MOHAMED SATHAK A J COLLEGE OF ENGINEERING
Sponsored by Mohamed Sathak Trust
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)
Siruseri IT Park, Egattur, Chennai 603 103

B.E – COMPUTER SCIENCE AND ENGINEERING

S.NO	Name of the course that include experiential learning through Project work/ Internship
1	GE8151 - Problem Solving and Python Programming
2	CS8251 - Programming in C
3	CS8391 - Data Structures
4	CS8392 - Object Oriented Programming
5	CS8591 - Computer Networks
6	CS8492 - Database Management Systems
7	CS8691 - Artificial Intelligence
8	CS8792 - Cryptography and Network Security
9	EC8691 - Microprocessor and Micro controller
10	CS8791 - Cloud Computing
11	CS8079 - Human Computer Interaction
12	CS8080 - Information Retrieval Techniques
13	CS8073 - C# and .Net Programming
14	IT8076 -Software Testing
15	CS8601 -Mobile Computing
16	CS8651 -Internet Programming

PRINCIPAL
MOHAMED SATHAK A.J.COLLEGE OF ENGINEERING
34, Rajiv Gandhi Road (OMR), Siruseri IT Park
Chennai-603 103.

IT8076 **SOFTWARE TESTING** L T P C
3 0 0 3

OBJECTIVES:

- To learn the criteria for test cases.
- To learn the design of test cases.
- To understand test management and test automation techniques.
- To apply test metrics and measurements.

UNIT I INTRODUCTION 9

Testing as an Engineering Activity - Testing as a Process - Testing Maturity Model- Testing axioms - Basic definitions - Software Testing Principles - The Tester's Role in a Software Development Organization - Origins of Defects - Cost of defects - Defect Classes - The Defect Repository and Test Design -Defect Examples- Developer/Tester Support of Developing a Defect Repository.

UNIT II TEST CASE DESIGN STRATEGIES 9

Test case Design Strategies - Using Black Box Approach to Test Case Design - Boundary Value Analysis - Equivalence Class Partitioning - State based testing - Cause-effect graphing - Compatibility testing - user documentation testing - domain testing - Random Testing - Requirements based testing - Using White Box Approach to Test design - Test Adequacy Criteria – static testing vs. structural testing - code functional testing - Coverage and Control Flow Graphs - Covering Code Logic - Paths - code complexity testing - Additional White box testing approaches- Evaluating Test Adequacy Criteria.

UNIT III LEVELS OF TESTING 9

The need for Levels of Testing - Unit Test - Unit Test Planning - Designing the Unit Tests - The Test Harness - Running the Unit tests and Recording results - Integration tests - Designing Integration Tests - Integration Test Planning - Scenario testing - Defect bash elimination System Testing - Acceptance testing - Performance testing - Regression Testing - Internationalization testing - Ad-hoc testing - Alpha, Beta Tests - Testing OO systems - Usability and Accessibility testing – Configuration testing -Compatibility testing – Testing the documentation – Website testing.

UNIT IV TEST MANAGEMENT 9

People and organizational issues in testing – Organization structures for testing teams – testing services - Test Planning - Test Plan Components - Test Plan Attachments - Locating Test Items - test management - test process - Reporting Test Results - Introducing the test specialist - Skills needed by a test specialist - Building a Testing Group- The Structure of Testing Group- .The Technical Training Program.

UNIT V TEST AUTOMATION 9

Software test automation - skills needed for automation - scope of automation - design and architecture for automation - requirements for a test tool - challenges in automation - Test metrics and measurements - project, progress and productivity metrics.

TOTAL: 45 PERIODS

OUTCOMES:

At the end of the course the students will be able to:

- Design test cases suitable for a software development for different domains.
- Identify suitable tests to be carried out.
- Prepare test planning based on the document.
- Document test plans and test cases designed.
- Use automatic testing tools.
- Develop and validate a test plan.

PRINCIPAL
MOHAMED SATHAK A.J.COLLEGE OF ENGINEERING
34, Rajiv Gandhi Road (OMR), Siruseri, IT Park
Chennai-603 103.

TEXT BOOKS:

1. Srinivasan Desikan and Gopalaswamy Ramesh, ¯Software Testing - Principles and Practices‖, Pearson Education, 2006.

www.anuvep.net

CS8601 **MOBILE COMPUTING**

L	T	P	C
3	0	0	3

OBJECTIVES:

- To understand the basic concepts of mobile computing.
- To learn the basics of mobile telecommunication system .
- To be familiar with the network layer protocols and Ad-Hoc networks.
- To know the basis of transport and application layer protocols.
- To gain knowledge about different mobile platforms and application development.

UNIT I INTRODUCTION **9**

Introduction to Mobile Computing - Applications of Mobile Computing- Generations of Mobile Communication Technologies- Multiplexing - Spread spectrum -MAC Protocols - SDMA- TDMA- FDMA- CDMA

UNIT II MOBILE TELECOMMUNICATION SYSTEM **9**

Introduction to Cellular Systems - GSM - Services & Architecture - Protocols - Connection Establishment - Frequency Allocation - Routing - Mobility Management - Security - GPRS- UMTS – Architecture – Handover - Security

UNIT III MOBILE NETWORK LAYER **9**

Mobile IP - DHCP - AdHoc- Proactive protocol-DSDV, Reactive Routing Protocols - DSR, AODV , Hybrid routing -ZRP, Multicast Routing- ODMRP, Vehicular Ad Hoc networks (VANET) -MANET Vs VANET – Security.

