

B.TECH(CSE) FINAL YEAR PROJECTS (2014-2015) Volume 13, June 2015



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

RCC INSTITUTE OF INFORMATION TECHNOLOGY [Affiliated to West Bengal University of Technology] Canal South Road, Beliaghata, Kolkata-700015





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Java Serialization, Profiling and Optimized Code Off-loading Through 3G and Wi-Fi

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Abstract

Java provides a mechanism, called object serialization where an object can be represented as a sequence of bytes that includes the object's data as well as information about the object's type and the types of data stored in the object. After a serialized object has been written into a file, it can be read from the file and deserialized that is, the type information and bytes that represent the object and its data can be used to recreate the object in memory. Most impressive is that the entire process is JVM independent, meaning an object can be serialized on one platform and deserialized on an entirely different platform.

Code Offloading is sending computational tasks to more resourceful servers, is becoming a widely-used approach to save limited resources on mobile devices like battery life, storage, processor, etc.DTP (Deterministic delay constrained Task Partitioning), is the algorithm to solve the offloading decision problem with delay constraints. DTP uses quantization and runs in polynomial time in the number of tasks. Going beyond prior work on linear delay constraints that apply

only to serial tasks, we generalize the delay constraints to settings where the dependency between tasks can be described by a tree. Furthermore, there is another algorithm, PTP (Probabilistic delay constrained Task Partitioning), which gives stronger QoS guarantees. Simulation results show that our algorithms are accurate and robust, and scale well with the number of tasks. To achieve above two objectives we have designed an android application that implements java serialization and code offloading. This app provides the user a platform to search, view and download videos from a ton of videos available from our server which we have implemented using java.



Getting Location Update

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Abstract

The "GETTING LOCATION UPDATE" Application provides location giving platform for your Android device which shows different locations information of RCC Institute of Information Technology. The application once installed in your device, fetches location when you click on the "START UPDATE" button and give the location information which are stored in the database.

As children playing hide and seek, there seemed to be so many places where we could hide and never be found. With the world becoming ever smaller through technology, hiding is increasingly difficult. Cameras peer down on us at red lights, in our workplace, in stores and even at home. Now, those cameras are being augmented by new technologies that track our cars, cell phones and possibly any product we buy.

This location-tracking technology also is being used to streamline supply chains for corporations, seeking to move products to the market faster, and to monitor assets and prevent inventory loss. Soon, companies also will be able to track your location. Imagine walking through your local supermarkets, and as you pass through the aisle, an electronic coupon for your favorite cereal is beamed to your phone.

However, many privacy advocates are worried about the implications of these new surveillance systems. Such technology means that marketers and others could know your whereabouts at any time.



Implementation of Standard Distributed Algorithm using Java

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Abstract

This project is the implementation of standard distributed algorithm. For implementing Distributed algorithm socket programming is needed to connect several client to access the particular program. After connecting several machines it will show the practical implementation of standard distributed algorithm. Sockets provide the communication mechanism between two computers using TCP. A client program creates a socket on its end of the communication and attempts to connect that socket to server. The objective of this project is to implement bully and ring algorithm to select coordinator. There are one server and one messenger in order to make a connection between client and the server. Netbeans7 is used as project platform for java application. In this project a client chat-frame is implemented where the client can use bully or ring algorithm. The lead client has to ensure that the other clients have mentioned the right host address and host port.

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Virtual Machine Implementation

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Abstract

This project aims at creating a virtual keyboard using a webcam and a color pointer. We are developing a virtual keyboard using 2D webcam instead of any other specialized hardware. This keyboard will overcome some problems of traditional keyboard and serve as an add-on for it to make computing very easy and efficient for general users of computer. Traditional keyboards were not reconfigurable. We cannot change the specifications of keyboard according to need of individual. We cannot use a key for some abstract or user defined purpose, those keys of traditional keyboard behaved in a specific predefined or say preprogrammed manner. In virtual keyboard every key will be configurable according to the need of user.

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Edge Detection Using Cellular Automata

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Abstract

Image recognition based on edge detection and feature extraction has been a topic of fundamental interest in the field of Image Processing. To recognize images, we need to first detect the characteristic edges in a digital image. So far, several edge detection methods have been proposed, such as by Sobel, Prewitt, Canny, Roberts, etc. But, there has been limited progress in the field of detecting edges using Cellular Automata. Here we propose a new method of edge detection in monochrome images by using Cellular Automata. Cellular Automata theory has recently come to the fore in the field of computation technologies. We will finally delve into the field of Image Recognition using the theories and rules of Cellular Automaton. Edge detection is one of the most commonly used operations in image analysis. Several edge detectors have been proposed in literature for enhancing and detecting of edges. In this paper a new and optimal approach of edge detection based on Cellular Automata (CA) has been proposed. The idea is simple but effective technique for edge detection that greatly improves the performances of complicated images. The comparative analysis of various image edge detection methods is presented and shown that cellular automata based algorithm performs better than all these operators under almost all scenarios.

