NBQSA 2010

(NATIONAL BEST QUALITY SOFTWARE AWARDS 2010)

Application Form
FOR TERTIARY STUDENT PROJECTS CATEGORY

Any ICT project or Research conducted by a student or a group of students who are formally enrolled in an institution of higher-learning, such as college or university, excluding Masters and Doctorate programs.

GENERAL INFORMATION RELATED TO THE PROJECT

Name of University / Tertiary Institute	Sri Lanka Institute of Information Technology		
Address	Sri Lanka Institute of Information Technology. New Kandy Rd, Malabe.		
Degree (e.g. B.Sc. (CS))	BSc in Information Technology (Computer Systems &		
Course Unit (e.g. Individual Project)	Group Project		
Year of the Course Unit (e.g. 4th Year)	4th year		
Name of Department (e.g. Computer Sc.)	Computer Systems and Networking		
Department Telephone (General Line)	+94 112 413 900	**Fax**	+94 112 413 901
Website (if applicable)	www.sliit.lk		
Name of Head of Department	Dr. Malitha Wijesundara		
Email of Head of Department	malitha@sliit.lk		
Contact Person (preferred a student)	M.F.F. Faraj		
Telephone of Contact	0812476714	**Mobile of Contact**	0772383272
E-mail of Contact	farajfarook@gmail.com		
Alternate Contact Person	T.I. Senevirathna		
Telephone of Alt. Contact	0776308430	**Mobile of Alt. Contact**	
E-mail of Alt. Contact	thililuv447@gmail.com		

PROJECT INFORMATION

Name of the Project	Distributed Lecturing and Examination System (DLES)
Name(s) of Student(s)	M.F.F. Faraj / Y.L.A Weerasinghe / T.I. Senevirathna R.M.A.I.K. Amunugama / Udari Edirisooriya
Project Development Period (e.g. Jan-Jun 05)	January – August 2010
Name of the Supervisor(s)	Dr. Malitha Wijesundara

Project Description (Abstract/Summary) (Max 250 Words)

Brief description outlining what the project is. What problems /issues are addressed by the project. Target users. Technologies used. Features and functions.

The growth of the internet has turned the world into one global village. Geographical separation is not a hindrance for people around world to meet each other. Distributed networking concepts have become popular and people are advancing in the direction of social networking. Even though various social networking concepts exist, the Distributed Lecturing and Examination System (DLES) is built on the educational purposes.

The core objective of this project is to inspire students a new perception of a learning culture which is more convenient to them in engaging day to day learning activities without facing any hazard involved in learning by travelling to a certain destination, wasting time and travel cost which are involved in current educational system.

In this project we hope to accomplish this target by creating a web based application which enables users to easily login to the site and get all the required services. Once the DLES is created, from the lecturer's point of view they can conduct a lecture easily from anywhere in the world by distributing the live video stream of the lecture among the students. All the students who are allocated to that particular class can watch that lecture and they can view any shared lecture material as lecture presentations, documents etc., at the same time as well. In this system both the lecturer and the student can see the other participants in their virtual class room. Due to this effective feature, this system can be used for video conferencing by group of people too. As we are using the concept of educational networking, you can enjoy all the features available in a social networking web site but only for the educational purposes. Students may ask questions from the lecturer and they can also discuss them with their friends in the classroom too.

Uniqueness (Max 350 Words**)**

Technologies deployed to develop the product. Specific problems solved by the product in the Sri Lankan environment. Innovative functions and features in the product. Similar products in the local, Asia Pacific & international markets. Sri Lankan content in the product.

The main unique feature of the system is live video conferencing. The class will be referred as "Smart Class" and will include lecturer and all the students. Each person can see and interact with each other.

Another unique feature of this system is its own whiteboard system which enables the lecturer to use his computer terminal as a writing surface. All the students can see the content and it will be updated at the same time.

This system is also capable of providing e-safe, more reliable examination system which can randomly select questions from a pool of questions and generate exams as required by the lecturer. In order to provide high security to the system, lot of modern tools and techniques like sequentially monitor capturing methods will be in use.

All the lecture materials can be shared during the lecture using the public share area in the classroom. These materials will automatically be published in the course web after the class.

Lecture slide preview is one of the newest ideas in DLES . Non of the existing virtual class environments provide the lecture slide preview option. Lecture slides will be controlled by the lecturer at one end and the preview will be video at the student end.

All the classroom session videos including whiteboard and the slide previewing will be recorded and stored in the DLES storage.

DLES is a single user friendly web based module with all the mentioned online education features built together

Features (Max 350 Words**)**

Targeted users of the product. Features/functions in the product that address targeted users. Scalability and expandability of the product. Features/functions in the product that empower users to accomplish their tasks easily (user friendliness). Compatibility and interoperability with the other systems in the market. Security features in the product. Features/functions in the product that address/ relate to product maintenance.

Targeted users of the product

We have concentrated mainly on lecturers and students who tend to distribute lectures and held examinations online. And also the professionals and organizations can use this product for have their online conferences.

Features/functions in the product

•Real time split screen user videos: A lecturer can view the students who are participating in the class while the student can view his/her classmates and the lecturer.