UNIT IV MOBILE TRANSPORT AND APPLICATION LAYER **9**

Mobile TCP- WAP - Architecture - WDP - WTLS - WTP -WSP - WAE - WTA Architecture - WML

UNIT V MOBILE PLATFORMS AND APPLICATIONS **9**

Mobile Device Operating Systems - Special Constraints & Requirements - Commercial Mobile Operating Systems - Software Development Kit: iOS, Android, BlackBerry, Windows Phone – MCommerce – Structure – Pros & Cons – Mobile Payment System – Security Issues

TOTAL 45 PERIODS

OUTCOMES:

At the end of the course, the students should be able to:

- Explain the basics of mobile telecommunication systems
- Illustrate the generations of telecommunication systems in wireless networks
- Determine the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network
- Explain the functionality of Transport and Application layers
- Develop a mobile application using android/blackberry/ios/Windows SDK

TEXT BOOKS:

1. Jochen Schiller, ¯Mobile Communications‖, PHI, Second Edition, 2003.
2. Prasant Kumar Pattnaik, Rajib Mall, ¯Fundamentals of Mobile Computing‖, PHI Learning Pvt.Ltd, New Delhi – 2012

PRINCIPAL
MOHAMED SATHAK A.J.COLLEGE OF ENGINEERING
34, Rajiv Gandhi Road (OMR), Siruseri, IT Park
Chennai-603 103.

REFERENCES

1. Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems",Thomson Asia Pvt Ltd, 2005.
2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, ¯Principles of Mobile Computing‖, Springer, 2003.

www.padeepz.net

CS8651 **INTERNET PROGRAMMING** L T P C 3 0 0 3

OBJECTIVES:

- To understand different Internet Technologies.
- To learn java-specific web services architecture

UNIT I WEBSITE BASICS, HTML 5, CSS 3, WEB 2.0 9

Web Essentials: Clients, Servers and Communication - The Internet - Basic Internet protocols - World wide web - HTTP Request Message - HTTP Response Message - Web Clients – Web Servers – HTML5 – Tables – Lists – Image – HTML5 control elements – Semantic elements - Drag and Drop - Audio - Video controls - CSS3 - Inline, embedded and external style sheets - Rule cascading - Inheritance - Backgrounds - Border Images - Colors - Shadows - Text - Transformations - Transitions - Animations.

UNIT II CLIENT SIDE PROGRAMMING 9

Java Script: An introduction to JavaScript-JavaScript DOM Model-Date and Objects,- Regular Expressions- Exception Handling-Validation-Built-in objects-Event Handling-DHTML with JavaScript- JSON introduction - Syntax - Function Files - Http Request - SQL.

UNIT III SERVER SIDE PROGRAMMING 9

Servlets: Java Servlet Architecture- Servlet Life Cycle- Form GET and POST actions- Session Handling- Understanding Cookies- Installing and Configuring Apache Tomcat Web Server- DATABASE CONNECTIVITY: JDBC perspectives, JDBC program example - JSP: Understanding Java Server Pages-JSP Standard Tag Library (JSTL)-Creating HTML forms by embedding JSP code.

UNIT IV PHP and XML 9

An introduction to PHP: PHP- Using PHP- Variables- Program control- Built-in functions- Form Validation- Regular Expressions - File handling – Cookies - Connecting to Database. XML: Basic XML- Document Type Definition- XML Schema DOM and Presenting XML, XML Parsers and Validation, XSL and XSLT Transformation, News Feed (RSS and ATOM).

UNIT V INTRODUCTION TO AJAX and WEB SERVICES 9

AJAX: Ajax Client Server Architecture-XML Http Request Object-Call Back Methods; Web Services: Introduction- Java web services Basics – Creating, Publishing, Testing and Describing a Web services (WSDL)-Consuming a web service, Database Driven web service from an application -SOAP.

TOTAL 45 PERIODS

OUTCOMES:

At the end of the course, the students should be able to:

- Construct a basic website using HTML and Cascading Style Sheets.
- Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
- Develop server side programs using Servlets and JSP.
- Construct simple web pages in PHP and to represent data in XML format.
- Use AJAX and web services to develop interactive web applications

TEXT BOOK:

1. Deitel and Deitel and Nieto, "Internet and World Wide Web - How to Program", Prentice Hall, 5th Edition, 2011.

REFERENCES:

1. Stephen Wynkoop and John Burke "Running a Perfect Website", QUE, 2nd Edition,1999.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
34, Rajiv Gandhi Road (OMR), Siruseri, IT Park
Chennai-603 103.

www.paperpk.net

GE8151 **PROBLEM SOLVING AND PYTHON PROGRAMMING** **L T P C**
3 0 0 3

OBJECTIVES:

- To know the basics of algorithmic problem solving
- To read and write simple Python programs.
- To develop Python programs with conditionals and loops.
- To define Python functions and call them.
- To use Python data structures — lists, tuples, dictionaries.
- To do input/output with files in Python.

UNIT I ALGORITHMIC PROBLEM SOLVING **9**

Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range, Towers of Hanoi.

UNIT II DATA, EXPRESSIONS, STATEMENTS **9**

Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT III CONTROL FLOW, FUNCTIONS **9**

Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays. Illustrative programs: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.

UNIT IV LISTS, TUPLES, DICTIONARIES **9**

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing - list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V FILES, MODULES, PACKAGES **9**

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

TOTAL: 45 PERIODS

OUTCOMES:

Upon completion of the course, students will be able to

- Develop algorithmic solutions to simple computational problems
- Read, write, execute by hand simple Python programs.
- Structure simple Python programs for solving problems.
- Decompose a Python program into functions.
- Represent compound data using Python lists, tuples, dictionaries.
- Read and write data from/to files in Python Programs.

TEXT BOOKS:

1. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist'', 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (http://greenteapress.com/wp/think-python/)
2. Guido van Rossum and Fred L. Drake Jr, -An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.

