SOFTWARE MEET 2008
"FIESTA OF FREEDOM"

Kathmandu University Computer Club

Kathmandu University

Dhulikhel, Kavre

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Final List

Event: **KUCC Software Meet 2008**

Date: **7th and 9th March 2008**

Venue: **Kathmandu University**

Organizer: **Kathmandu University Computer Club (KUCC)**

Organizing Committee

Mr. Akash Deep Shakya, Event Coordinator, KUCC

Event Management Team

Board Member, KUCC

Public Relation Team and Publicity: Mr. Akash Deep Shakya, Ms Khusboo Shah and Mr Anuj Bhandari

Documentation Team: Mr Akash Deep Shakya

Dorm Management Team: Mr Sajjan Dahal and Mr Pravesh Shrestha

Finance Team: Mr Pravesh Shrestha

Design and Development Team: Mr. Anupam Wagle, Mr Anuj Bhandari and Mr Akash Deep Shakya

Material Team: Ms Manish Shrestha and Mr Anupam Wagle

Kathmandu University Computer Club is non profit, independent Club organized by students of Department of Computer Science and Engineering at Kathmandu University. Celebrating ten glorious years of success in the field of Information and Communication technology, KUCC is grandly presenting KUCC Software meet 2008.

PROGRAMS

1. Inter College Undergraduate Project Competition.
2. Inter College Undergraduate Paper Presentation

INTER-UNIVERSITY UNDERGRADUATE PROJECT COMPETITION

The event is targeted towards the young and aspiring developers in the field of Information and Communication Technology. With the aim of sharing experiences, learning from the professionals, promoting and diversifying knowledge.

Participants: Information and Communication Technology Colleges of Nepal

Maximum Number of Project per College: 4

PROJECTS CRITERIA

1. Eligibility: Contestants must be undergraduate student from ICT colleges of Nepal.
2. Software Eligibility: Software developed should be
    a. Computer based
    b. Embedded systems
3. Project Submission: An executable project should be submitted along with following things.
    a. Executable project.
    b. Complete Documentation of project.
    c. Source code stating in certain licensing condition.
    d. Designs for poster of project.

COMPETITION (ROUND I, ABSTRACTS)

A panel of three independent judges from software Companies will carefully review anonymous abstracts. Based on the rankings provided by the three judges,18-20 finalists will be selected for the oral presentation in round II. Round I decision will be made and announced by 18:00 Monday 3rd March.

COMPETITION (ROUND II, PRESENTATIONS)

Teams that advance to round II must present their project in front of the panel of judges from all sponsors on Friday March 7th from 11:00 to 16:00 pm in Kathmandu university. The presentations should take no more than 10 minutes each.

ORAL PRESENTATION DATE AND VENUE

Friday, March 7th from 10:00 to 16:30 pm in Kathmandu University.

AWARDS

First Price: Rs. 15 000 (Nepalese Rupees fifteen thousand only.)

Second Price: Rs. 10 000 (Nepalese Rupees ten thousand only.)

Third Price: Rs. 5 000 (Nepalese Rupees five thousand only.)

NOTE:

1. Project Submission: An executable project should be submitted along with following things.
    a. Executable project.
    b. Complete Documentation of project.
    c. Source code stating in certain licensing condition.
    d. Designs for poster of project.

2. Kathmandu University will provide only P4 (more than 2.0 Ghz, 512 Mb ram) system with keyboard and mouse on hardware side. All the system will have MS Windows XP, so if any other OS required please contact as soon as possible.

3. Participants should carry backup IDE, FrameWorks and required software suites themselves.

4. Participants should be in Kathmandu university on 7th march 2008 by 8:30 nepali time, and configure their require system themselves, 1(one) bus from South Gate of BICC, new baneshwor will be provided by Kathmandu university

5. Doe more details: Akash Deep Shakya(9841332087) or pravesh shrestha (9841515732)

PROJECTS

KATHMANDU UNIVERSITY

PROJECT: NEPALI HANDWRITING RECOGNITION SOFTWARE

Participants: Sudeep K.C. and Suhrit Rimal

Abstract:

NHRS is prototype Nepali handwriting recognition software developed by the student from KU as a part of our academic project. This is a stroke dependent online recognition system. It uses elastic matching algorithm for stroke matching. C++ is used as development language. This prototype is built on Windows Platform using Microsoft Visual C++ development tools. Along with recognition system, a training module is built to assist the users to train the system with their writing style.

