**SABU VISWAMONI**

**Senior C++/ Embedded Engineer**

**SUMMARY:**

* A self-managed and result-oriented Senior Software Developer with 14+ years of software experience including Requirement Analysis, Estimation, Project scheduling, Product Development/Launch, Training/Development, Crew Supervision, Technical Support and Client Relations
* Experience in the development of software applications which are interfaced with different hardware/embedded devices like Printers, Cash/Coin Accepting Machines and Cheque Depositing Machines etc.
* 6+ years of experience in the development and implementation of imaging applications for health care/**medical devices**, networking-based Client Server applications and Payment Collection Software for telecom devices.
* Have expertise in architectural designing and development of multi-threaded applications.
* Successfully completed numerous IT projects for health care, telecom, banking and communication domains in Windows, UNIX and Linux platform.
* Experience in the implementation of applications using different Biometrics and security authentication devices like Finger Print Readers and Smart Card Readers.
* Good Knowledge of source control applications like VSS, Clear Case and Git.

**TECHNICAL SKILLS:**

* **Operating System:** Linux, Windows and UNIX
* **Programming Languages:** C, C++, VC++, and Java
* **GUI Development:** MFC, AWT and Java Swing
* **IDE:** Microsoft Visual Studio and Eclipse
* **Frameworks** : QT
* **Database:** Oracle, MySQL, SQL Server and MS Access
* **Tools and Utilities:** Rational Rose, GDB, Visual Assist, Beyond Compare, make file, and Debug View
* **Database Connectivity:** ODBC and JDBC
* **Protocols:** TCP/IP, FTP, UDP, SAML and Kerberos
* **Version Control:** Visual Source Safe, Rational Clear Case and Git
* E**mbedded Platforms/RTOS:** Wind River, VxWorks
* **Methodologies:** Water fall model and Agile
* **Scripting language:** Bash, Python
* **Build Systems:** Make
* **Security:** SAML, Kerberos, ADFS and Biometrics Authentication
* **Continuous Integration Tools :** Jenkins
* **Concepts:** OOP, Multi-Threading and Synchronization, Cloud, IoT, OpenGL API, IPC, STL, BOOST Library, AWS, Socket Programming, Bio-Metric Authentications and Security,Windows WDM, Cryptography, Serial Communication, COM, DCOM and DICOM

**EDUCATION:**

**Bachelors in Computer Science and Engineering (4 years) - 2009 KERALA UNIVERSITY – India**

**Diploma in Computer Science and Engineering, (3 years) - 1998**

**EXPERIENCE:**

**AAA, FL, USA 10/2019 to 12/2020**

**Senior Embedded Developer**

* Responsible for the maintenance of CDX( Club Data Exchange ) application developed in C & C++.
* CDX is the core application responsible for maintaining communication between different Insurance Club offices
* With CDX central server located in the AAA central office.
* Responsible for requirement analysis, design change, documentation , implementation and testing.
* Responsible for automating the integration of code changes from multiple developers using continuous integration tool Jenkins.

**Environment:** UNIX, Linux, C, C++, Java, Git, Jenkins.

**Rockwell Automation, OH, USA 03/2019 to10/2019**

**Senior Embedded Engineer**

* Responsible for the development and maintenance of embedded applications developed in C++.
* Other responsibilities:
* Develop and debug embedded software for ARM based micro controllers.
* Execute fully automated continues integration testing using Rockwell Studio 5000, RsLinx, Programmable ladder logic.
* Developed Embedded GUI using QT.
* Create UML class diagrams and control flow diagrams
* Perform code review for the developed code and test scripts developed in Python.
* Developed Firmware for the automation devices using real time operating system VxWorks developed by WindRiver.
* Development and testing of python scripts for the Rockwell Firmware testing.
* Responsible for automating the integration of code changes from multiple developers using continuous integration tool Jenkins

**Environment:** Windows, C, C++, Visual Studio, Wind River,Ruby, VxWorks, QT, Python, Clear case, Jenkins.

**Delta airlines, Eagan, MN, USA 03/2018 to 02/2019**

**Senior C++ Embedded Developer**

* Responsible for the development and maintenance of GIDS. GIDS (Gate Information Display System) is a graphical software application designed to display flight related information to Delta Air Lines passengers. The main purpose of GIDS is to answer most of the repeated questions that the passengers may have, thereby reducing the number of inquiries the gate agents have to respond. This gives the gate agents more time to concentrate on more important activities to provide better service.
* The GIDS screens are positioned in the gate area, with at least one of the screens situated near the boarding door, and the others positioned strategically so as to be in view of as many passengers as possible.