PRINCIPAL
RAJALAKSHMI ENGINEERING COLLEGE
KANCHIPURAM

CS8251 **PROGRAMMING IN C** L T P C
3 0 0 3

OBJECTIVES:

- To develop C Programs using basic programming constructs
- To develop C programs using arrays and strings
- To develop applications in C using functions , pointers and structures
- To do input/output and file handling in C

UNIT I BASICS OF C PROGRAMMING 9

Introduction to programming paradigms - Structure of C program - C programming: Data Types – Storage classes - Constants – Enumeration Constants - Keywords – Operators: Precedence and Associativity - Expressions - Input/Output statements, Assignment statements – Decision making statements - Switch statement - Looping statements – Pre-processor directives - Compilation process

UNIT II ARRAYS AND STRINGS 9

Introduction to Arrays: Declaration, Initialization – One dimensional array – Example Program: Computing Mean, Median and Mode - Two dimensional arrays – Example Program: Matrix Operations (Addition, Scaling, Determinant and Transpose) - String operations: length, compare, concatenate, copy – Selection sort, linear and binary search

UNIT III FUNCTIONS AND POINTERS 9

Introduction to functions: Function prototype, function definition, function call, Built-in functions (string functions, math functions) – Recursion – Example Program: Computation of Sine series, Scientific calculator using built-in functions, Binary Search using recursive functions – Pointers – Pointer operators – Pointer arithmetic – Arrays and pointers – Array of pointers – Example Program: Sorting of names – Parameter passing: Pass by value, Pass by reference – Example Program: Swapping of two numbers and changing the value of a variable using pass by reference

UNIT IV STRUCTURES 9

Structure - Nested structures – Pointer and Structures – Array of structures – Example Program using structures and pointers – Self-referential structures – Dynamic memory allocation - Singly linked list - typedef

UNIT V FILE PROCESSING 9

Files – Types of file processing: Sequential access, Random access – Sequential access file - Example Program: Finding average of numbers stored in sequential access file - Random access file - Example Program: Transaction processing using random access files – Command line arguments

OUTCOMES:

Upon completion of the course, the students will be able to

- Develop simple applications in C using basic constructs
- Design and implement applications using arrays and strings
- Develop and implement applications in C using functions and pointers.
- Develop applications in C using structures.
- Design applications using sequential and random access file processing.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
CHENNAI-603 103
KELAMBAKKAM, DT

TEXT BOOKS:

1. Reema Thareja, -Programming in Cl, Oxford University Press, Second Edition, 2016.
2. Kernighan, B.W and Ritchie,D.M, -The C Programming languagel, Second Edition, Pearson Education, 2006

REFERENCES:

1. Paul Deitel and Harvey Deitel, -C How to Programl, Seventh edition, Pearson Publication

CS8391

DATA STRUCTURES

L T P C
3 0 0 3

OBJECTIVES:

- To understand the concepts of ADTs
- To Learn linear data structures – lists, stacks, and queues
- To understand sorting, searching and hashing algorithms
- To apply Tree and Graph structures

UNIT I LINEAR DATA STRUCTURES – LIST 9

Abstract Data Types (ADTs) – List ADT – array-based implementation – linked list implementation —singly linked lists- circularly linked lists- doubly-linked lists – applications of lists –Polynomial Manipulation – All operations (Insertion, Deletion, Merge, Traversal).

UNIT II LINEAR DATA STRUCTURES – STACKS, QUEUES 9

Stack ADT – Operations - Applications - Evaluating arithmetic expressions- Conversion of Infix to postfix expression - Queue ADT – Operations - Circular Queue – Priority Queue - deQueue – applications of queues.

UNIT III NON LINEAR DATA STRUCTURES – TREES 9

Tree ADT – tree traversals - Binary Tree ADT – expression trees – applications of trees – binary search tree ADT –Threaded Binary Trees- AVL Trees – B-Tree - B+ Tree - Heap – Applications of heap.

UNIT IV NON LINEAR DATA STRUCTURES - GRAPHS 9

Definition – Representation of Graph – Types of graph - Breadth-first traversal - Depth-first traversal – Topological Sort – Bi-connectivity – Cut vertex – Euler circuits – Applications of graphs.

UNIT V SEARCHING, SORTING AND HASHING TECHNIQUES 9

Searching- Linear Search - Binary Search. Sorting - Bubble sort - Selection sort - Insertion sort - Shell sort – Radix sort. Hashing- Hash Functions – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing.

TOTAL: 45 PERIODS

OUTCOMES:

At the end of the course, the student should be able to:

- Implement abstract data types for linear data structures.
- Apply the different linear and non-linear data structures to problem solutions.
- Critically analyze the various sorting algorithms.

TEXT BOOKS:

1. Mark Allen Weiss, -Data Structures and Algorithm Analysis in Cl, 2nd Edition, Pearson Education,1997.
2. Reema Thareja, -Data Structures Using Cll, Second Edition , Oxford University Press, 2011

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L.Rivest, Clifford Stein, -Introduction to Algorithms", Second Edition, Mcgraw Hill, 2002.
2. Aho, Hopcroft and Ullman, -Data Structures and Algorithmsll, Pearson Education,1983.
3. Stephen G. Kochan, -Programming in Cl, 3rd edition, Pearson Education.
4. Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, -Fundamentals of Data Structures in Cl, Second Edition, University Press, 2008

MOHAMED SATHAK A.J COLLEGE OF ENGINEERING

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 10
KANCHIPURAM DT

CS8392 **OBJECT ORIENTED PROGRAMMING** L T P C 3 0 0 3

OBJECTIVES:

- To understand Object Oriented Programming concepts and basic characteristics of Java
- To know the principles of packages, inheritance and interfaces
- To define exceptions and use I/O streams
- To develop a java application with threads and generics classes
- To design and build simple Graphical User Interfaces

UNIT I INTRODUCTION TO OOP AND JAVA FUNDAMENTALS 10

Object Oriented Programming - Abstraction – objects and classes - Encapsulation- Inheritance - Polymorphism- OOP in Java – Characteristics of Java – The Java Environment - Java Source File -Structure – Compilation. Fundamental Programming Structures in Java – Defining classes in Java – constructors, methods -access specifiers - static members -Comments, Data Types, Variables, Operators, Control Flow, Arrays , Packages - JavaDoc comments.