**Still 3 project are selected from Kathmandu University but the judges were unable to send us the abstract due to electricity problem. We will upload the updates in http://ku.edu.np/~kucc

PULCHOWK CAMPUS

PROJECT: ISNAKE – INTELLIGENT MULTIPLAYER SNAKE

Participants: Abhishek Dutta, Jitendra Harlalka and Suraj Sapkota

Abstract:

Snake game is quite popular among mobile phone users. This project aims to explore some new dimensions in snake game while retaining the fun and simplicity associated with traditional snake games. iSnake includes multiplayer functionality and computer controlled intelligent snakes that will challenge the human players. These two features of iSnake makes it a very absorbing game.

Multiplayer feature of iSnake allows multiple players connected via network to play a game. This makes the game more interesting and introduces the sense of real competition among the players.

Computer controlled intelligent snakes, whose aim is to eat the food before the other players, appear in the game field. Two path finding algorithms viz: Blackmamba and Viper have been developed to embed intelligence into these snakes. Profiling of these two algorithms suggested that Viper implementation is more efficient in path computation procedure. The feature of computer controlled snakes has not been spotted in any variants of Snake game and is hence unique feature of iSnake.

We have also developed iSnake Game Server Manager (iSnakeGSM) that is used to manage information about all the iSnake Game servers hosted on the Internet. It acts as a central repository of the active game servers that can be joined by any remote player.

iSnake project has been registered at sourceforge (SF) which provided most of the project management resources used by iSnake team members. Subversion repository provided by SF was used to manage the source code for iSnake. Collaboration on project documents (including prototype designs, project plan, TODO list, etc) was done using WIKI provided by SF. JUnit tests were developed to independently test some of the modules before their integration in the main development tree.

Almost every portion of the source code contains full code documentation conforming to Javadoc standards. The two path finding algorithms that implements intelligent opponent in the game has been fully documented with illustrations. The protocol devised for communication between game server and clients has also been well documented.

Online gaming is a booming industry. As iSnake has been deployed using Java Web Start technology it can be easily used by commercial gaming portals like Zapak.com. Moreover, if ported to Mobile phone platform, it can be deployed as revenue generating (as the client applications would use connectivity services like GPRS, CDMA, etc) add on service by mobile phone operators.

PROJECT: MOBILE DESKTOP "OPERATE COMPUTER VIA MOBILE PHONES"

Participants: Anjan Nepal, Manish Modi

Abstract:

Few may disagree that mobile is the only gadget which people carry round the clock. Besides chatting, mobiles can operate a remote computer. This is possible by Mobile Desktop, in which the computer screen is seen in the mobile screen and user can perform keyboard and mouse actions from the mobile.

Using mobile as 'remote control' is the benefit that underlies project's objective. By this technique, you can access your computer from wherever you are saving your time to be in the computer. A case in point is when presenting your lecture slides in the class; you can scroll your slides via your mobile and helps you to avoid hasty preparation to rush for computer's input devices. Also, you can crosscheck your children's activities like playing games, without their notice. Moreover, you can enter the commands in the mobile and run it in the remote computer's console.

The software is developed with the aid of state of art technologies. Firstly, Java is used as programming language, with J2SE used in the server side and J2ME in the client side. Secondly, Bluetooth is used as communication medium, which covers a short range. However, GPRS is also in use which is costlier and covers wide range than Bluetooth. Thirdly, Linux and Windows XP SP2 are used as platforms for running the server and Java enabled mobile phones for running the client. Finally, MD5 encryption has fortified the security system as the login information is stored using this and only authorized mobile users can connect to the server.

Hence, mobile can operate computer without the aid of its input devices. This enables the remote accessibility of the computer and makes obsolete the necessity of being physically present in front of it. Mobile Desktop serves for this purpose.

KATHMANDU ENGINEERING COLLEGE

*** All 4 project submitted by KEC have been selected for the competition. Due to electricity problem judges were unable to mail us the final abstract. The project entitled are listed below.