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Line Segmentation of Historical Text Documents Using Color Information

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Abstract

Line-Segmentation in unconstrained handwritten document is still a very challenging problem. Till date most of the approaches of line segmentation is based on the binary images. There are very few work on color images (to the best of our knowledge 3-4. Our proposed method is based on SURF keypoint methodology. And we proceed this with some of our proposed technology and finally obtain the desired results. Detailing of our methodology is elaborated in the following presentation. Before that we will discuss some topics on our project. The main and foremost objective of the project is to segment the line of the handwritten historical degraded text documents of color image using SURF keypoints. Color image consist of color information we design the line segmentation procedure. Our main objective is to segment the line of the text document without binarizing it as we already discussed it cause some data loss.

Event & Event Actor Identification with Event-Sentiment Relation

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Abstract

Our project is based on Natural Language Processing and we have identified the Events & Events Actors and Sentiment Words related to specific Events from any textual data that comes from the web or any other sources. This project mainly aims the fundamental approach of Event & Event Actor Identification and we have also incorporated the Event Sentiment relation. It is based on Natural Language Processing; the technique we have used is Sentence Parsing with the help of NLP libraries. We have developed our system only for English language. The main purpose of this project is that, it will identify Events, Events Actors & the Sentiment word related to the Event from an English text. We have considered the "TimeML" corpus data as our Gold Data as there is no other standard data to test our developed system. Our system will help in finding the occurrence of an Event & its actors i.e. who is responsible for the Event and also the Sentiment World related to the Events. This system is useful for any field where Event identification is necessary to track the current occurring of incident.

Machine Translation

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Abstract

Natural Language Processing (NLP) is an branch of computer science, artificial intelligence and linguistics concerned with the interactions between computers and human (natural) language. Natural languages are languages spoken by humans. Natural language is any language that humans learn from their environment and use to communicate with each other. Whatever the form of the communication, natural languages are used to express our knowledge and emotions and to convey our responses to other people and to our surroundings. Natural languages are usually learned in early childhood from those around us. Currently we are not yet at the point where these languages in all of their unprocessed forms can be understood by computers. Natural language processing is the collection of techniques employed to try and accomplish that goal. The field of natural language processing (NLP) is deep and diverse. Natural language processing (NLP) is a collection of techniques used to extract grammatical structure and meaning from input in order to perform a useful task as a result, natural language generation builds output based on the rules of the target language and the task at hand. NLP is useful in the tutoring systems, duplicate detection, computer supported instruction and database interface fields as it provides a pathway for increased interactivity and productivity.

Most translation in the world is not of texts which have high literary and cultural status. The great majority of professional translators are employed to satisfy the huge and growing demand for translations of scientific and technical documents, commercial and business transactions, administrative memoranda, legal documentation, instruction manuals, agricultural and medical text books, industrial patents, publicity leaflets, newspaper reports, etc. Some of this work is challenging and difficult. But much of it is tedious and repetitive, while at the same time requiring accuracy and consistency.

MT tries to enhance performance and improve the continuity and efficiency of services. MT is not in itself an independent field of 'pure' research. It takes from linguistics, computer science, artificial intelligence, translation theory, any ideas, methods and techniques which may serve the development of improved systems.

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Performance Optimization through Code Offloading

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Abstract

Advances in mobile hardware and operating systems have made mobile a first-class development platform. Activities such as web browsing, casual game play, media playback, and document reading are now as common on mobile devices as on full-sized desktop systems. However, developers are still constrained by the inherent resource limitations of mobile devices. Unlike desktop systems, mobile devices must sacrifice performance to accommodate smaller form factors and battery-backed operation. Opportunistic offloading of computation from a mobile device to remote server infrastructure (i.e., "code offload") offers a promising way to overcome these constraints and to expand the set of applications (i.e., "apps") that can run on devices.

MAUI, a system that enables fine-grained energy-aware offload of mobile code to the infrastructure. Previous approaches to these problems either relied heavily on programmer support to partition an application, or they were coarse-grained requiring full process (or full VM) migration. MAUI offloads computation at the method granularity. It models an application as a call graph G = (V;E). In the directed graph G, each vertex u 2 V represents a method and every edge e = (u; v) 2 E represents an invocation of method v by method u. The computation offload problem is converted to the graph partitioning problem so that one partition executes in the cloud and the other executes locally. MAUI is implemented based on Microsoft .NET framework on the cloud side and .NET compact framework on the mobile side. In its system architecture, as shown in Figure 1(a), the Profiler is responsible for profiling the device, application and network to obtain necessary information as stated above; the Solver is responsible for solving the optimization problem periodically when the application runs; the Proxy takes care of the data and control transfer between the cloud and the smartphone.

Password Management System using Cryptography and Steganography

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Abstract

Often, one of the first things people learn about when protecting their personal identity and information is to use strong passwords. A strong password is one that is not only difficult for cyber criminals to guess, but also resists automated hacking tools. The problem is that, strong passwords can be hard to remember. As a result people often create a single, strong password and use that same password, or slight variations of it, for all of their online accounts, applications and devices. Even more dangerous, many people use the same password for both their personal and work accounts. Once a cyber attacker gains access to your password, they can potentially gain access to all of your shared accounts. Ultimately what you need is a strong and unique password for each of your accounts. That way, if someone gains access to the password for one of your accounts, your other accounts are still secure.