UNIT II INHERITANCE AND INTERFACES 9

Inheritance – Super classes- sub classes –Protected members – constructors in sub classes- the Object class – abstract classes and methods- final methods and classes – Interfaces – defining an interface, implementing interface, differences between classes and interfaces and extending interfaces - Object cloning -inner classes, Array Lists - Strings

UNIT III EXCEPTION HANDLING AND I/O 9

Exceptions - exception hierarchy - throwing and catching exceptions – built-in exceptions, creating own exceptions, Stack Trace Elements. Input / Output Basics – Streams – Byte streams and Character streams – Reading and Writing Console – Reading and Writing Files

UNIT IV MULTITHREADING AND GENERIC PROGRAMMING 8

Differences between multi-threading and multitasking, thread life cycle, creating threads, synchronizing threads, Inter-thread communication, daemon threads, thread groups. Generic Programming – Generic classes – generic methods – Bounded Types – Restrictions and Limitations.

UNIT V EVENT DRIVEN PROGRAMMING 9

Graphics programming - Frame – Components - working with 2D shapes - Using color, fonts, and images - Basics of event handling - event handlers - adapter classes - actions - mouse events - AWT event hierarchy - Introduction to Swing – layout management - Swing Components – Text Fields , Text Areas – Buttons- Check Boxes – Radio Buttons – Lists- choices- Scrollbars – Windows –Menus – Dialog Boxes.

OUTCOMES: **TOTAL: 45 PERIODS**

Upon completion of the course, students will be able to:

- Develop Java programs using OOP principles
- Develop Java programs with the concepts inheritance and interfaces
- Build Java applications using exceptions and I/O streams
- Develop Java applications with threads and generics classes
- Develop interactive Java programs using swings

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

TEXT BOOKS:

1. Herbert Schildt, -Java The complete referencell, 8th Edition, McGraw Hill Education, 2011.
2. Cay S. Horstmann, Gary cornell, -Core Java Volume –I Fundamentalsll, 9th Edition, Prentice Hall, 2013.

CS8591 **COMPUTER NETWORKS**

L	T	P	C
3	0	0	3

OBJECTIVES:

- To understand the protocol layering and physical level communication.
- To analyze the performance of a network.
- To understand the various components required to build different networks.
- To learn the functions of network layer and the various routing protocols.
- To familiarize the functions and protocols of the Transport layer.

UNIT I INTRODUCTION AND PHYSICAL LAYER 9

Networks – Network Types – Protocol Layering – TCP/IP Protocol suite – OSI Model – Physical Layer: Performance – Transmission media – Switching – Circuit-switched Networks – Packet Switching.

UNIT II DATA-LINK LAYER & MEDIA ACCESS 9

Introduction – Link-Layer Addressing – DLC Services – Data-Link Layer Protocols – HDLC – PPP - Media Access Control - Wired LANs: Ethernet - Wireless LANs – Introduction – IEEE 802.11, Bluetooth – Connecting Devices.

UNIT III NETWORK LAYER 9

Network Layer Services – Packet switching – Performance – IPV4 Addresses – Forwarding of IP Packets - Network Layer Protocols: IP, ICMP v4 – Unicast Routing Algorithms – Protocols – Multicasting Basics – IPV6 Addressing – IPV6 Protocol.

UNIT IV TRANSPORT LAYER 9

Introduction – Transport Layer Protocols – Services – Port Numbers – User Datagram Protocol – Transmission Control Protocol – SCTP.

UNIT V APPLICATION LAYER 9

WWW and HTTP – FTP – Email –Telnet –SSH – DNS – SNMP.

TOTAL : 45 PERIODS

OUTCOMES:

On Completion of the course, the students should be able to:

- Understand the basic layers and its functions in computer networks.
- Evaluate the performance of a network.
- Understand the basics of how data flows from one node to another.
- Analyze and design routing algorithms.
- Design protocols for various functions in the network.
- Understand the working of various application layer protocols.

TEXT BOOK:

1. Behrouz A. Forouzan, Data Communications and Networking, Fifth Edition TMH, 2013.

REFERENCES

1. Larry L. Peterson, Bruce S. Davie, Computer Networks: A Systems Approach, Fifth Edition, Morgan Kaufmann Publishers Inc., 2012.
2. William Stallings, Data and Computer Communications, Tenth Edition, Pearson Education, 2013.
3. Nader F. Mir, Computer and Communication Networks, Second Edition, Prentice Hall, 2014.
4. Ying-Dar Lin, Ren-Hung Hwang and Fred Baker, Computer Networks: An Open Source Approach, McGraw Hill Publisher, 2011.
5. James F. Kurose, Keith W. Ross, Computer Networking, A Top-Down Approach Featuring the Internet, Sixth Edition, Pearson Education, 2013.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR 603 103.
KANCHIPURAM DT.

CS8691 **ARTIFICIAL INTELLIGENCE** L T P C 3 0 0 3

OBJECTIVES:

- To understand the various characteristics of Intelligent agents
- To learn the different search strategies in AI
- To learn to represent knowledge in solving AI problems
- To understand the different ways of designing software agents
- To know about the various applications of AI.