PROJECT: SMS MOVIE TICKET RESERVATION

Participants: Suman Shrestha and Dinesh Kusma

PROJECT: NATIONAL IDENTIFICATION SYSTEM

Participants: Rajan Maharjan and Hari Prasad Pokhrel

PROJECT: TELEMEDICINE

Participants: Sudaya Maharjan, Tejendra Shrestha and Tri Narayan maharjan

PROJECT: REMOTE LIVE PRESENTATION

Participants: Randeep Raj pant, Safal Man Joshi and Sabin Dangol.

APEX COLLEGE

PROJECT: CHOOSE YOUR FASHION

Participants: **Amit Raj Sapkota, Bijay K. Barakoti, Ruchee Bansal and Suraj Lamichhane**

Abstract:

The Project **"Choose Your Fashion (CYF)"** is a 3-tier web based simple and user friendly fashion interface system where a normal user can choose, try and purchase clothes online. There are three levels of users who interact in this system:

- Administrator (who controls the system)
- Client (who sells the products) and
- Normal User (who try/buy clothes).

The tools and technologies used in CYF are:

- PHP and AJAX (for front-end)
- MySQL (V 5.22a) (for back-end)
- Dreamweaver
- Photoshop

The working of CYF is simple for users who try/buy clothes online. All he/she needs to do is:

- Select a client who sells their desired product from the list of available clients who are members of CYF.
- Choose Top or Bottom from a drop down menu.
- Select the desired cloth from the thumbnail images from the online CYF database.
- Check the details of the selected product like price, id, material, colors, availability etc.
- Finally purchase the desired products after reviewing.

This Project is no doubt a demanded one in the market in current context. Online Purchase/Sale is an emerging technology these days. CYF provides the latest features, which are demanded by fashion houses and other sellers.

PROJECT: SMS THROUGH PSTN LINE

Participants: **Dhananjaya Mandal, Ganesh Raj Gautam, Manoj Poudel and Saujan Giri**

Abstract:

The project "**SMS through PSTN line**" is designed to send the SMS from one PSTN line to the other over any area. It helps in enhancing the limited voice service offered by Nepal Telecom. A little addition of hardware can offer an automated system for selecting between voice and text communication. The mode of transmission of data in PSTN is through the DTMF tones. Here, each of the key of the num-pad of the telephone can be assigned up to 5 alphanumeric characters. One is the number itself and rest are the alphabets as per the symbol in the num-pad of the telephone. The characters can be selected on the basis of hits on the num-pad in the short span of time the procedure of typing text is similar to typing a text message on a mobile phone. The project includes devices like LCD displays, microcontroller, DTMF decoder, 555 timer, op-amps, transistors, diodes, relays etc. The operation of the system is fully dependant upon the interfacing of these devices and the programming of the microcontroller. The operation of the system is as follows:

- Press the mode selection push button to enter in the SMS mode. The message 'SMS' will be displayed on the LCD screen.
- Start typing the message by pressing the keypad of the telephone set.
- When the message is written again press the mode selection push button to enter in normal phone mode. The message 'NRM' will be displayed on the LCD screen.
- Start dialing the receiver's telephone number.
- After certain number of rings the receiver phone set gets hooked off and the message is sent by pressing hash (#) button of the keypad of the telephone set.

The features of the system are

- The sent as well as received message can be retrieved for later viewing.
- The number of rings to hook off the telephone can be selected by the user.

PROJECT: SOFTWARE DEVELOPMENT AND MANAGEMENT COLLABORATION SYSTEM (TEAMCO)

Participants: **Chin Bd. K.C., Sangam Uprety, Sarita Regmi and Sudhir Pandey**

Abstract:

The **Software Development and Management Collaboration System (TeamCo)** is a web based software application. The **TeamCo** provides a strong management system to manage, monitor and control overall software development process undergoing in an organization. Whatever be the size and structure, organizations can use this system for best software development practices.

The system provides necessary functionalities and features to create new project with budgeting, timeline and other information and assign the project to the developers. Bugs can be reported and users can be assigned to fix it. Project can be divided in a number of tasks and one or more users can be assigned to each task. Developers can log the jobs they have done. Customers can view their projects and even report bugs. They can request for changes in their requirement and mangers can review and accept it if necessary. The system provides extensive reporting so that all necessary statistics can be accumulated and saved or exported in various document formats. The best part of the system is to provide effective real time communication between all parties concerned including mangers, developers and customers. The AJAX Chat has been integrated into the system which provides chat within different chat rooms along with file transferring facility. Users of the system can view the messages and even post to the message board. One message board has been included per project so that communication becomes easier. Users can also send messages to individuals using personal messaging feature. As an important part, the system provides discussion facility using white board. Besides all these communication features, users can report any programming and non-programming issues using issue tracking feature. Administrators and managers can view the issues posted and take corresponding actions.

The system has been developed in .NET using Visual Studio 2005. We have used ASP.NET 2.0, AJAX 1.0 and Crystal Report to develop the system. We have used MS SQL Server 2005 for database creation and manipulation. All in all, the system provides a very useful framework for software developing organizations.

KANTIPUR ENGINEERING COLLEGE

PROJECT: **KECMIS**

Participants: **Chhabi Pachabhaiya, Kabin Tamrakar and Krishna Prasad Tripathee**

Abstract:

The objective of the development of KECMIS is to suppress the current difficulties arising in the manual Management Information System of the college. KECMIS an acronym for Kantipur Engineering College Management Information System which we are introducing is especially dedicated for Exam Section. This complex module of Exam Section has much potential. It helps in total management of Exam Section and works very conveniently. It facilitates the valid user with the capabilities of useful information insertion, retrieval and to carry out the important analysis. The facilities for the valid users are student information viewing, course creation and offering, viewing of syllabus of particular batch. It also facilitates in entering internal and final exam marks of the student and generates mark sheets in the prescribed format and editing is also available for making it more user-friendly. It also analyses the mark sheet and hence it is helpful in displaying useful information like names and scores of passed/failed students, students securing distinction and other management oriented reports. Final exam form record is another feature of the project. Even the individual student performance can be viewed easily whenever required and many more. It helps in handling the Management Information System of Exam Section completely and is tailored on the basis of the requirement of the Exam Section of Kantipur Engineering College. Hence the KECMIS is a real time project based on the complex module of the Exam Section of the college which is in use in the College.

For this project, PHP is used as the front end MSSQL Server is used as the backend. Proper validation is done using JavaScript and even AJAX is used.

PROJECT: **E-EDUCATION**

Participants: **Jeny Amatya, Prakash Bajracharya, Rasma Dangol, Samrat Bhattachan and Satya Ram Twanabasu**

Abstract:

There is an increasing trend to utilize the Internet and the World Wide Web for delivering government services and information to the citizens. This has led to the concept of e-governance. e-government refers to the use of information technologies by government agencies that have the ability to transform the relations with citizens, businesses and other arms of government. e-education falls under one of the twenty-two priority projects of the e-government. It lies in the G2G and G2C category. This project is built as a pilot project of the e-government project.

The term “e-Education” refers to computer enhanced learning. It is a field of education that focuses on the technology and instructional system design that is effectively incorporated in delivering education to the students are not physically “on site” to receive their education. The field of education has not remained untouched from the dramatic evolution of internet. All the components except the teacher and the student are dependent on technology and have evolved over the development of civilization. With the evolution of internet and proliferation of computing devices, the teaching tools are going to change but the basic essence is going to be the same.

This project is a learning content management system i.e. LCMS which combines the learner administration capabilities of learning management system with the content creation and storage capabilities of a content management system. It consists of the features such as authoring capability, course management, assessment, discussion forums, assignments, grade book, learning and content delivery and report and performance. This application has four levels of users: administrator, teacher, student and anonymous user.

This project is based on .NET platform. It uses ASP.NET 2.0 with C# as programming language. It also uses AJAX Toolkit 1.0 and Cascading Style Sheet (CSS). It uses Microsoft SQL Server 2000 as its database server. To run this project, the computer needs to have at least 256MB of RAM and Windows XP Service Pack 2 since it needs to have Microsoft Visual Studio 2005.

This project can implemented as an effective teaching tool and can be used for effective communication between teacher and student who are geographically apart. It is an attempt to modernize the traditional way of teaching.

KATHMANDU COLLEGE OF MANAGEMENT

*One project have been selected from KCM, but are unable to receive abstract from judges.

NATIONAL COLLEGE OF INFORMATION AND TECHNOLOGY

PROJECT: **LEARN WHILE YOU PLAY**

Abstract:

It is a **.**Net based project for primary school students to gain basic mathematical knowledge using Abacus.

This project is made fro a private institution and hence is a closed source software. Its open source alternative is expected to be used in the OLPC project as it is a ***"Learn while you play"*** type of project .

The look and feel project is so interesting that students would like to use it more and more and hence gain knowledge about basic mathematical skills.

PROJECT: AUTONOMOUS CAR PARKING SYSTEM

Participants: Sarita Koirala, Shamjhana Pokhrel and Trilochan Bhandari

Abstract:
Due to civilization of the Kathmandu city , parking system has become a major problem. Today ,the parking for vehicle in apartments,malls,offices is handled manually which has created lots of problem.So for the replacement of this system we have designed an autonomous car parking system .In this project, we used IR Transmitter/Receiver for sensing vehicles and 8051 microcontroller for programming and controlling and LCD for display.

ADVANCED ENGINEERING COLLEGE

PROJECT: EBANSAWALI

Participants: Badri Adhikari, Sharad Subedi, Subash Niroula and Susma Pant

Abstract:

This report is about an informational web application called eBansawali. Bansawali is a Nepali term for ancestry and eBansawali stands for electronic-Bansawali. eBansawali is all about maintaining and exploring ancestor tree and family hierarchy online. The proposed application will be made public for use by general public.

An ancestor tree has a common ancestry name and password that the ancestry creator creates at the time of creating the ancestry. Members of an ancestor tree share the ancestry name and password to view the details of the relatives. Members also have their individual user name and password with which they can directly add persons adjacent to the persons they created. Persons can explore trees of non-relatives also but the amount of details displayed is limited.

The system receives an input (search keyword) from users along with the filter options. Filters help in deciding the size and type of the tree to be displayed. A database holds the information related to each individual and his/her relatives. A software engine, part of the web application queries and retrieves relevant contents. Another major component of the system prepares a 'tree view' and sends appropriate HTML content to the clients' browser.

eBansawali is a well organized web application that would be able to control, manage the different types of user access and maintain privilege while keeping records of user information by creating different ancestries. This system was proposed for D2Hawkeye Services as it would facilitate all users who want to keep track of their own ancestry as a social work.

The system development was divided into a number of different modules. Our development was broken into the following modules

1. Model
2. View
3. Controller

PROJECT: FACE DETECTION USING SKIN COLOR AND NEURAL NETWORK

Participants: Lalit Gurung, Niraj Nepal and Prafulla nath Dawadi

Abstract:

Face Detection is a challenging computer vision problem. Given a still image or an image sequence, the goal of face detection is to locate all regions that contain a face regardless of any transformation and lighting condition. There are two main categories that may serve as a solution for this problem: feature-based and image based approaches. In this report, we have used an image-based and learning oriented solution. It assumes to represent any function using arbitrary decision surfaces by utilizing nonlinear activation functions. Further, we have also studied and implemented skin color segmentation algorithm in color image to find various skin regions in an image, which is one of the feature based technique in face detection too. We have chosen YCbCr color space because it is robust to different illumination condition. Similarly, we have also tried to locate and detect different facial features. We have paid attention to eye because in facial feature extraction system eye detection is taken as a reference. We have used a feature based approach that uses human face model constructed from relative geometric relation among facial organs on a face for this purpose.

PROJECT: SCAN3D STUDIO

Participants: Arbind Kumar Karna and Biraj Man Shakya

Abstract: Three-dimensional scanning has been widely used for many years for reverse engineering and part inspection. The primary advantage of laser scanning is that the process is non-contact, fast and results in coordinate locations that lie directly on the surface of the scanned object. Accurate 3D acquisition plays an important role in rapid prototyping, architectural design, cultural heritage acquisition, or entertainment industry. Scan3D Studio implements triangulation scanner which utilizes the projection of a laser line on the surface of the object to extract its surface contours. The complete system is based on analyzing the projection of a laser line in a sequence of captured images of an object rotating on a turntable. The camera captures a video of the scan and simultaneously extracts a key frame at each rotation of the object during first scan. During second scan the webcam captures the color of object which is used in providing texture to the modeled object. The laser line in the captured frame is detected using the threshold value which after further sampling provides the 3D view port coordinates. The coordinates are plotted as a point cloud which is helpful in creating the wireframe of the object using optimal algorithm removing the redundant points. With the help of wireframe and the color of the image captured during second scan we provide the texture to model which appears same as the real object. The project is developed using C#.Net and the 3D coordinates calculated are stored in the standard file format .3ds, .dxf and .obj which are suitable for various 3D analyzing tools link 3D Studio, 3D Studio Max and AUTOCAD. The .obj file format is useful in representing the 3D model of object in the websites for virtual online modeling of the object.

KANTIPUR CITY COLLEGE

PROJECT: EXTENDED ELECTRONIC PBX SYSTEM (EEPBX)

Participants: Yugdhara Oli, Ajay Shrestha, Amrit Man Shrestha and Pranav Jung Rana.

Abstract:

Nowadays development of devices incorporating embedded system is fast growing. It includes such devices which are used for performing a particular function. We have tried to build a system using microcontroller, which is a single chip, self-contained computer that incorporates the basic functions required on the system.

Telephone system is such a system which is used extensively in the field of communication. It is one of the cheapest means of communication which is also easier to implement.

Knowing the use of embedded system in current scenario of information technology, we have tried to present based on embedded system. Our project is titled “Extended Electronic PBX System (EEPBX)” which is based on telephone system and designates the received call and notifies the correct recipient.

This system has following features

- Microcontroller is the heart of the project
- Assembly Language is used for programming the micro controller
- It is suitable for single telephone extension line.
- It is an extension of current PBX system

The main components of our system are:

- 89C51 Microcontroller
- DTMF Decoder
- APR9600 (Voice IC)
- MOSFET etc.

PROJECT: CLINIC MANAGEMENT SYSTEM

Participants: **Sagar Bhandari, Rekha Adhikari, Prabash Chamling and Sagun Ratna**

Abstract:

The project entitled "Clinic Management System" is a basically an application for the clinic that manages the jobs in the clinic like patient admission, preparing prescription, follow-up management, lab report preparation etc.The application has 4 user levels (doctor, nurse, pathologist, admin).Each user have their separate UI wherethey perform the task like patient admission, prescription preparation etc. As an entry point the login form accepts the user credentials and authenticates them and redirects them to the respective pages. This application contains a chatting and forum module where different users can

post the problems and interact with that. The chatting module lets them communicate with each other for instant problem solving.

One important feature this project holds is the localization. This page can be viewed in both Nepali as well as in English language. After all this application can be a good platform for management of the Clinic in almost 100% efficient way.

UNDERGRADUATE PAPER PRESENTATION CONTEST

INTRODUCTION

The purpose of the Undergraduate Paper Presentation Contest is to encourage undergraduates to gain experience in the presentation of papers and to give them an opportunity to participate in front of industrial professionals. Through such participation, the student should gain an early and fuller appreciation of:

a) The importance of adequate communications in the distribution of information, and

b) The importance of Oratory in real life industrial scenario.

RULES AND REGULATION

1. Eligibility
   Contestants must be undergraduate student from ICT colleges in Nepal. Students who have completed one quarter or semester of undergraduate studies are not eligible. Only one contestant per institution can present their paper.
2. Subject of Presentation
   Choice of subject matter is open to the student but should be relevant to issues of our industry today and of general interest to all. We will disqualify any paper that does not fit a category.
3. Place and Conditions of Presentation
   The contestants will make an oral presentation of a prepared paper on 9th March 2008 at 10:00 to 14:30 in Kathmandu University.
4. The paper is expected to be the student's own work.
5. The Limit of Presentation
   The oral presentation should be 10 to 12 minutes long. The judges may make 2-point deductions for each minute or fraction of a minute, above or below the time limit. There will be up to a 3-minute period for the judges to ask questions.
6. Use of Visual Aids
   Contestants may use prepared charts, and/or slides.
7. Evaluation of Presentation
   Three judges from software industries in Nepal will evaluate the presentation. Each judge will evaluate each presentation individually using the officially accepted undergraduate paper presentation contest scorecard. The judges' decision will be final.

