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Education:

(Aug 2007- DATE) KTH, Sweden

Master Program (Software Engineering of Distributed Systems)

(June 2001- Dec 2005) North South University

Bachelor of Sciences (Computer Science)

Professional Experience:

Company Name: ReliSource Technologies Ltd. www.reliresource.com

December 2005 – September 2007

Designation: Software Engineer

VfxEdit Tool - It is an editor to fine tune values to generate effects used in games. It is a tool specifically built for Electronic Arts Graphics people who will use this to generate game effects.

- As the effect criteria are changing on a very rapid pace the whole system is subject to change starting from GUI to dataset. This tool will be able to incorporate all those changes that might come in future.
- Primary responsibility was to design the system keeping in mind the future extensibility. Involved in developing the frame work for the project on top of which the project is built.

Technologies Used : C++, wxWidget API, Poseidon, Sharepoint

Smart Recovery - A complete backup system developed for the capturing states of Documentum.

- Worked on modules which performed data backup and data recovery. When dealing with huge amount of data had to constantly look for optimization techniques. Had to design components keeping in mind that when Documentum upgrades its features we have to add in the appropriate features for our backup system with minimum effort.
- Data replicator which makes a mirror copy of all the data which are backed up by the back up component.
- Incremental backup support.
- Connector component.

Technologies Used : Java SE, Documentum API, Mercury Quality Center, NetBeans 4.1, Poseidon, Sharepoint,MS SQL Server, Oracle, DB2

Recent Exciting projects:

- **A p2p file sharing based on mobility**

A peer to peer file sharing system based on a mobility search. Each node releases agents which move around the network to different peers, where it wakes up and searches in the server for the file or meta-data it wants. Each peer has different set of mobility agents with different searching capabilities. The concept of mobile agents searching around the network is incorporated as the file discovery mechanism in this p2p file sharing implementation.

Development Tools: Java Technology

- **Implementation of various Distributed algorithms**

The distributed concepts implemented are as follows:

- Perfect failure detector (PFD)
- Eventually perfect failure detector (EPFD)
- Best Effort Broadcast (BEB)
- Regular Reliable Broadcast (RB)
- Uniform Reliable Broadcast(URB)
- Probabilistic Broadcast(UB)
- Read Impose Write Consult
- Read Impose Write Consult Majority
- Fail Stop Atomic Register

- Fail Silent Atomic Register
- Abortable Consensus
- Paxos Eventual Consensus
- Split Stream Content Distribution

Development Tools: SicsSim and TBN simulator.

- **SIP Speaker**
Complete Implementation of SIP Protocol, to make a SIP Speaker. Along with also made a simple HTTP web server which provided a web interface to change text message to be played once some one called to the SIP Speaker. The text to speech was done by using open source TextToSpeech library.
Development Tools: Java Technology
- **Reliable UDP**
Made a RUDP API via which a reliable communication can be established. Under the hoods we use UDP to do all the communication but maintain session and all other states to provide reliable communication. Packet failures are retransmitted.
Development Tools: C programming language.
- **Mobile Web Service agents**
Made a simple protocol to publish and consume web services among the peers which are connected. The system was made to work in high churn conditions. A network layer was made for these peers to be able to communicate with each other.
Development Tools: Microsoft Visual Studio C++.

Startup projects:

- **Lossless Image Compression**
It is a lossless image compression technique. The compression technique uses a data structure called Peano Tree (P-Tree). This original P-tree is enhanced to a newer data structure called the Peano Pattern Mask Tree. The Compression technique gives a compression ratio of 1.48 on average. Have three published papers on this new this technique.
Development tools: Microsoft Visual C++
- **Obhijatri – A line following Robot**
The robot Obhijatri is a mechanical car which has a pair of CCD cameras acting as its eyes. Given a line it can follow it and avoid obstacles that come across. Areas of my involvement are:
 - 3D Simulation Environment for the Robot
 - Developed the "Mula" Algorithm based on which the robot behaves.
 - Vision System.
 - Mechanical Design and Implementation.**Development tools:** Microsoft Visual C++, OpenGL.
- **CrazyJokr – A web power point presentation tool**
A web tool which enables user to create and share presentations on the web. The tool has native format for saving presentations.
Development tools: PHP, JavaScript, HTML, XML, Macromedia Dreamweaver
- **Graph Wizard v0.9 – A graphing plotter tool**
It is a utility to generate graphs at all modes. It can plot graphs given the any equation as input. It is a replica software to the one used in Graphing calculators.
Development tools: Microsoft Visual C++

Published Papers

- Transformations on images stored in a Peano Mask Tree (PM Tree), **IEEE, INMIC Karachi Conference 2005**
- Improved Versions of lossless Image Compression using PPM-Tree, **ICCIT Conference 2005**
- Algorithm for shifting Images Stored in Peano Mask Trees, **ICCIT Conference 2005**

Miscellaneous:

- **Project Management tool** Microsoft Share point
- **Documentaion Tools:** Doxygen
- **Version Control Tools:** CVS, Visual Source-Safe, PerForce
- **Bug Tracking Tools:** BugZilla, Mercury Quality Center
- **Scripting Languages** PHP, JavaScript, Active Perl.
- **Languages:** English, Bengali, Urdu, Hindi