A password manager acts like a virtual safe. You first install this virtual safe as a program onto your computer or mobile device. It then takes all of your usernames and passwords and encrypts them in a database, which is then stored on your device or in the cloud. This database is then secured by a special password that you create just for the password manager. This way, you only have to remember one password: the password for your password manager. Since the password manager stores all this sensitive information you need to be sure that the master password you use is .very strong and one that you will not forget many modern password managers can also integrate with your browser. When you visit a website, such as your favorite online store, the password manager will automatically log in for you. If you change your password for that site, the password manager updates the entry for it, as well. Some password managers also work on mobile devices.

Steganography is the art of hiding the fact that communication is taking place, by hiding information in other information. Many different carrier file formats can be used, but digital images are the most popular because of their frequency on the internet. For hiding secret information in images, there exists a large variety of steganography techniques some are more complex than others and all of them have respective strong and weak points.

So we prepare this application, to make the information hiding along with Password Management simpler and user friendly.

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Diagnostic Algorithms for Pre-cancerous cell Detection

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Abstract

The objectives of this software project is to determine the Hurst Exponent and Width of Singularity Spectrum of an unknown sample, and use the parameters to grade it and develop a Graphical User Interface that will allow people to perform the above easily. The project is an attempt to implement the techniques outlines in the paper titled "Tissue Multifractaility and Born approximation in analysis of light scattering: a novel approach for pre-cancers detection". This has been done by translating the equations and techniques into MATLAB. However, it is realized that people who would be using this software to actually grade human tissue samples may not be familiar with the use of MATLAB at all. For that reason, we have used GUIDE, the MATLAB GUI editor to develop a GUI that will allow such people to use the software easily. MATLAB has been chosen as the development language primarily because it is easy to implement equations as code, graphical user interfaces. MATLAB has a wide range of inbuilt mathematical functions ready for use. Even though the results determined by this software should generally be accurate, it is advised to use this software in consultation with a trained medical profession.

Clustering Algorithm in Wireless Sensor Network

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Abstract

Wireless sensor networks are composed of large number of power constrained nodes, which needs an energy conservation protocols to reduce the energy consumption as much as possible. Utilizing clustering algorithms is a common method of implementing network management and data aggregation in WSNs. In this paper, we examine currently proposed clustering algorithms for Wireless Sensor Networks. We will briefly discuss the operations of these algorithms, as well as draw comparisons on the performance between the various schemes. Specifically, we will examine the performance in terms of the power and quality aspects of these schemes. We also discuss improvements to be made for future proposed clustering schemes. This paper should provide the reader with a basis for research in clustering schemes for Wireless Sensor Networks. This paper synthesizes existing clustering algorithms news's and highlights the challenges in clustering.

Sink Positioning Algorithm for Wireless Sensor Network (WSN)

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Abstract

A wireless sensor is a specific kind of sensor that sends the collected data to an access point via wireless technology i.e. the sensor and the access point is not connected via any kind of electric wires.A sensor network consists of multiple detection stations called sensor nodes, each of which is small, lightweight and portable. Every sensor node is equipped with a transducer, microcomputer, transceiver and power source. The transducer generates electrical signals based on sensed physical effects and phenomena. The microcomputer processes and stores the sensor output. The transceiver receives commands from a central computer and transmits data to that computer. The power for each sensor node is derived from a battery. A WSN system incorporates a gateway that provides wireless connectivity back to the wired world and distributed nodes. The objective of our project is to create a system that can be used to place sensors over a geographic region in order to monitor that region for any kind of activity. Also we have to think about effective placement i.e. placing minimum number of sensor nodes to get the maximum coverage of the surveillance area. We are using Cluster based Divide and Conquer Algorithm for sensor placement in the given region so that we can effectively and efficiently monitor any kind of activity in the whole region by deploying only minimum number of sensor nodes throughout the region. Also our program will point out the specific locations where we should put sensors for effective sensing of the whole region

Semantic Similarity Measure of Human Body Proteins

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Abstract

In this study, we quantitatively assess the application of GO-based similarity methods in human protein-protein interaction and pathway analysis. First, receiver operating characteristic (ROC) analysis is used to assess the ability of GO graph structure and information content-based methods to stratify protein interactions. For each method, there are three measures in terms of BP, MF or CC annotations. The main objective of our project is to find the semantic similarity between human proteins in short amount of time, as manually this work may take several years to be done. This project will help in reduce time of calculation of bulk data used in this process. We have updated the relevance method in our project, and it is shown that the most accurate results are being produced by this method. Several works have been developed in the past years proposing semantic similarity measures. They aim to automatically assessing a numerical score that estimates the degree of similarity between a pair of concepts as a function of the semantic evidence observed in one or several knowledge sources. According to the concrete knowledge sources exploited and the way in which they are used, different families of methods can be identified. In a nutshell, edge counting measures base the similarity assessment on the number of taxonomical links separating two concepts contained in a given ontology. Feature-based approaches estimate the similarity according to the amount of common and non-common features. By features, they typically consider taxonomical information modelled in an ontology and concept descriptions (e.g., glosses) retrieved from dictionaries, Information theoretic approaches assess similarity between concepts as a function of the IC that both concepts have in common in a given ontology.

