

Case Study for Ego-centric Citation Network

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Client Requirement

The client demanded a web application to analyze patent's

Identify the most important patents in a network

By utilizing the knowledge hidden in citation information

Patent citation network introduces a new approach to search patent databases

To Build and analyze technology landscapes





The Patent Citation Research Tool

Search patents more efficiently and faster

Quickly identify patent in your area of technology landscape

Identify patents that are most cited in the network

Build on integrations and intersections via Patent Dependency

Calculate relative measure of how much a patent cites

Compare patent portfolio strength





The Output is in The Form of:

A Citation Network Diagram.

Lists of patents ranked on the following:

PDNI (Patent Dependency on Network Index)

NDPI (Network Dependency on Patent Index)

ECCI (Ego-Centric Citation Index)

Radar plots of top 20 patents in each category (PDNI, NDPI and ECCI).



Project Challenges

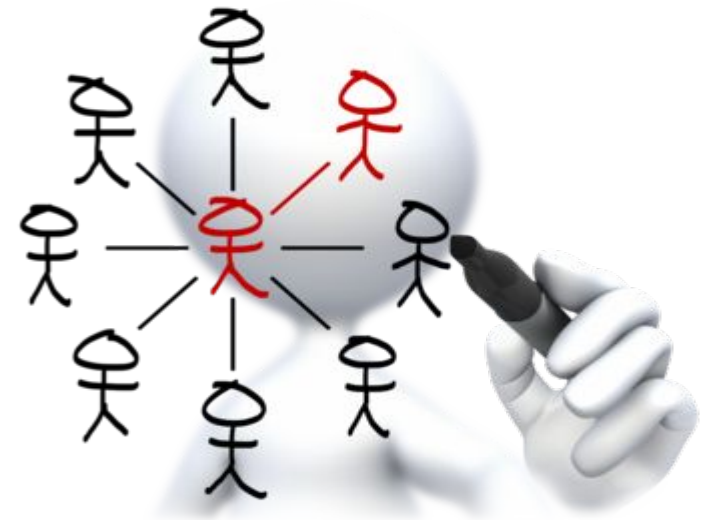
Extensive research and analysis

A comprehensive search required intensive search on both databases

CPU usage depends upon the number of visitors

The most important of all was to ensure data security

Incorporating web usability principles





Technologies Used

Operating System & Server Management

Red Hat Linux OS, Multi-Server Architecture with Staging & Production Environment through Version Controlling releases, Server Optimization, Security & SSL Implementation, Scheduler for Back-ups, Alert Monitoring System Integration, Server Performance Tuning at regular intervals, Software Firewall Configuration & Maintenance

Development Tools & Environments

PHP5+, Apache Web Server, AJAX, Java Script, HTML5, CSS3 etc.

Database

MYSQL Database Server, DB Clustering, DB Optimization, Master Slave Replication, Query Optimization, Scheduler for Backups



Manpower

Project Leader	1
Developers	2
Designers	2
Quality Assurance Testers	1



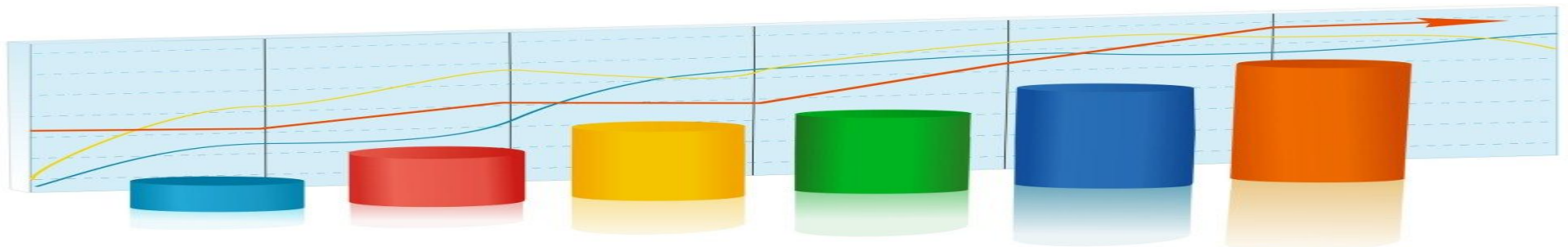
Planning

The Database layer containing MySQL Server Database, Tables and so on

The Data Access layer containing the Data Access Objects responsible for accessing data from the database.

The Business Logic layer consisting of all the business logic procedures for various modules

The User Interface layer which forms the Graphical User Interface of the website





Architecture

The patent citation research tool was built around PHP

It can be executed directly from the UI layer

PHP files consisted of all the business logics used

The database in an object-oriented context

An interface translating the object logic to the relational logic

data from multiple tables and were entirely avoided with conditional syntax

The UI layer was kept free of any business logic



Development Highlights

A Robust architecture to quickly analyze a patent's citation network

It enables the user to understand the technologies in vogue

Gives quick and efficient results for patent's citation network

Identify the most important patents in that network

Also shows how strong your portfolio is

Web usability guidelines were strictly followed

Extensive pre-development research was carried out

The site was developed and fully functional in a short span of time





Sources :

<http://www.brainvire.com/patent-citation-network-research-tool>



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