolution.

This project is to expand the scope of Fleet Management data that is available within the M&D remote service portal and provide a better mechanism to manage the delivery of enhanced visualization, reporting services, and operational tools with the goal of driving customer value through improved availability and accessibility of M&D information involving following activities:

* Provide simplified data access to existing internal Fleet Management customers by integrating data vending, reporting and analytics tools.
* Delivery of self-service data vending tools
* Drive consolidation of the disparate web portals in production today deliver Fleet Management services as “One Fleet Management”
* Provide for the ability to configure, manage, and maintain consolidated report types, individual report sections. This functionality should be made available in a web interface housed and maintained in the Fleet Management Portal.
* Provide for the ability to view overall report process and status within a web interface housed and maintained within the Fleet Management Portal.
* Integrate and host all Fleet Management Operational Tools within Fleet Management Portal. i.e., Automated Reporting System, Optimus System Health Portal, MUL, Asset Properties, CRP, CHD, Operational Trends, Reports library, etc.
* Configure & run the reports using Automated Reporting System
* Experience in delivering Predix based solutions and Visual Studio 2010/2013 & Self-Help Portal
* Core expertise in Power Generation Organization model, KPIs, including in-depth knowledge of systems and data.
* Experienced resource pool with a proven track record in GE Engagements

**Responsibilities:**

* Developed multiple tools using .net and python to provide data access to external customers and integrated them into a web portal.
* Lead the project’s software development effort, and create a roadmap for capability development
* Optimize system architecture and framework to facilitate business goals and growth
* Interact with internal and 3rd party stakeholders to define business processes and software requirements
* Interface with analysts and business unit leaders to create automations and new tool sets to solve problems in a fast-paced agile environment.
* Developing solutions to eliminating mundane and repetitive work.
* Developing, maintaining, and deploying Rest API’s and integrating it with various applications.
* Perform deployment of applications to other environments as needed.
* Full life cycle development. Interface with users on technical issues relating to computer programs.
* Review and refine high Level Requirements and Solution Definition (A Joint exercise with GE).
* Participating in Agile Scrum and full product life cycles.
* Project and Requirement Management using Rally tool.
* Develop the identified requirements for the Sprints as planned in Rally.
* Documenting confirmed requirements in user stories.
* Scoping requirements for iterations and scrums.
* Periodic meetings/reviews with team and GE IM team Project Leads.
* Participate in system and database meetings to develop modules and projects.
* Creating Splunk dashboards and reports and debugging logs to improve system performance.
* Maintaining application related documents in repository and writing help documents for the applications developed and maintaining them in Confluence.
* Expertise in writing SQL queries, stored procedures, cursors, triggers and database server performance tuning and optimization of Complex SQL queries.
* Consult with managerial, engineering, and technical personnel to clarify program intent, identify problems, and suggest changes.
* Participating in peer code and design reviews.
* Compile and write documentation of program development and subsequent revisions, inserting comments in the coded instructions so others can understand the program.
* Provide technical guidance or support for the development or troubleshooting of systems.
* Implement the complex data integrations service delivery platform (SDP) and provide highest level of IT Technical support for provisioning the systems, network operations centers.
* Test, maintain, and monitor M&D programs and systems.
* Built CI/CD pipelines Performed version control and coding collaboration with Git tools; reviewed pull requests for peers; created and maintained well-organized design notes and documentations for projects.
* Develop, document and revise system design procedures, test procedures, and quality standards.
* Providing timely application, analytics, infrastructure, and environment support.
* Co-ordinate with the Offshore team as and when required for the smooth execution of the project.

**Environment :**

.Net, Python, Splunk, Spotfire, SQL Server, SSIS, SSRS, PLSQL, PostgreSQL, C#, HTML, CSS, JavaScript, jQuery, Node js, LINQ, WCF, Rest services, Windows Services, Rally, GIT, Jenkins, Confluence.

**GE Power, GA Feb 2018 – July 2021**

**Onsite Project Lead**

**Project #2: Monitoring & Diagnostics Sustaining Support**

GE Power is involved in the business of turbine manufacturing, leasing and selling of turbines. Fleet Management is integral part of GE Power business for power generation system. GE Power is focused on developing and providing solutions for remote monitoring and diagnostics (M&D) procedures of gas and steam turbines. This business continuously monitors the health of turbines by diagnosing different parameters or tags collected centrally from the different sites spread over the world with the help of an OSM (Onsite Monitor Machine). This data is validated by different IR(s) based on the turbine availability and performance and report the occurrence of any type of Trips or Alarms by automatically creating a PAC Service-Now case and sends all related information to the corresponding M&D Center Specialist engineers for further analysis, monitoring, diagnosis and resolution.