•Real time interactive whiteboard: A software whiteboard is integrated in the system so that lecturer may use it to demonstrate the lecture and students may also use a separate whiteboard to clarify his/her doubts during the lecture.

•Real time lecture slide previewing: If lecturer is using power point presentations to support his lecture, this facility can be used where the students can preview the same slide as the lecturer is discussing.

•Real time student collaboration: Students can chat with each other during a class session. Students are also free to use this facility for clarify their doubts as well.

•Classroom integrated course web: Each class can also have a course web where the lecturer can publish the course materials he/she has used.

•Recording and storing classroom session videos: If a student is unable to attend to a class, this facility will be quite helpful since the entire class session is stored and access via the class course web.

•Secure examination system: Lecturer can held multiple choice question/structured questions exams by uploading a question set to the system. A paper with random questions will be generated for the students and MCQ paper will be marked by the system but the structured paper is send to the lecturer to be mark inbuilt in this educational network.

Quality /Application of Technology (Max 350 Words)

Latest technologies deployed in product development. Standards adopted/maintained (CMM/ISO etc) in product development. QA in product development. Measures adopted to comply with target usage requirements. Awards won locally, regionally and internationally by the product (if applicable). Stability and reliability of product (from end user feedback). Description of external packaging of the product. Documentation available for the product.

The product DLES is created using PHP backend with web services and multimedia backend by RED5 services. The open source Red5 server is used as the multimedia and remote application invoking protocol server in the project DLES. Whereas the HTTP and PHP are used to present the frontend and to make the application logic work.

DLES is a stable social networking application which includes the features to enhance the aspect of the educational items.

The Examination system is made reliable by keeping online monitoring and authentication. Online monitoring includes: online camera capturing and online desktop capturing.

The class is made easy to conduct actual lectures virtually. The online streaming of lecturer's voice and video and the same aspect from students point of view has made the interaction quite natural as in class like environment.

The final package consists of PHP web deployable extend and the red5 server.

Proof of Concept (Max 350 Words)

Envisaged commercial potential of the product. Envisaged market share of the product. Pilot users (if any). Envisaged demand in the local, regional and international markets. Publications / articles/write-ups on the product (if any).*The Patent(s) on the product (if any).Pilot Trial(s) of the product (if any).*

Distributed Lecturing and Examination System targets a worldwide market. Although it would be implemented mainly to aid the concept of "Virtual Classrooms", it would be utilized for almost any type of video conferencing scenarios. It would also facilitate business industries and social networking. This would be the next generation of social networking. Video, voice and data will all be converged within one network and the users would feel the proximity to each other during video sessions.

Our main audience will be students and lecturers and the goal of conducting classes online would be focussed initially. But with the social networking concepts such as adding friends and creating groups would certainly open up the product for a wider audience. It would be businessmen conducting online conferences sharing materials in real time. Or it would be a group of friends having online conference to chat with each other.

We plan to start marketing our product as a teaching tool initially within our university students and lecturers and grow gradually inside the Sri Lankan market. Our main aim is to develop this Lecturing and secure Examination System into worldwide product that would be used instead of physical classes.

There is no web based, all-in-one teaching product developed so far. This would be the first web based, free online video lecturing and examination system that would be implemented and we are planning to do the pilot hosting in the end of August 2010 and have the first online lecturing video session.

With concepts of adding friends, maintaining profiles, creating and subscribing to classes, video/voice lecturing, online interactive whiteboard, doubt raising, online chatting, real time material sharing, course web, session recording, lecturer screen capturing and the examination system, this would attract the crowd around the globe immediately as it would be free of charge and web based so that it could be accessed from anywhere in the world.

Declaration of use of code/components not owned by you. *(Max 250 Words) You need to clearly indicate whether any Code / Components used in your Product are not owned by you and if so, whether they are available in the Public Domain or Intellectual Property of a Third Party(authorization to use such property should be submitted with this application).*

We have used Code Igniters, the open source PHP framework to implement our application. The Red5 server which is also an open source media server, used to deploy the media applications. The other implementations along with the templates were coded by the team members with the help of sample java scripts and other codes which we fetched in forums and www.ajax.org

Open source IDEs like netbeans, Eclipes and FlashDevelop are used to design and implement the application.

……

I/We certify that the product submitted for the competition is owned by me/us and mainly designed and developed in Sri Lanka and the percentage of the Sri Lankan components in the product is more than 51% of the total product. Further I/we certify that the Information provided in this application is True & Correct to my/our knowledge and if found otherwise, accept any penalty and/or stripping of any awards won by the product as per the guidelines adopted by NBQSA Organising Committee.

Name of the Head of Dept. **Signature & Official Seal** **Date**

Name of Contact Person **Signature** **Date**

Completed application form should be submitted to the

National Best Quality Software Awards,
C/O BCS Secretariat,
51, Marcus Fernando Mawatha,
Colombo 07,Sri Lanka.

and a copy of the application emailed to applications@nbqsasrilanka.org **OR** bcs@infotel.lk with the subject "**NBQSA 2010 – Tertiary Student Project Category**".