UNIT I INTRODUCTION 9

Introduction–Definition - Future of Artificial Intelligence – Characteristics of Intelligent Agents– Typical Intelligent Agents – Problem Solving Approach to Typical AI problems.

UNIT II PROBLEM SOLVING METHODS 9

Problem solving Methods - Search Strategies- Uninformed - Informed - Heuristics - Local Search Algorithms and Optimization Problems - Searching with Partial Observations - Constraint Satisfaction Problems – Constraint Propagation - Backtracking Search - Game Playing - Optimal Decisions in Games – Alpha - Beta Pruning - Stochastic Games

UNIT III KNOWLEDGE REPRESENTATION 9

First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining-Backward Chaining – Resolution – Knowledge Representation - Ontological Engineering-Categories and Objects – Events - Mental Events and Mental Objects - Reasoning Systems for Categories - Reasoning with Default Information

UNIT IV SOFTWARE AGENTS 9

Architecture for Intelligent Agents – Agent communication – Negotiation and Bargaining – Argumentation among Agents – Trust and Reputation in Multi-agent systems.

UNIT V APPLICATIONS 9

AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing - Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning – Moving

TOTAL :45 PERIODS

OUTCOMES:

Upon completion of the course, the students will be able to:

- Use appropriate search algorithms for any AI problem
- Represent a problem using first order and predicate logic
- Provide the apt agent strategy to solve a given problem
- Design software agents to solve a problem
- Design applications for NLP that use Artificial Intelligence.

TEXT BOOKS:

1 S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approach‖, Prentice Hall, Third Edition, 2009.

2 I. Bratko, -Prolog: Programming for Artificial Intelligence‖, Fourth edition, Addison-Wesley Educational Publishers Inc., 2011.

REFERENCES:

1. M. Tim Jones, -Artificial Intelligence: A Systems Approach(Computer Science)‖, Jones and Bartlett Publishers, Inc.; First Edition, 2008
2. Nils J. Nilsson, -The Quest for Artificial Intelligence‖, Cambridge University Press, 2009.
3. William F. Clocksin and Christopher S. Mellish,‖ Programming in Prolog: Using the ISO Standard‖, Fifth Edition, Springer, 2003.
4. Gerhard Weiss, -Multi Agent Systems‖, Second Edition, MIT Press, 2013.

PRINCIPAL
MUHAMMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR 603 103.
KANCHIPURAM DT

CS8792 **CRYPTOGRAPHY AND NETWORK SECURITY**

L	T	P	C
3	0	0	3

OBJECTIVES:

- To understand Cryptography Theories, Algorithms and Systems.
- To understand necessary Approaches and Techniques to build protection mechanisms in order to secure computer networks.

UNIT I INTRODUCTION **9**

Security trends - Legal, Ethical and Professional Aspects of Security, Need for Security at Multiple levels, Security Policies - Model of network security – Security attacks, services and mechanisms – OSI security architecture – Classical encryption techniques: substitution techniques, transposition techniques, steganography- Foundations of modern cryptography: perfect security – information theory – product cryptosystem – cryptanalysis.

UNIT II SYMMETRIC KEY CRYPTOGRAPHY **9**

MATHEMATICS OF SYMMETRIC KEY CRYPTOGRAPHY: Algebraic structures - Modular arithmetic-Euclid"s algorithm- Congruence and matrices - Groups, Rings, Fields- Finite fields- SYMMETRIC KEY CIPHERS: SDES – Block cipher Principles of DES – Strength of DES – Differential and linear cryptanalysis - Block cipher design principles – Block cipher mode of operation – Evaluation criteria for AES – Advanced Encryption Standard - RC4 – Key distribution.

UNIT III PUBLIC KEY CRYPTOGRAPHY **9**

MATHEMATICS OF ASYMMETRIC KEY CRYPTOGRAPHY: Primes – Primality Testing – Factorization – Euler's totient function, Fermat's and Euler's Theorem - Chinese Remainder Theorem – Exponentiation and logarithm - ASYMMETRIC KEY CIPHERS: RSA cryptosystem – Key distribution – Key management – Diffie Hellman key exchange - ElGamal cryptosystem – Elliptic curve arithmetic-Elliptic curve cryptography.

UNIT IV MESSAGE AUTHENTICATION AND INTEGRITY **9**

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC – SHA –Digital signature and authentication protocols – DSS- Entity Authentication: Biometrics, Passwords, Challenge Response protocols- Authentication applications - Kerberos, X.509

UNIT V SECURITY PRACTICE AND SYSTEM SECURITY **9**

Electronic Mail security – PGP, S/MIME – IP security – Web Security - SYSTEM SECURITY: Intruders – Malicious software – viruses – Firewalls.

TOTAL 45 PERIODS

OUTCOMES:

At the end of the course, the student should be able to:

- Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
- Apply the different cryptographic operations of symmetric cryptographic algorithms
- Apply the different cryptographic operations of public key cryptography
- Apply the various Authentication schemes to simulate different applications.
- Understand various Security practices and System security standards

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

TEXT BOOK:

1. William Stallings, Cryptography and Network Security: Principles and Practice, PHI 3rd Edition, 2006.

EC8691 **MICROPROCESSORS AND MICROCONTROLLERS** L T P C
3 0 0 3

OBJECTIVES:

- To understand the Architecture of 8086 microprocessor.
- To learn the design aspects of I/O and Memory Interfacing circuits.
- To interface microprocessors with supporting chips.
- To study the Architecture of 8051 microcontroller.
- To design a microcontroller based system

UNIT I THE 8086 MICROPROCESSOR 9

Introduction to 8086 – Microprocessor architecture – Addressing modes - Instruction set and assembler directives – Assembly language programming – Modular Programming - Linking and Relocation - Stacks - Procedures – Macros – Interrupts and interrupt service routines – Byte and String Manipulation.