AWARDS

Winner: Rs. 2500 + Book sponsored by A.K. Books.

Consolation: Books sponsored by A.K. Books

PAPERS

KATHMANDU UNIVERSITY

PAPER: GRID COMPUTING AND ITS PROSPECT IN NEPAL

Presenter: Akash Deep Shakya

Abstract:

This paper visualizes the prospect of highly advanced grid computing technology in Nepal. Using examples such as SETI@HOME, CERN, BOINC, it explains why Nepal should shift gear towards such technology and how it can achieve the goal . However, it does not explain the organization and architecture of grids to solve high computational problems. Lastly, it includes my personal experiences of working in my minor project "Linux Cluster" and my observations through those experiences.

PAPER: DIGITAL SIGNATURE

Presenter: Mr. Prajowal Manandhar

Abstract:

*A **digital signature** is a type of asymmetric cryptography used to simulate the security properties of a handwritten signature on paper. Digital signature schemes normally give two algorithms, one for signing which involves the user's secret or private key, and one for verifying signatures which involves the user's public key. The output of the signature process is called the "digital signature."*

*Still 1 more paper have been selected by panel of judges, but the judges were unable to mail us the abstract due to electricity problem.

KATHMANDU ENGINEERING COLLEGE

PAPER: FEASIBILITY OF TELEMEDICINE IN NEPAL

Presenter: Sudaya Maharjan

Abstract:

In Nepal, there is acute shortage of doctors. The people and doctor ration is approximately 6000 : 1. The majority of allopathic doctors are staying in capital and other major cities. Health worker in rural health care, who serve most of the population, are isolated from specialist support and up to date information. The advents of ICT's have unleashed new opportunities to the delivery of health services.

Telemedicine is a rapidly developing application of clinical medicine where medical information is transferred via telephone, the Internet or other networks for the purpose of consulting and sometimes remote medical procedures or examinations. Telemedicine may in fact have a more profound impact on developing countries than on developed countries. As we learn more about distance medicine, we will also learn more about the diversity of disease, healthcare systems, and outcome expectations in Nepal. An economical solution to support health care in remote area is email, based on store and forward principle.

Telemedicine is useful as a communication tool between a general practitioner and a specialist available at a remote location. This system will on the one hand enable health workers to communicate more regularly with their line manager, help them to feel more confident and improve their clinical practice. On the other hand, this new line of communication will also allow better supervision and monitoring of health worker on post, increasing their accountability.

The remotely located health centre and centrally located hospital can be connected implementing Wi-Fi network. Wi-Fi allows LANs to be deployed without cabling for client devices, typically reducing the costs of network deployment and expansion. Spaces where cables cannot be run, such outdoor areas and historical building, can host wireless LANs. In context of geographical structure of Nepal Wi-Fi is more suitable than wired network.

The various telemedicine activities relating to care and education should be defined in order to respond to real needs as indentified by health professionals. In each case, according to the available technology, alternative activities should be defined in order to assist with the identified needs. It is important that telemedicine be viewed as an improvement to basic health services. In Nepal, Connectivity and training remain the biggest challenges for implementation of telemedicine centers. It is important that local health care workers take a lead in developing and operating telemedicine projects. Initiatives to train healthcare workers in the use of ICTs are also essential.

KANTIPUR ENGINEERING COLLEGE

PAPER: LOAD BALANCER

Presenter: Pitamber Tiwari

Abstract:

With the explosive growth of the Internet and its increasingly important role in our lives, the traffic on the Internet is increasing dramatically. The load on popular Internet sites is growing rapidly, some get tens of millions hits per day. More and more administrators have met the performance bottleneck problem of their servers, and with the increasing access requests the servers will be easily overloaded for a short time. Nowadays, more and more companies are moving their businesses on the Internet, any interrupt of services on the servers means business loss, and high availability of these servers becomes increasingly important. Therefore, the demand for scalable and highly available servers is growing urgently.

Clusters of servers, connected by a fast network, are emerging as a viable architecture for building a high-performance and highly available server. This type of loosely coupled architecture is more scalable, more cost-effective and more reliable than a single processor system or a tightly coupled multiprocessor system. The real servers may be interconnected by high-speed LAN or by geographically dispersed WAN. The real servers usually run the same service and they have the same set of contents. The front-end of the real servers is a load balancer, which schedules requests to the different servers and make parallel services of the cluster to appear as a virtual service on a single IP address. Scalability is achieved by transparently adding or removing a node in the cluster. High availability is provided by detecting node or daemon failures and reconfiguring the system appropriately.

Load Balancer can be implemented in two ways. One is via Network Address Translation; the other is via IP tunneling. When a user accesses the service provided by the server cluster, the request packet destined for virtual IP address (the external IP address for the load balancer) arrives at the load balancer. The load balancer examines the packet's destination address and port number. If they are matched for a virtual server service according to the virtual server rule table, a real server is chosen from the cluster by a scheduling algorithm, and the connection is added into the rule table which records all established connections. We can implement various scheduling algorithms for selecting a server from the cluster: Round-Robin, Weighted Round-Robin, Least-Connection and Weighted Least-Connection. Round-robin scheduling algorithm directs the network connections to the different servers in the round-robin manner. It treats all real servers as equals regardless of number of connections or response time. The weighted round-robin scheduling can treat the real servers of different processing capacities. Each server can be assigned a weight, an integer that indicates the processing capacity. The least-connection scheduling algorithm directs network connections to the server with the least number of active connections. In the weighted least-connection scheduling algorithm servers with a higher weight value will receive a larger percentage of active connections. But it is better to use load based

scheduling algorithm which continuously monitors the load across various real servers and directs the network connection to least loaded server. We can use various SNMP queries to find out the load.

If the NAT is used, the destination address and the port of the packet are rewritten to those of the chosen server, and the packet is forwarded to the server. When the reply packets come back, the load balancer rewrites the source address and port of the packets to those of the virtual service. If IP tunneling is used, the load balancer encapsulates the packet within an IP datagram and forwards it to the chosen real server. When the real server receives the encapsulated packet, it decapsulates the packet and processes the request, finally returns the result to the user directly. When the connection terminates or timeouts, the connection record will be removed from the rule table.

KATHMANDU COLLEGE OF MANAGEMENT

*1 paper presentation have been selected from KCM, but we were unable to get mail from judges.

NATION COLLEGE OF INFORMATION AND TECHNOLOGY

PAPER: OUTSOURCING AND NEPAL

Presenter: Anish Shrestha

This paper presents a brief introduction to the outsourcing, particularly business process outsourcing (BPO) and very different aspects of it as seen in the present context. Entire paper is broadly managed into two major parts. The first part of the paper explores the business process outsourcing in general and the second part focuses on the challenges and future prospects of BPO in Nepal.

Acknowledging the fact that there is a boom in the global market for ITES and BPO, this paper truly wishes to see Nepal competing in the global market right away. We believe that this paper would encourage the respected targeted groups which can sow a seed for better Nepal tomorrow.

ADVANCED ENGINEERING COLLEGE

PAPER: NANO TECHNOLOG

Presenter: Anchal kumar shrestha

Abstract:

The size of a single transistor has been reducing in an exponential manner for several decades, leading to integrated circuits containing tens of millions of transistors. But as the size of the transistor decreases a physical limit is encountered where the transistor becomes too small and quantum effects become significant. When this limit is reached the exponential growth in computing power that has been characteristic of the 1980s and 1990s will come to an end. This event is expected to occur somewhere between 2010 and 2020. This will be the end of the road for pure silicon technology. At this point completely new technologies will be needed. So the question is what is coming next? The expected answer will be nanotechnology with the future which does not yet exist. The field at present is therefore one of science, but interestingly, it is technology that is enabling this science of the very small. The technological tools now exist that provide a means of working at the level beyond micro. These tools are allowing scientists to interact with and to manipulate matter at a level that has not been previously possible. Due to, the implementation of this technology, the future performance of any device can be increased successively.