A parallel implementation using c language of mutual information using Shannon's definition by parzen density estimation

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Abstract

In pattern recognition and in image processing, feature extraction is a special form of reduction. When the input data to an algorithm is too large to be processed and it is suspected to be very redundant (e.g. the same measurement in both feet and meters, or the repetitiveness of images presented as pixels), then the input data will be transformed into a reduced representation set of features (also named features vector). Transforming the input data into the set of features is called feature extraction. If the features extracted are carefully chosen it is expected that the features set will extract the relevant information from the input data in order to perform the desired task using this reduced representation instead of the full size input.

In content-based image retrieval, images are automatically indexed by generating a feature vector (stored as an index in feature databases) describing the content of the image. The similarity of the feature vectors of the query and database images is measured to retrieve the image. Let {F(x, y); x = 1, 2, ..., X, y = 1, 2, ..., Y } be a two-dimensional image pixel array. For color images F(x, y) denotes the color value at pixel (x, y) i.e., $F(x, y) = {FR(x, y), FG(x, y), FB(x, y)}$. F(x, y) denotes the grayscale intensity value of pixel (x, y). The problem of retrieval is following: For a query image Q, we find image T from the image database, such that distance between corresponding feature vectors is less than specified threshold.

By Feature extraction using mutual information we can optimize the programmer which is deals with big data such as 6000X8000 matrix. By this method we can avoid time consuming and here we apply parallel programming of a code and we can optimize the program, which takes less time and increase efficiency of programmer. Here we using BLAS/LAPACKE subroutine for optimize the code by using parallel programming. This document describes a two-level C interface to LAPACK, consisting of a high-level interface and a middle-level interface. The high-level interface handles all workspace memory allocation internally, while the middle-level interface requires the user to provide workspace arrays as in the original FORTRAN interface. Both interfaces provide support for both column-major and row-major matrices. The prototypes for interfaces, associated macros and type definitions are contained in the header file lapacke.h. We are decomposing the problem of feature extraction in two steps: feature construction and feature selection.

Packetfence Network Monitoring System

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Abstract

PacketFence is an open source network access control solution. Using PacketFence the access of the devices, connected on LAN (Local Area Network), can be controlled. Current version of PacketFence does not provide GUI based Network Monitoring facility. Network monitoring system is used for continuously monitoring the devices connected in the network and that notifying the network administrator in case of outages. It is part of network management. Using the network monitoring system the user can be able to know which devices are connected with each other, connected with the LAN (Local Area Network), router, switch and different workplaces. With the help of NMS user can be able to see/monitor the whole networking systems such as switches, routers, different workplaces and user can also monitor the connectivity of other devices in the graphical form which help user/network administrator to take necessary action for diagnosing the actual problem if occurred. This project is developed using JAVA language for the frontend and Mysql as backend database. The NMS application makes SNMP queries with networking devices for getting the current information of the network devices. For Implementing SNMP query features in the project SNMP4j package is used and for implementing GUI based features open source version of JGRAPH package is used. The project helps to understand the networking devices and its functionality. It also helps to understand network security related issues.

KOHA and RFID Integration

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Abstract

KOHA is an open source Integrated Library System (ILS), used world-wide by public, school and special libraries. The name comes from a Maori term for a gift or donation.

Radio-frequency identification (RFID) is the wireless non-contact use of radio-frequency electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information. Thus in this project we have integrated this KOHA RFID using java.

This project requires a tag reader which communicates with the tag attached to it. The complete automatic identification system of the library consist of 1)tagging station; 2)self check in/out station; 3)security gate and 4)stock verification system. In the tagging station a new holding is made responsive by attaching a tag. Information related to a holding is stored in a tag. In self-check in/out station library user's issue/return library holding. Here the tag information is used to know about the holding and based on their action issue or return one tag information is modified which will be checked in the security gate for theft protection. In the stock verification information from each and every tag attached to library holding is collected.

This project requires application software and the user interface to be made. Tier 1 or User interface is responsible for collecting users input data and displaying corresponding outputs received from the application software which is written in Java. The application software makes a bridge between user interface and the RFD reader. After receiving data from user interface this tier

1) formats data as per the software protocol of the RFID reader and communicates to the reader and 2) update users with their data.

The third tier contains RFID reader. The reader does all the communications with the tags by sending appropriate ISO15693 supported commands. KOHA database is used to store all the data. The last tier is the RFID tag, which sends information related to individual tag identity and library related data.

Implementation of Web Services-Using them in an Application

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Abstract

The objective of this project is to implement a Web service into android application that provides the user with all quotes made by any famous personality whose name is entered by the user. This app is created in order to provide the user with the correct information using Google Cloud Endpoints REST API to connect the web service to android app and transferring all information from the web service to the user end i.e. to Android App Database. Another objective is to create a better understanding of the concept of Web services and to unveil the potential of Web services in the field of Android App Development. Web services can provide flexibility to the overall flow of the Android app and its working. There are many ways to implement a Web services into an Android app. Here we have used the Google Cloud Endpoints API to provide the web service and the android app with backend support. It creates REST web-service using JSON to send information over HTTP. The API is more flexible and do away with the conventional way of connecting the web service and Android app.

Distributed System design in Multi-OS environment

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Abstract

This project comprises of embedded systems communications between two computers running on different systems. In this project at initial stage design a front end application running on windows computer. It was needed to establish a connection with a remote computed running on Linux. There are three parameters- IP address, user name, and password. For this project c# is used to design the front end. The application comprised of various forms to navigate between them to send a signal to a remote computed. The required items are- BBB board, sensors, relay, heater. This project is to design an efficient working model of temperature control which with small modifications can be used in real time systems used in factories for controlling temperature or used to control traffic lights. This will help to handle consultancy based projects in professional life as engineers. These factory processes use distributed system and embedded systems to achieve their goals in today's world customer appliances use a technology called fuzzy control for self-adjustment this is exactly tried to implement in this project.

Project on Animatronics

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Abstract

Animatronics is a multi-disciplinary field that integrates various aspects of anatomy, robotics, mechatronics and puppetry to provide inanimate objects with lifelike qualities. An Animatronics is a machine that moves like an animal. A human Animatronics is called an android. An animatic is not a robot, a robot is programmable. The animatronic system is defined as 3-D electro-mechanically driven facial model that can move in certain ways, when controlled by a human performer to create the 'illusion of life' for a viewer. The aim of this project is to use microcontroller to control a row of LEDs to display emotions. In display the LEDs turn on and turn off one after another on a particular time. Due to this phenomenon first see different variables of facial expression and read the display, thereafter getting our desired output. This project presents the initial exploratory research into an original and novel technique to enhance performance control in animatronics. The basic principle used is persistence of vision. As the LEDs glow at constant time interval and they can be controlled with the help of microcontroller so as to glow them in such a combination that a floating display is formed. The objective is to implement this project on

2D interface using asp.net and build the user friendly interface which includes certain clickable items. Interface allows us to view variety of human facial emotions with the slide touch of our fingers.

Pc Based Programming on Micro-Controller

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Suchintan Chudhuri University Reg No: 111170110089 Subhajit Saha University Reg No: 111170110085

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Abstract

Microcontroller is basically a bridge of interaction between a user and a machine. If someone wants to take/give a song or video or a picture from/to the computer or a machine, microcontrollers will be there in every transaction. So this project is based on the above topic that is going to set some codes on 8051 microcontroller's memory. So that we can share the information like songs, videos, pictures, documents with the computer through RS232 serial port. Microcontroller is the hardware section and it only reads the HEX code. For this reason whatever we will code in C or in any language in future, we have to convert them to HEX code that it will be understand by the microcontroller. So this project involves built convenient interface that is used to connect the SPI pins to the correct pins of the microcontroller. The installed programming environment called WinAVR is used to write the program and then transfer it into microcontroller.

Electronic Voting Machine

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Snehashis Das College Roll No.: CSE/2012/L03 Debabrata Mandal College Roll No.: CSE/2012/L06

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Abstract

According to Election Data Services the percentage of electronic voting machines per county doubled between 1998 and 2002 to 16 percent-, yet a full replacement of the traditional voting procedure is very unlikely. In its essence, an electronic voting machine is a computer assisted self-interviewing device (CASI) giving the voter the opportunity to review and change his/her vote before submitting it. The different types of voting machines allow for different kinds of interaction, such as using a touch screen technology, using a dial wheel, touching a paper panel, or pressing a button on an LCD screen. Each machine provides feedback for blank ballots and under-voting and prevents selecting more choices than the maximum allowed. Some machines even have advanced functions such as increasing the font for visually impaired voters and/or allowing for listening of the voting options rather than reading. The common features electronic voting machines share with CASI and ACASI devices allow for theoretical and empirical predictions of the advantages and disadvantages this technology can provide. The paper presents an overview of the different types of voting machines and based on established theories and results from CASI and ACASI studies, examines and compares characteristics of the machines currently used and computer-human interaction mechanisms, their potential effects, and unexplored applications. Furthermore, possibilities such as prediction of candidates' name order effect, already existing in the literature, and computer literacy effect on voting are discussed.

Fingerprint Recognition

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Abstract

We propose a simple and effective approach for Biometric fingerprint image enhancement and minutiae extraction based on the frequency and orientation of the local ridges and thereby extracting correct minutiae points. Automatic and reliable extraction of minutiae from fingerprint images is a critical step in fingerprint matching. The quality of input fingerprint images plays an important role in the performance of automatic identification and verification algorithms. In this project we present a fast fingerprint enhancement and minutiae extraction algorithm which improves the clarity of the ridge and valley structures of the input fingerprint images based on the frequency and orientation of the local ridges and thereby extracting correct minutiae. Fingerprint based identification has been one of the most successful biometric techniques used for personal identification. Each individual has unique fingerprints. A fingerprint is the pattern of ridges and valleys on the finger tip. A fingerprint is thus defined by the uniqueness of the local ridge characterics that occur either at a ridge ending or a ridge bifurcation. A ridge ending is defined as the point where the ridge ends abruptly and the ridge bifurcation is the point where the ridge splits into two or more branches. Automatic minutiae detection becomes a difficult task in low quality fingerprint images where noise and contrast deficiency result in pixel configurations similar to that of minutiae. This is an important aspect that has been taken into consideration in this presentation for extraction of the minutiae with a minimum error in a particular location. A complete minutiae method uses improving alternatives for the image enhancement process, leading consequently to an increase of reliability in the minutiae extraction task.

3D Face Recognition using Histogram Based Features

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Abstract

Face recognition is interesting to study because it is an application area where computer vision research is being utilized in both military and commercial products. Basic research related to this field is currently active. Often, practical applications can grow out of improvements in theoretical understanding and it seems that this problem will continue to demonstrate this growth. Personally, we are interested in this project because it is a pattern recognition problem in which humans are very adept, whereas it can be quite challenging to teach a machine to do it. The intermediate and final visual results are interesting to observe in order to understand failures and successes of the various approaches. Face recognition is challenging because it is a real world problem. The human face is a complex, natural object that tends not to have easily (automatically) identified edges and features. Because of this, it is difficult to develop a mathematical model of the face that can be used as prior knowledge when analyzing a particular image.

In contrast to 2D face recognition, 3D face recognition relies on the geometry of the face, not only on texture information. Due to this fundamentally different approach, it has the

Potential to overcome the shortcomings of 2D approaches. The 3D geometry of the face is inherently robust to varying lighting conditions.

Here we use an automatic 3D face normalization approach is introduced, which is used as a basis for a low cost face recognition method based on histogram features. In comparison with other face recognition methods, the proposed system is computationally efficient, thus achieving higher processing speed in combination with reasonable recognition results.

3D Face recognition based on geometric characteristics requires a precise reproduction of the physical human faces using capture devices capable of generating geometric models of surfaces with accuracy below one millimeter. Usually the acquisition of a 3D face model is done using an active structured light projection approach.

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Comparative Study of AODV DSR & DSDV Routing Protocols in MANET

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Abstract

Our aim is to study about three key protocols AODV, DSR and DSDV and to recognize the key difference between them. For this work, we use simulation for designing and studying wireless network using NS2 simulator. Using the data from trace files generated during simulation, we calculate the performance metrics (Throughput in kbps, Packet Delivery Ration (PDR) in %, Average End to End Delay (AED) in seconds etc.) using awk script and plot the result on a graph. Computer network is usually defined as a collection of computers interconnected for gathering, processing, and distributing information. Computer is used as a broad term here to include devices such as workstations, servers, routers, modems, base communications links such as copper cables, fiber optics cable, and microwave/ satellite/ radio links. A computer networks can be built as a nesting and/or interconnection of several networks. The Internet is a good example of computer networks. In fact, it is a network of networks. The project shows the performance varies widely across different numbers of nodes and different types of matrix. AODV performance is the best considering its ability to maintain connection by periodic exchange of data's.

Performance Analysis of Tcp And Udp Network Topologies In A Wired Network

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Abstract

The transmission of information in a network relies on the performance of the traffic scenario (application traffic agent and data traffic) used in a network. The traffic scenario determines the reliability and capability of information transmission, which necessitates its performance analysis. The objective of this paper is to calculate and compare the performance of TCP/FTP and UDP/CBR traffic in wired networks. Study has been done using NS-2 and AWK scripts. Exhaustive simulations have been done to analyze results, which are evaluated for performance metrics, such as link throughput, and packet delivery ratio. The effect of variations in link bandwidth, number of nodes on the network performance is analyzed over a wide range of their values. Results are shown in terms of graphs and tables.

Performance Analysis of WIRED TCP and UDP Network Topologies using NS2: We study about two key protocols UDP and TCP that are accepted in transport layer. Our aim is to recognize the key difference between them. For this work, we use simulation for designing and studying wired network using NS2 simulator. Using the data from trace files generated during simulation, we calculate the performance metrics (Throughput in kbps, Packet Delivery Ratio (PDR) in %, Average End to End Delay (AED) in seconds etc.) using awk script and plot the result on a graph.

Keywords: protocol stack, TCP, UDP, NS-2, agent, performance metrics, throughput, packet delivery ratio, bandwidth

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Mobile Ad-Hoc Network Performance Under Blackhole & Warmhole Attack

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Abstract

In the project we will discuss how under any threat or attack network simulation of Ad-Hoc network performance. There are different types of attack like Black hole, Warm hole will work in ad hoc network simulation. The number of different threats and attacks can be categorized into a number of different areas that they target. The first is to consider the level of the attack which can be perceptual where the human perception is targeted using the media as a bearer. It may be broadcasting false information or just observation of social behavior to be able to alter decision processes.