UNIT II 8086 SYSTEM BUS STRUCTURE 9

8086 signals – Basic configurations – System bus timing –System design using 8086 – I/O programming – Introduction to Multiprogramming – System Bus Structure – Multiprocessor configurations – Coprocessor, Closely coupled and loosely Coupled configurations – Introduction to advanced processors.

UNIT III I/O INTERFACING 9

Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – D/A and A/D Interface - Timer – Keyboard /display controller – Interrupt controller – DMA controller – Programming and applications Case studies: Traffic Light control, LED display , LCD display, Keyboard display interface and Alarm Controller.

UNIT IV MICROCONTROLLER 9

Architecture of 8051 – Special Function Registers(SFRs) - I/O Pins Ports and Circuits - Instruction set - Addressing modes - Assembly language programming.

UNIT V INTERFACING MICROCONTROLLER 9

Programming 8051 Timers - Serial Port Programming - Interrupts Programming – LCD & Keyboard Interfacing - ADC, DAC & Sensor Interfacing - External Memory Interface- Stepper Motor and Waveform generation - Comparison of Microprocessor, Microcontroller, PIC and ARM processors

TOTAL: 45 PERIODS

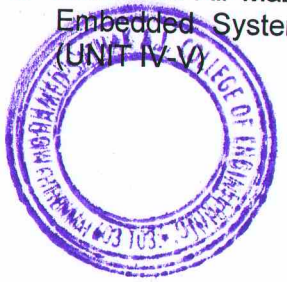
OUTCOMES:

At the end of the course, the students should be able to:

- Understand and execute programs based on 8086 microprocessor.
- Design Memory Interfacing circuits.
- Design and interface I/O circuits.
- Design and implement 8051 microcontroller based systems.

TEXT BOOKS:

1. Yu-Cheng Liu, Glenn A.Gibson, -Microcomputer Systems: The 8086 / 8088 Family - Architecture, Programming and Designll, Second Edition, Prentice Hall of India, 2007. (UNIT I- III)
2. Mohamed Ali Mazidi, Janice Gillispie Mazidi, Rolin McKinlay, -The 8051 Microcontroller and Embedded Systems: Using Assembly and Cl, Second Edition, Pearson education, 2011. (UNIT IV-V)



PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CS8791 **CLOUD COMPUTING** L T P C
3 0 0 3

OBJECTIVES:

- To understand the concept of cloud computing.
- To appreciate the evolution of cloud from the existing technologies.
- To have knowledge on the various issues in cloud computing.
- To be familiar with the lead players in cloud.
- To appreciate the emergence of cloud as the next generation computing paradigm.

UNIT I INTRODUCTION

Introduction to Cloud Computing – Definition of Cloud – Evolution of Cloud Computing – Underlying Principles of Parallel and Distributed Computing – Cloud Characteristics – Elasticity in Cloud – On-demand Provisioning.

UNIT II CLOUD ENABLING TECHNOLOGIES 10

Service Oriented Architecture – REST and Systems of Systems – Web Services – Publish-Subscribe Model – Basics of Virtualization – Types of Virtualization – Implementation Levels of Virtualization – Virtualization Structures – Tools and Mechanisms – Virtualization of CPU – Memory – I/O Devices –Virtualization Support and Disaster Recovery.

UNIT III CLOUD ARCHITECTURE, SERVICES AND STORAGE 8

Layered Cloud Architecture Design – NIST Cloud Computing Reference Architecture – Public, Private and Hybrid Clouds - IaaS – PaaS – SaaS – Architectural Design Challenges – Cloud Storage – Storage-as-a-Service – Advantages of Cloud Storage – Cloud Storage Providers – S3.

UNIT IV RESOURCE MANAGEMENT AND SECURITY IN CLOUD 10

Inter Cloud Resource Management – Resource Provisioning and Resource Provisioning Methods – Global Exchange of Cloud Resources – Security Overview – Cloud Security Challenges – Software-as-a-Service Security – Security Governance – Virtual Machine Security – IAM – Security Standards.

UNIT V CLOUD TECHNOLOGIES AND ADVANCEMENTS 8

Hadoop – MapReduce – Virtual Box -- Google App Engine – Programming Environment for Google App Engine — Open Stack – Federation in the Cloud – Four Levels of Federation – Federated Services and Applications – Future of Federation.

TOTAL: 45 PERIODS

OUTCOMES:

On Completion of the course, the students should be able to:

- Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
- Learn the key and enabling technologies that help in the development of cloud.
- Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
- Explain the core issues of cloud computing such as resource management and security.
- Be able to install and use current cloud technologies.
- Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

TEXT BOOKS:

1. Kai Hwang, Geoffrey C. Fox, Jack G. Dongarra, "Distributed and Cloud Computing, From Parallel Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.
2. Rittinghouse, John W., and James F. Ransome, -Cloud Computing: Implementation, Management and Securityl, CRC Press, 2017.

CS8079 **HUMAN COMPUTER INTERACTION** L T P C 3 0 0 3

OBJECTIVES:

- To learn the foundations of Human Computer Interaction.
- To become familiar with the design technologies for individuals and persons with disabilities.
- To be aware of mobile HCI.
- To learn the guidelines for user interface.

UNIT I FOUNDATIONS OF HCI 9

The Human: I/O channels – Memory – Reasoning and problem solving; **The Computer:** Devices – Memory – processing and networks; **Interaction:** Models – frameworks – Ergonomics – styles – elements – interactivity- Paradigms. - **Case Studies**

UNIT II DESIGN & SOFTWARE PROCESS 9

Interactive Design: Basics – process – scenarios – navigation – screen design – Iteration and prototyping. **HCI in software process:** Software life cycle – usability engineering – Prototyping in practice – design rationale. **Design rules:** principles, standards, guidelines, rules. **Evaluation Techniques – Universal Design**

UNIT III MODELS AND THEORIES 9

HCI Models: Cognitive models: Socio-Organizational issues and stakeholder requirements – Communication and collaboration models-**Hypertext, Multimedia and WWW**.

