Research Issues of Interactive Multimedia for Advanced Computing &Communication for Challenging Applications

Bedre Heeramani[1], B.Nagaraj[2]
[1]Department of Computer science,JNNCE
Sri Erannaswamy, Anjaneya Temple, Lig24, vinobnagar, Shivamoga .
[2]Department of Computer Science,Sahyadri Science college(autonomous),
shivamoga , Karnataka,INDIA
[1]uerannanagaraj@rediffmail.com [2]nagarajbemtech@rediffmail.com

Abstract: With the inventions of computers, now in recent days entire globe has become a single place bringing human beings nearer & problem under processing by computer will seem to nothing in front of it. Multimedia computing & communications are fascinating challenging complex but interesting areas with software & hardware by emerging at fast pace to provide future promises .Computers have capabilities to perform infinite number of computations accurately with quality results & hence there is explosive growth of multimedia computing communication & applications during last decades. Even with latest processors, memory techniques, advanced algorithms, system software, application software, parallel processing technologies, several object oriented databases & robust programming languages, many times problems are dominating over computers in various areas. This paper focus on multimedia latest possible applications with research issues of multimedia.
Keywords: Multimedia, Communication, Databases, Software, Hardware, Modem

1. Introduction

Multimedia word consists of two things: multi & media. Multi means much or many or more. Media is an intervening substance which can be transmitted or received. There are over more than 100,000 of computers were in the use now in virtually every applications [5].Multimedia plays a significant role in all the applications. There are two types of multimedia as Interactive multimedia &Non interactive multimedia.

2. Requirements to make multimedia

SCSI/IDE, Memory storage devices, RAM, ROM, Floppy disks & hard disk, optical storage devices ,DVD, CD ROM players & recorders. Input devices including keyboard, trackballs, mice, touch screens, magnetic card encoders and readers, graphics, tablets, flat bed scanners, OCR devices, infrared remotes, voice recognition systems, digital cameras. The output devices with audio devices such an amplifier, speakers, monitors, video devices, projectors, printers. Modems, ISDN, cable modems.

3. Methodology
3.1 Stages of multimedia project

The following are the stages of a multimedia project

(i). Planning & costing
(ii). Designing & producing
(iii).Testing
(iv). Delivering

Two major software selections are to be made are:
 i) Ultimate choice of disk OS to support the task &
 ii) Language to implement the task [4].
The complete structure of multimedia is in fig1

3.2 Multimedia skills

Many of the skills are desirable for multimedia including:

Executive producer
Producer /project manager
Creative director
Art director
Interface designer
Game designer
Subject matter expert
Training specialist
Script writer
Animator
Music composer
Video producer
Multimedia programmer
Html coder

4. Results & challenging research issues

4.1 Multimedia applications

Multimedia finds applications in following areas:

Multimedia in schools [1]

Multimedia in business [1]

Image processing & recognition

Film industry

Finger print identification

Full motion digital video [3]

Electronic messaging

Document imaging [3]

Home

Public places [1]

Virtual reality [1]

Medical diagnosis [4]

Engineering fields

Chemical Synthesis

Geo physics

Mathematical applications

Microbiology

Biotechnology

Video conferencing

Video on demand

Earth quake estimation

4.2 Challenging research issues

Computer programmers write, test, & maintain the detailed instructions called as programs, computers must follow to perform their functions. They also conceive, design & test logical innovations in programming-advanced computing technologies & sophisticated new languages & programming tools-have redefined the role of programmer & elevated much of programming work done today along with wide range of challenges as follows:

Fig 1: Structure of multimedia
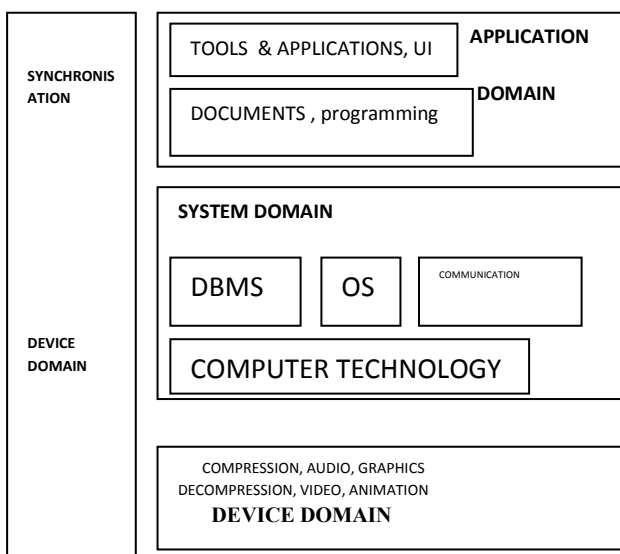
.Technical improvements & changes in multimedia applications improve productivity through better collaboration opportunities, visualisation of different manufacturing process.

. **P**rotocols & network should support all types of mediums

.OS must consider virtual memory, shared memory, remote procedure calls, c p u scheduling, disk scheduling

. New applications are to be researched

.The compression and decompression with high compression ratio & lossless compression with less storage space.

.The query for audio & video entries in database should be content oriented.

.Random access of optical storage devices still takes too long & magnetic storage devices are too expensive for the storage of multimedia data.

.Voice quality is very hard to judge without subjective tests from users opinions [5].Therefore voice processing is again a challenge.

.The database manager is frequently given tasks to perform such as security, integrity & synchronisation [6].Providing these requires great deal of work in future for large data.

. Techniques like branch & bound, backtracking often make it possible to solve at least some larger instances of difficult combinatorial problems [10]

.Science of hiding messages is called as Stegenography [9], processing it efficiently requires new formulations

.The order of growth of running time of an algorithm gives a simple characterisation of algorithms efficiently & also allows for compare relative performances of alternative algorithm [7].

.Image display issues

.Revolutionary changes in routers, hubs, gateways, routing algorithms, congestion control algorithms.

. Integrate all software & hardware components into time crucial processing.

.New types of programming language support, faster transmission are required for real time complex applications.

4. Conclusions

Technical improvements & changes in multimedia applications improve productivity through better collaboration opportunities, visualisation of different manufacturing process with a view towards new applications & to provide solutions for comfortable change of environment. The trend is going towards open solution for more distributed environments.

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