Secondly the attacks can target the information itself where interception and eavesdropping comes naturally in thought. Of the more active nature of these attacks might be the creation of false messages injected into networks. Also the denial or degradation of network services is a form of active attack on the information level. In this category application level attacks such as Trojan horses or viruses and the like are also included.

The physical attacks are the third category. The passive nature of this category can be radiation interception or inductive wiretapping. The more hands on attacks include theft of equipment, cryptographic or physical keys, and different storage Medias .Other kinds of attacks are social engineering or as drastic as destruction using explosives or other physical force.

RCCIIT CSE B. Tech Final Year Projects (2014-2015) Volume 13, June 2015 Face Detection & Recognition from Video

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Danish Iqbal University Regn. No.: 111170110024 Tanusree Sarkar University Regn. No.: 111170110095

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Abstract

There are so many ways to identify a person like by using finger prints, voice recognition, DNA matching, iris pattern matching etc. Similarly face detection and recognition methods have come to serve many purposes. Face detection and recognition from a video is on demand due to its application in various fields like surveillance system, biometric field, crime branch etc. There are a number of features of a face that we can use, like eye, nose, facial expressions, mouth and distance between eye brows for detecting a person perfectly. Many researchers have been going on this topic. There are some of the researches where we detect face from a video. Some of them are real time based others are done from still images. While it sounds like a trivial task for human beings, in reality it is quite difficult to integrate and implement different algorithms to get a satisfying result. Our objective is to implement a system that will take as input a video and perform facial recognition on any person in the frames of said video.

Initially, we input a video in our system and extract every frame from it. Since not every frame may contain faces, we perform an algorithm to select those frames that contain one or more faces by discarding the other frames. From the selected frames, we capture the faces of every individual and store them in a particular database with reference to our input video. We create a training set with some images from the database and a test set with different set of images from the same database. We use our training set to train our SVM classifier, and the test set as an input to the SVM classifier. As a result we are able to classify a person in its suitable class. In the test set, the percentage of the number of images classified correctly, gives us the recognition rate.

RCCIIT CSE B. Tech Final Year Projects (2014-2015) Volume 13, June 2015 Pattern Recognition using Adaptive K-Means

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Abstract

We saw that clustering automatically segments data into groups of similar points. This is useful to organize data automatically, to understand the hidden structures in some data and to represent highdimensional data in a low-dimensional space. In contrast to classification where we have descriptive statistics of data, these problems are solved widely even though there is no label information available as is there in classification. In classification, we have data as well as a label attached to each data point, which is not there in clustering. We discussed Adaptive K-Means algorithm in the previous lecture. In the Adaptive K-Means algorithm, we first choose initial cluster means, and then repeat the procedure of assigning each data point to its closest mean and recomputing means according to this new assignment till the assignments do not change. We also saw an example of Adaptive K-Means where we decided to divide the data into 4 clusters where we scattered the initial cluster means all over the plane randomly. The Adaptive K-Means algorithm finds the local minimum of the objective function which is the sum of the squared distance of each data point to its assigned mean. Mean locations in the example is shown by boxes in the slides. If you see the objective function, it goes down with the iterations.

Mobile App Development Using Jquery Mobile and Html5

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Abstract

From the age of personal computing we are now living in an era of ubiquitous computing. As the technology continues to evolve, it provides us increasingly powerful mobile devices such as smartphones and tablets. It gives rises to the demand of applications that can run on mobile devices, the majority of which are now needed to be web-enabled. So mobile application developers around the world are now developing applications as per user requirements. But due to availability of various platforms, it becomes a great challenge for the application developer to deploy same application on every platform. To solve this issue a new cross platform mobile application developing of a cross platform mobile application using jQuery Mobile, HTML5, PHP and MySQL. The application designed in this project will help the Computer Science Engineering Graduate students to adequately prepare for their semester examinations.

Keywords: cross platform, mobile application development, jQuery Mobile, HTML5, JavaScript, PHP, MySQL etc.

Cross-layer protocol development, combining medium access control with routing functionality

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Arnab Mondal University Roll No.: 11700111019 Gargi Naskar University Roll No.: 11700111033

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Abstract

This paper proposed energy-oriented routing decision algorithms to communicate between data link layer and network layer using Routing Protocol for Low Power and Lossy Networks (RPL). This link is actually performed by RPL between Medium Access Control (MAC) protocol of data link layer and unicast protocol of network layer. By which a crosslayer connection is created between two different layers without any help of others network layer, which is very time and energy efficient. The traditional way of designing a wireless manet or cellular network architecture, has been to identify each process or module and then assign them roles or requirements. Since each process or module has been treated separately, this approach has in many ways caused the research communities to split into different groups, where each group focus their resources on solving "their" problem the best possible way. What other research communities are doing, is not really important, as long as the job is done. This is of course a bit exaggerated, but none the less illustrates the problem in an efficient manner. So a cross-layer connection is created between two different layers without any help of other network layer, which is very time and energy efficient. Here Routing Protocol for Low Power and Lossy Networks (RPL) is used to create that cross over link between Medium Access Control (MAC) protocol of data link layer and unicast protocol of network layer.