UNIT IV MOBILE HCI 9

Mobile Ecosystem: Platforms, Application frameworks- **Types of Mobile Applications:** Widgets, Applications, Games- Mobile Information Architecture, Mobile 2.0, **Mobile Design:** Elements of Mobile Design, Tools. - **Case Studies**

UNIT V WEB INTERFACE DESIGN 9

Designing Web Interfaces – Drag & Drop, Direct Selection, Contextual Tools, Overlays, Inlays and Virtual Pages, Process Flow - **Case Studies**

TOTAL :45 PERIODS

OUTCOMES:

Upon completion of the course, the students should be able to:

- Design effective dialog for HCI
- Design effective HCI for individuals and persons with disabilities.
- Assess the importance of user feedback.
- Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites.
- Develop meaningful user interface.

TEXT BOOKS:

1. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, -Human Computer Interactionl, 3rd Edition, Pearson Education, 2004 (UNIT I, II & III)
2. Brian Fling, -Mobile Design and Developmentl, First Edition, O'Reilly Media Inc., 2009 (UNIT – IV)
3. Bill Scott and Theresa Neil, -Designing Web Interfacesl, First Edition, O'Reilly, 2009. (UNIT-V)

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING CHENNAI-603 103.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CS8080 **INFORMATION RETRIEVAL TECHNIQUES** L T P C 3 0 0 3

OBJECTIVES:

- To understand the basics of Information Retrieval.
- To understand machine learning techniques for text classification and clustering.
- To understand various search engine system operations.
- To learn different techniques of recommender system.

UNIT I INTRODUCTION 9

Information Retrieval – Early Developments – The IR Problem – The User_s Task – Information versus Data Retrieval - The IR System – The Software Architecture of the IR System – The Retrieval and Ranking Processes - The Web – The e-Publishing Era – How the web changed Search – Practical Issues on the Web – How People Search – Search Interfaces Today – Visualization in Search Interfaces.

UNIT II MODELING AND RETRIEVAL EVALUATION 9

Basic IR Models - Boolean Model - TF-IDF (Term Frequency/Inverse Document Frequency) Weighting - Vector Model – Probabilistic Model – Latent Semantic Indexing Model – Neural Network Model – Retrieval Evaluation – Retrieval Metrics – Precision and Recall – Reference Collection – User-based Evaluation – Relevance Feedback and Query Expansion – Explicit Relevance Feedback.

UNIT III TEXT CLASSIFICATION AND CLUSTERING 9

A Characterization of Text Classification – Unsupervised Algorithms: Clustering – Naïve Text Classification – Supervised Algorithms – Decision Tree – k-NN Classifier – SVM Classifier – Feature Selection or Dimensionality Reduction – Evaluation metrics – Accuracy and Error – Organizing the classes – Indexing and Searching – Inverted Indexes – Sequential Searching – Multi-dimensional Indexing.

UNIT IV WEB RETRIEVAL AND WEB CRAWLING 9

The Web – Search Engine Architectures – Cluster based Architecture – Distributed Architectures – Search Engine Ranking – Link based Ranking – Simple Ranking Functions – Learning to Rank – Evaluations -- Search Engine Ranking – Search Engine User Interaction – Browsing – Applications of a Web Crawler – Taxonomy – Architecture and Implementation – Scheduling Algorithms – Evaluation.

UNIT V RECOMMENDER SYSTEM 9

Recommender Systems Functions – Data and Knowledge Sources – Recommendation Techniques – Basics of Content-based Recommender Systems – High Level Architecture – Advantages and Drawbacks of Content-based Filtering – Collaborative Filtering – Matrix factorization models – Neighborhood models.

TOTAL: 45 PERIODS

OUTCOMES:

Upon completion of the course, the students will be able to:

- Use an open source search engine framework and explore its capabilities
- Apply appropriate method of classification or clustering.
- Design and implement innovative features in a search engine.
- Design and implement a recommender system.

PRINCIPAL
RMK ENGINEERING COLLEGE
KANCHIPURAM DT

TEXT BOOKS:

1. Ricardo Baeza-Yates and Berthier Ribeiro-Neto, —Modern Information Retrieval: The Concepts and Technology behind Search, Second Edition, ACM Press Books, 2011.
2. Ricci, F, Rokach, L. Shapira, B.Kantor, -Recommender Systems Handbook, First Edition, 2011.

CS8073 C# AND .NET PROGRAMMING L T P C
3 0 0 3

OBJECTIVES:

- To learn basic programming in C# and the object oriented programming concepts.
- To update and enhance skills in writing Windows applications, ADO.NET and ASP .NET.
- To study the advanced concepts in data connectivity, WPF, WCF and WWF with C# and .NET 4.5.
- To implement mobile applications using .Net compact framework
- To understand the working of base class libraries, their operations and manipulation of data using XML.

UNIT I C# LANGUAGE BASICS 9

.Net Architecture - Core C# - Variables - Data Types - Flow control - Objects and Types- Classes and Structs - Inheritance- Generics – Arrays and Tuples - Operators and Casts - Indexers

UNIT II C# ADVANCED FEATURES 9

Delegates - Lambdas - Lambda Expressions - Events - Event Publisher - Event Listener - Strings and Regular Expressions - Generics - Collections - Memory Management and Pointers - Errors and Exceptions - Reflection

UNIT III BASE CLASS LIBRARIES AND DATA MANIPULATION 9

Diagnostics -Tasks, Threads and Synchronization - .Net Security - Localization - Manipulating XML- SAX and DOM - Manipulating files and the Registry- Transactions - ADO.NET- Peer-to-Peer Networking - PNRP - Building P2P Applications - Windows Presentation Foundation (WPF).