**Environment**: Unix, Windows, Linux, C, C++, Visual Studio, Clear case.

**AT&T, Minneapolis, MN USA 05/2017 to 03/2018**

**C++ Senior Developer**

* Responsible for the development of Biometric Authenticated Windows Logon application in a network based environment using C++, MFC, and Microsoft Visual Studio.
* Responsible for requirement analysis, Project Estimation, Scheduling, SRS preparation, Architectural and Detailed Design, Test case preparation, Development and Implementation
* Responsible for Task scheduling, technical reviews including document review, code review and version controlling
* Involved in the development of C++ module interfaced with other modules connected with Finger Print reader devices.

**Environment:** Linux, Windows, UNIX, C, C++, Visual Studio, SAML, Boost, Jira, and Git.

**TOSHIBA MEDICAL SYSTEMS, Japan (supported remotely from India) 08/2010 to 04/2017**

**Project Lead (03/2016 to 04/2017)**

* Responsible for the development of Client Server based network applications using C++, MFC, Microsoft Visual Studio, Net Beans, J2EE, Java Swing and MS Access
* Responsible for requirement analysis, Project Estimation, Scheduling, SRS preparation, Architectural and Detailed Design, Test case preparation, Development and Implementation
* Responsible for all the deliverables including technical documents, source code and binaries.
* Involved in all the phases of the Software Development Life Cycle (SDLC)
* Provided extensive pre-delivery support for code review and bug fixing
* Involved in the implementation part of the applications in various platforms like Windows, Linux etc.
* Implemented application security authentication against a Kerberos/Active Directory servers using Boost third party C++ Utility library.
* Developed and implemented one of the main Project NeTCom (Network Transfer and Communication) using Socket Programming

**Project: NeTCom**

NeTCom is an application used for transferring daily automation test results of individual testing machines to a server machine in a wireless network environment. A server application will be installed in the machine of the stake holder of testing process and a client application will be installed in each testing machine. Kerberos authentication protocol was implemented for the client authentication. Both the Server and Client applications are the members of a Kerberos Realm and Microsoft Active Directory (Kerberos Domain Controller) was the designated authority that rules the realm. The client application will start the automatic test application in the testing machine and this test application will generate different number of log files in a day. In the day end, these files are transferred to the server machine automatically after the completion of automatic testing. The server application will display the consolidated test results of each individual testing machine in the server application GUI. The Server and Client applications can be installed in any types of operating systems like Linux and Windows etc. Make build system is used for source code compilation.

**Environment:** Windows, Linux, C, C++, STL, TCP/IP, Kerberos, ADFS, Socket Programming, Rational Rose, Make, Visual Source Safe, and Waterfall Methodology.

**Lead Engineer (07/2012 to 02/2016)**

* Responsible for the development of Network applications using C++, Microsoft Visual Studio and MS Access
* Responsible for requirement analysis, Project Estimation, Scheduling, SRS preparation, Architectural and Detailed Design, Test case preparation, Development, Reviews and Implementation
* Responsible for all the deliverables including technical documents, source code and binaries
* Involved in all the phases of the Software Development Life Cycle (SDLC)

**Project: Asset Management System**

Developed and implemented one of the main software Asset Management System, an application used to manage the resources in a network environment. This is a Client Server based Network application. The server application will be installed in the Server machine of the project Manager and client applications will be installed in the user machines of the network. The Server application will display all the specifications of the client machines installed in the network. This specification includes User Name, name of client machine, IP Address of clients, disk capacity, RAM, Processor of client machine etc. If any of the specification is changed in the client machine, the server application will be update those details in the database automatically. The applications can be installed in any types of operating systems like Linux, Windows etc.

**Environment:** Windows, Linux, STL, Make, TCP/IP, Socket Programming, Rational Rose, XMind, Visual Source Safe and Agile Methodology.

**Project: Image Algorithm Porting for Elastography (Image Processing Algorithms)**

Elastography is the name of an application used in Toshiba Ultra Sound scanner called “Slugger”. Elastography is a medical imaging modality that maps the elastic properties of soft tissue. The main idea is that whether the tissue is hard or soft will give diagnostic information about the presence or status of disease. The application using an Elastography algorithm that evaluates the relative changes in size of the tissues and assigns a color based on the distribution of the size changes. The purpose of the project was to port this algorithm developed in C++ to Java platform. Toshiba provided separate modules for getting scan converted images from raw data. This scan converted images are used for Elastography processing. Kerberos Authentication protocol was used to provide access of Toshiba applications to third party users and SAML Authentication protocol was used to provide access to Toshiba applications to other applications connected through windows integrated single sign on service and Server based Intranet Single Sign On.

**Environment:** Windows, Linux, C, C++, VC++, MFC, Microsoft Visual Studio, OpenGL, Net Beans, J2EE, Java Swing, Rational Rose, Microsoft Word, Debug View, Visual Assist, Kerberos, SAML, ADFS and Beyond Compare.

**Senior Software Engineer**  **(08/2010 to 06/2012)**

* Responsible for the development of imaging applications for Toshiba Ultra Sound Scanners in water fall methodology
* Responsible for requirement analysis, Project Estimation, Scheduling, SRS preparation, Architectural and Detailed Design, Test case preparation, Development and Implementation
* Involved in all phases of the Software Development Life Cycle (SDLC)
* Developed user authentication part using SAML third party C++ libraries.
* Developed and Implemented Imaging applications called DICOM Viewer and Continuous Raw for Toshiba Ultra Sound Scanner

**Project: DICOM Viewer (An Image Viewer and Image Processing Application)**

DICOM Viewer is an application used to display DICOM (Digital Imaging and Communication in Medicine) images in the Graphical User Interface. It is a simple viewer of images stored in DICOM format. The DICOM standard addresses the basic connectivity between different imaging devices and it also addresses distribution and viewing of medical images. The application will read pixel data from a DICOM format file and will display the image data in the window. This application installed in a touch screen based Ultra Sound Scanner machine of Toshiba. User can draw overlays over the ultra sound image by getting the touch coordinates from the touch screen. This application enables users to transfer the acquired ultra sound images or DICOM files to different user machines either by using USB or by transferring files by network. These transferred files can be accessed by the doctors or other users of DICOM files who are authenticated by biometric process. For this biometric authentication, each user machine will be interfaced with third party security devices like Finger Print Readers or Smart Card Readers.

**Environment:** Windows, C, C++, VC++, MFC, Microsoft Visual Studio, OpenGL, Rational Rose, Microsoft Word, Debug View, Visual Assist, Kerberos, SAML, ADFS, Biometric Authentication and Beyond Compare.

**CO OPERATIVE SOCIETY BANK, India 01/2003 to12/2004**

**Software Engineer**

* Responsible for the development of banking related applications like Software for Bank Automation, software for Automatic Depositing Systems etc.
* Responsible for requirement analysis, Project Estimation, Scheduling, SRS preparation, Architectural and Detailed Design, Test case preparation, Development and Implementation
* Developed applications for Cash Collecting Machines and Cheque Deposing Machines for Kerala Co-Operative Society Bank.

**Project: Automatic Credit Application (Major Project)**

Developed and Implemented Bank Automation software for cooperative society banks. This application is installed in 160 machines in different places of a major state in India. Each machine is connected to an Oracle central server. The system enables the banking customers to deposit Cash/Cheque directly to the bank account by inserting Cash in different denominations to the cash accepting device or by inserting Cheque directly to the Cheque Deposing Machine connected to the system. The deposited amount will be automatically credited to the account and the depositor will get a transaction receipt right away.

**Environment:** Windows, C, C++, VC++, MFC, Microsoft Visual Studio, MS Access, Oracle, Embedded, Visual Source Safe and Singleton Design Pattern

**MAHANAGER TELECOM NIGAM LTD** **–India 11/1998 to 12/2002**

**Software Engineer**

* Responsible for the development of telecom related applications using C++, VC++, MFC, Microsoft Visual Studio, Oracle and MS Access
* Responsible for requirement analysis, Project Estimation, Scheduling, SRS preparation, Architectural and Detailed Design, Test case preparation, Development and Implementation
* Developed interface modules for the communication of kiosk with hardware/embedded devices like cash and coin accepting machines using serial port communication.

**Project: Payment Collection Terminal**

Developed and Implemented applications Payment Collection Terminal for the telecom bill payment collection. Payment Collection Terminal is a machine used for collecting telephone bill payments from the customers of telecom service provider. This machine will be installed in the service provider’s office and the user of the machine is the bill collecting officer. This machine contains a computer, a bar code scanner and a printer. Bar code scanner is used to read the bar code data in the telephone bill. The bar code data contains the consumer number, bill number and bill date etc. and using this consumer number the system will get bill details from the remote server machine. After getting bill details the system will display this details like bill number, bill amount, due date etc. in the screen. Then the operator can accept the bill amount from the customer and the payment details will be updated to the server machine. After bill payment, the customer will get a receipt against the bill payment. Interfaced different external devices like printer and bar code scanner with the system. The project consists of an FTP transfer module of transaction details to a server machine.

**Project: Multi-Function Kiosk**

Developed and Implemented Application Multi-Function Kiosk. It is a touch screen machine installed in the premise of telecom service provider. This is a kiosk machine with a computer, printer, Cash Accepting Machine and a Cheque Depositing Machine. Any customer can directly use this machine for getting his/her bill details and for making the telephone bill payment. The application installed in the machine contains different modules for viewing bill details, for making the payment, to update customer details and for getting previous transaction history. Users can directly make the payment by inserting cash in different denominations into the Cash/Coin Accepting Machine or by depositing Cheque in the Cheque Depositing Machine. After bill payment, the transaction amount will be updated to the server and user will get a payment receipt automatically from the kiosk.

**Environment:** Windows, C, C++, VC++, MFC, Microsoft Visual Studio, MS Access, Oracle, Visual Source Safe and Singleton Design Pattern