**Monitoring & Diagnostics Sustaining Support** is for the Central platform support scope of the M&D.GE Power’s Monitoring and Diagnostics (M&D) Center provides monitoring and technical support for over 2000 assets, including heavy duty gas and steam turbines, balance of plant equipment, and aero-derivative engines. M&D Sustaining team supports the platform required for data acquisition from site, storage of data, and running analytics suite. Provides 24/7 monitoring and application support that help them to measure and report on operations in real-time and forecast quality problems before they arise.

**Responsibilities:**

* Implemented various automations for the Sustaining team, few of the major automations are

**Sustaining Alarm Viewer (SAV)**:

**Problem statement**

* 100 %Manual work, dedicated case creation team to perform routine task.
* 0 Accountability on alerts being processed and cases created.

**Solution**

* Developed Interactive Detective System (IDS) suite consisting of Python API’s and webservices to process the alerts, filter duplicates and exceptions, and provide only valid issues to investigate and act upon.
* Developed a one stop solution Sustaining Alarm Viewer (SAV) to view, monitor, validate alerts and create cases to address issues and drive solution with minimum lead time.

**Environment:**

 Microsoft .Net, C#, Python, VBScript, WPF, SQL Server, Node js, Service Now, Flask

**Sustaining Chatbot:**

**Problem Statement**

Connecting multiple applications/tools/ DB’s/Dashboards to get the data either as part of monitoring, case creation or for issue resolution. This leads to time consuming and delay in providing the solution to the customer and sometimes it leads to missing up few things by human error.

**Solution**

A single platform **Sustaining Chatbot** to assist sustaining L1 team in creating and resolving the cases.

Few of the features implemented are as below

* Fetching ServiceNow Cases
* Querying data from Historian
* Querying data from Timeseries using OAuth 2.0 authorization
* Comparing APM and OAV Alarm count
* Fetching Overall health from OSH
* Fetching Asset information from MUL
* Fetching OSM Site Local time
* Fetching OSM router information using Solarwinds
* Fetching Analytic health using Splunk

**Environment:**

Web socket, Node js, JavaScript, jQuery, HTML, CSS, Google Voice, SQL Server, external rest API integrations (Confluence, Jenkins, Splunk, Service Now, etc.) and Webservices

**Mobot:**

Process automation to minimize the repetitive manual tasks and increasing team agility by developing bots using UiPath Robotic Process Automation (RPA) tool.

**Connectivity Bot:**

OSM connectivity is a high priority issue, if there is no connectivity to OSM then there is no data available to monitor the assets health remotely. Hence it needs a fast turnaround response.

Connectivity Bot built on RPA (Uipath) tool helps us to address the above by validating and troubleshooting the root cause of the issue as and when the alert is received and updating the findings. For this, it interacts with various applications as mentioned below

VDI

RSP

OSH

Solar winds

Service Now

Site Info

**No Issue Found Bot:**

We have different alerting system sources set to capture different issues and to notify us. Sometimes there might be a variance i.e., there might be an issue when the source of the alerting system validated but by the time, we as monitoring team act upon it, issue could have been resolved due to various reasons. For instance, especially when there is an outage for any one of the integrated systems, we may receive 100+ alerts for each issue category as there would be no data available at that point of time but once the outage is completed, most of these alerts would be no issue found as the data starts flowing. But still to make sure that we raise tickets only for the valid and actual issues, team needs to revalidate all the alerts before raising the ticket.

**No Issue Found** Bot built on RPA (Uipath) tool, revalidates all the alerts in SAV based on priority and process accordingly and updates the findings in SAV for each unit. This helps to work on valid issues and reduces the time taken to get to the real issue.

* Developed web services and programs for case data extraction from ServiceNow and C# programs and logistics to process the data and create trend graphs to business to analyze and take necessary corrective actions and identify bottle necks.
* Developing Rest API’s using Python and deploying using Flask.
* Responsible for writing, updating, and maintaining computer programs or software packages to handle specific jobs such as tracking alerts, storing, or retrieving data, or controlling other equipment.
* Deploy and maintain the applications, Jenkins CICD and ensure availability for all the applications and portals.
* Troubleshooting and correcting errors by making appropriate changes and rechecking the functionality.
* Enhancing the functionality of the automations or any tools and making changes to the code as required on approval from the client.
* Proposing solutions for the overall stability of the applications.
* Root cause analysis of data gaps (missing data, failed analytics, missing configuration).
* Gathering requirements from the clients for case creation, resolution criteria and automating sustaining monitoring process.
* Detailed Design and review, Integration Testing.
* Preparation of Test Scripts for the developed/automated sustaining modules.
* Maintain technical design and functional specifications documentation for the automations and enhancements if any.
* 24/7 Monitoring & reporting of the OSM, Central & Edge devices fleet:
* Connectivity
* Controller data
* Data Quality
* OSM Health
* Analytic Executions
* OM Environment
* Historian
* Server to Cloud Data
* Time Series
* Data Fabric
* Application Infrastructure

With advanced diagnostic capabilities using OSH, Splunk, webhook, SQL server, Aurora and Tableau.

* Develop dashboards to reflect analytical infrastructure performance and configure alert based on thresholds using Splunk.
* Historical baseline performance evaluation based on infrastructural changes using Tableau.
* Analyzing and visualizing the data issues, data gaps etc. using BI tools like Spitfire, Tableau and Splunk.
* Providing L1 support for 25+ OSM components & Central issues that are to be to be addressed and resolved as per SLA.
* Resolving OSM issues by troubleshooting Cimplicity, ControlST, Workstation ST, Local Historian among other Ge intelligent platform solutions.
* Providing support for RSP, Optimus tools (OSH, OAV, ODV, ORT) applications.
* Maintaining and managing SQL databases and its availability.
* Responding and supporting M&D center emails and issues reported.
* Monitoring APM system availability & performance.
* M&D Work on AWS data issue (related to S2C and Datafabric-L1).
* Support relevant and critical services and processes in GE Power AWS infrastructure.
* Troubleshooting S2C data transfer issues on OSM and APM.
* Identifying data gaps in APM for analytics and working on this tool enhancements.
* Monitoring, Maintaining, and deploying MND specific micro apps and services through Jenkins to APM MND space using cloud foundry.
* Debugging issues related to micro apps and services in APM by analyzing logs.
* Updating UAA and DB account details in config files.
* Configure, Deploy and disable analytics as per the requests received in cases
* Coordinating with multiple teams like Analytics, Visualization, APM configuration and deployment, performance engineering team, Requisition Engineering team, Digital Service Ops team.
* Work with GE team and provide timely, accurate, and professional updates to cases via Power Service Now.
* Timely escalation of cases to relevant groups for further resolution if issues are not resolved within L1 scope. ​
* Perform unscheduled maintenance activities.
* Troubleshooting issues and providing L1 level resolution using visualization tools/applications.
* Metrics on team responsiveness and work volume (cases) on weekly​ basis.
* Bi-weekly meetings with the client to discuss on overall project performance, process improvements, roadblocks and case metrics.
* Maintaining SOPs for all required processes in Confluence.
* Adhering to Communication Plan, Escalation Matrix, False Positives Filtering.
* Conducting shift handover calls at the end of the shift to pass on the updates to the next available team.
* Co-ordinating with the offshore L1 24/7 Monitoring Support team member as and when required for the smooth execution of the project.
* Providing trainings to the team and ensure they are well equipped to provide end to end project support.
* Onsite – Offshore Coordination/Status Review and meetings with the offshore Team and other vendors.

**Environment:**

.Net, JAVA/J2EE ,Python, Microservices, AWS, UiPath, Splunk, Windows Server, ServiceNow, SQL Server, C#, JavaScript, Node Js, HTML5 & CSS3, Web sockets, Apache Tomcat,WPF, WCF, Micro Services, Windows Services, SSRS, SQL server.

**Client: GE: Hyderabad India July 2011 - Feb 2018**

**Role: Project Lead**

**Project #3: Optimus System Health (Power Digital Developments)**

**Optimus System Health Portal** Suite is to monitor and calculate the health of turbines by continuously diagnosing different parameters or tags collected centrally from the different sites spread over the world with the help of an OSM (Onsite Monitor Machine). It also calculates the health of OSM, Historian Servers, Application and SOA Servers and M&D Database. The Calculated output is displayed in the form of visualizations using Tibco Spotfire and reports using windows application.

**Responsibilities:**

* Responsible for building presentation layer, the Business and Data Access Layers using C# .Net, ASP.Net, WCF, WPF, Java, JavaScript, jQuery, Python.
* Writing queries, stored procedures etc. using SQL Server 2012, Oracle 10g.
* Design and Development of solution (Server Side, Client Side).
* Developing the security module for the application.
* Exposing the data from this application for other GE application using WebAPI.
* Developing SSIS package which gets the data from the source database every day.
* Involvement in the architectural design, business requirement gathering and technical design documentation of the project.
* Responsible in the deployment and hosting architecture of the application.
* Defining and working on gathering requirements and development of the AWS version of OSH architecture.
* Working with entity framework extensively for data manipulation operations.
* Designing the user-friendly interfaces using WPF and ASP.Net.
* Designing and Developing WCF and windows services and integrating it in the application.
* Using Enterprise Library to retrieve data from backend database SQL Server 2008.
* Design and Development Tibco Spotfire Visualizations.
* Understanding the technical requirements and developed components as per the Technical Specifications.
* Using SVN for version control.
* Involvement in defect fixing and done Unit Testing.
* Database management.

**Environment:**

C# .Net, ASP.Net, HTML5, CSS3, JavaScript, jQuery, WCF, WPF, LINQ, Python, Web and window services, AWS, Tibco Spotfire, SQL Server, Tableau, Enterprise library, Tortoise SVN.