UNIT IV WINDOW BASED APPLICATIONS, WCF AND WWF 9

Window based applications - Core ASP.NET- ASP.NET Web forms -Windows Communication Foundation (WCF)- Introduction to Web Services - .Net Remoting - Windows Service - Windows Workflow Foundation (WWF) - Activities – Workflows

UNIT V .NET FRAMEWORK AND COMPACT FRAMEWORK 9

Assemblies - Shared assemblies - Custom Hosting with CLR Objects - Appdomains - Core XAML - Bubbling and Tunneling Events- Reading and Writing XAML - .Net Compact Framework - Compact Edition Data Stores – Errors, Testing and Debugging – Optimizing performance – Packaging and Deployment – Networking and Mobile Devices

TOTAL :45 PERIODS

OUTCOMES:

Upon completion of the course, the students will be able to:

- Write various applications using C# Language in the .NET Framework.
- Develop distributed applications using .NET Framework.
- Create mobile applications using .NET compact Framework.

TEXT BOOKS:

1. Christian Nagel, Bill Evjen, Jay Glynn, Karli Watson, Morgan Skinner . —Professional C# 2012 and .NET 4.5ll, Wiley, 2012

2. Harsh Bhasin, —Programming in C#ll, Oxford University Press, 2014.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103
KANCHIPURAM DT

Deloitte.

InsideSherpa

Inspiring and empowering future professionals

Mohamed Nazeer A

Technology Consulting Virtual Internship

Certificate of Completion

June 21st, 2020

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

Over the period of June 2020, Mohamed Nazeer A has completed practical task modules in:

Client Discovery
Design a Business Case
Considerations For Mobilisation
Define the project approach
Conduct a market scan

Further analysis & solution presentation
Understanding Cloud Computing
Cloud Feasibility Assessment
Cloud Readiness Assessment

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI-603 103.

Danielle O'Leary
Senior Consultant
National Graduate Talent Acquisition Team

Tom Brunskill
CEO, Co-Founder of InsideSherpa

Enrolment Verification Code ZyTuAZ4HcYzbTdQvs | User Verification Code g6TWsmhA5TssrACh9 | Issued by InsideSherpa

KPMG

InsideSherpa

Inspiring and empowering future professionals

Mohamed Nazeer A

Data Analytics Consulting Virtual Internship

Certificate of Completion

June 21st, 2020

Over the period of June 2020, Mohamed Nazeer A has completed practical task modules in:

Data Quality Assessment
Data Insights
Data Insights and Presentation

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

Deborah Yates
National Managing Partner People Performance and Culture

Tom Brunskill
CEO, Co-Founder of InsideSherpa

Enrolment Verification Code 87oLM62BpWoiAjFFS | User Verification Code g6TWsmhA5TssrACh9 | Issued by InsideSherpa

OSI Digital, Inc.
5950 Canoga Avenue, Suite 300, Woodland Hills, CA 91367 ■ Tel: 818.992.2700 ■ Fax: 818.992.8700

Date: August 30, 2021

INTERNSHIP COMPLETION CERTIFICATE

This is to certify **Faisal Ahmed Khan** has successfully completed an internship with OSI Digital as a Middleware Platform Trainee in the Enterprise Integration practice from **01/01/2021 - 01/06/2021.** Besides showing high comprehension capacity, managing assignments with the diligent expertise and exhibiting maximal efficiency, he has also maintained an outstanding professional demeanor and showcased excellent moral character throughout the internship period.

Wishing Faisal all the best for his future endeavors.

Hilal Khan
Vice President, Enterprise Integration
E: hkhan@osidigital.com
O: 949-724-8370
C: 949-419-4159
www.osidigital.com

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

OSI Digital, Inc.
5950 Canoga Avenue, Suite 300, Woodland Hills, CA 91367 ■ Tel: 818.992.2700 ■ Fax: 818.992.8700

Date: August 30, 2021

INTERNSHIP COMPLETION CERTIFICATE

This is to certify **Shazama Fathima** has successfully completed an internship with OSI Digital as a Middleware Platform Trainee in the Enterprise Integration practice from **01/01/2021 - 01/08/2021.** Besides showing high comprehension capacity, managing assignments with the diligent expertise and exhibiting maximal efficiency, she has also maintained an outstanding professional demeanor and showcased excellent moral character throughout the internship period.

Wishing Shazama all the best for her future endeavors.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

Hilal Khan
Vice President, Enterprise Integration
E: hkhan@osidigital.com
O: 949-724-8370
C: 949-419-4159
www.osidigital.com

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING

MULTI-MODAL BRAIN IMAGE FUSION BASED ON ANISOTROPIC DIFFUSION FILTER AND FUSED IMAGE CLASSIFICATION

A PROJECT REPORT

Submitted by

AAYISHA M (311817104001)

SELCIYA J (311817104029)

SOUNDARYA M (311817104031)

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING

SIRUSERI, CHENNAI – 603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2021

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **"MULTI-MODAL BRAIN IMAGE FUSION BASED ON ANISOTROPIC DIFFUSION AND FUSED IMAGE CLASSIFICATION"** is the bonafide work of **AAYISHA M (311817104001), SELCIYA J (311817104029), SOUNDARYA M (311817104031)** who carried out the project work under my supervision.

Mrs. G. Premalatha, M.E., (Ph.D)

HEAD OF THE DEPARTMENT

Department of Computer Science
and Engineering
Mohamed Sathak A J College of Engineering.,
Siruseri, Chennai-603103

Mrs. G. