

Abstract

The Sri Lankan Genome Variation Database is a web based repository of Single Nucleotide Polymorphisms (SNP) present in major ethnic groups of Sri Lanka. This is hosted by the Human Genetics Unit of Faculty of Medicine, University of Colombo, Sri Lanka.

An upgrade of database software was planned to enhance the efficacy, usability and stability of the Sri Lankan Genome Variation Database by the means of upgrading the data model, introducing novel functionality and implementing stable web architecture.

Following an existing system study and requirement analysis, a Software Requirement Specification and a Data Mini World definition was prepared. Mini World definition was mapped into an Extended Entity Relationship model, which was finally mapped into a MySQL relational database. Based on the Software Requirement Specification, business components were modeled with Unified Modeling Language. Using this model software components were developed with the PHP 5.0 platform, based on the Model-View-Controller design architecture. Web application was deployed and tested on an Apache web server.

The major functional improvements were new multiple SNP search criteria, graphical SNP representation based on dbSNP (Short Variation Database, National Centre for Biotechnology Information, USA) graphical user interface architecture, including chromosome ideograms, representation of flank sequences and gene models. An online store-forward data submission process was also introduced to the database.

Data quality was improved with multiple new SNP feature annotations comprising of Clinical significance, Clinical sources, Molecular types, Variation Class, Functional class, Primary genome assembly mapping and Gene models.

Database can be accessed through the following Uniform Resource Locator (URL).

<http://www.hgucolombo.org/SLG>