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RCCIIT CSE B.Tech Final Year Projects (2014-2015) Volume 13, June 2015 Bengali Character Recognition

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Abstract

Machine replication of human functions, like reading, is an ancient dream. However, over the last five decades, machine reading has grown from a dream to reality. Optical character recognition has become one of the most successful applications of technology in the field of pattern recognition. Optical character recognition, usually abbreviated to OCR, is the process of converting scanned images of machine printed or handwritten text (numerals, letters, and symbols), into a computer format text (such as ASCII). Character recognition also popularly referred as optical character recognition (OCR) is a field of research that has immense potential in future where we want to track and locate every piece of information being exchanged.

This project is aimed at developing software which will be helpful in recognizing characters. It engulfs the concept of neural network. Pattern recognition is perhaps the most common use of neural networks. The neural network is presented with a target vector and also a vector which contains the pattern information, this could be an image and hand written data. The neural network then attempts to determine if the input data matches a pattern that the neural network has memorized.

The problem is that same characters differ in sizes, shapes and styles from person to person and even from time to time with the same person. The source of confusion is the high level of abstraction: there are thousands styles of type in common use plus variations in calligraphy and a character recognition program must recognize most of these. Like any image, visual characters are subject to spoilage due to noise. Some images containing characters are already blurred or not clear which makes them difficult to process. Noise consists of random changes to a pattern, particularly near the edges. A character with much noise may be interpreted as a completely different character by a computer based computer program

Award List for Final Year PROJECT WORK & PRESENTATION B.Tech (Pass out Batch-2015)									
RCC Institute of Information Technology									
B.TECH(Pass out Batch-2015)									
CLASS ROLL		PROJECT		POSITION					
NO	NAME	TITLE	PROJECT GUIDE	HOLD					
CSE/2012/B02	SOUMYAJIT PAL								
002,2012,202	SUMAN KUMAR								
CSE/2012/B07	GHOSH	Virtual Keyboard Implementation		1 st					
CSE/2011/018	SUCHARITA DE		Mr. KAJIB SAHA	1					
	NAMRATA								
CSE/2011/092	MITRA								
	SAYANTAN		Mr. JAYDIP						
CSE/2011/035	BHATTACHARJEE		MUKHOPADHYAY						
	RISABH ARYAN	Diagnostic	(INTERNAL GUIDE)						
CSE/2011/053	DAS	Algorithms For	DR. NIRMALYA	2^{nd}					
	MEGHDUT	Pre-Cancerous Cell	GHOSH , INDIAN	_					
CSE/2011/045	SENGUPTA	Detection	INSTITUTE OF SCIENCE/EXTEDNAL						
CSE/2011/030	AVIRUP GHOSH		GUIDE)						
	RIDDHITA	Mobile App							
CSE/2012/B04	SARCAR	Development Using	Mrs. SUKLA	3^{rd}					
CSE/2012/B01	ISHITA SEN	HTML5	BANERJEE						
CSE/2012/B08	ANWESA ROY								
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CSE/2011/075	INDRANIL DAS	Hacking	KOTLA						
CSE/2011/067	ALOY BISWAS								
CSE/2011/019	RAKTIM SARKAR								
CSE/2011/061	ARNAB BASAK								
CSE/2011/086	ABHINAB KAR	Pattern Recognition Dr. MINAKSHI BANERJEE	Dr. MINAKSHI	5^{th}					
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	PODDER	Variable		
CSE/2012/L09	MUNNI KHATI			
	SRADDHA			
CSE/2012/L17	TAMANG			
	DIPANJAN SEN			
CSE/2011/056	GUPTA			
	ABHRA	Distributed System		
CSE/2011/054	MUKHERJEE	Design In Multi-OS	Mr. PRAMIT GHOSH	7^{th}
	SATABDI	Environment		
CSE/2011/060	CHAKRABORTY			
CSE/2011/031	TANUJIT DEY			
	BAIDURYAKANTI			
CSE/2011/016	MAJUMDER			
	RITUPARNA	Image Processing		oth
CSE/2011/093	BERA	And Its Application	Dr. M.BANEKJEE	8
	MADHURYA			
CSE/2011/B06	CHAUDHURI			
	SAYAN			
CSE/2011/042	DASGUPTA	Easture Extraction	M. VAUCHIV	
CSE/2011/026	SAYAN TRIVEDI	SDE Optimisation	MILLICK	9^{th}
CSE/2011/017	JOYSURYA DAS	SDE Opumisation	MALLICK	
CSE/2011/029	RITAM DAS			
COF (2011/020	BIKRAMJIT		Mr. KAJIB	
CSE/2011/020	GUHA	Line Segmentation	SAHA(INTERNAL	
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CSE/2011/047	BASAK		GUIDE)	

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Picture: - Project Mentors along with the awarded students of Final year B.Tech (CSE) 2015.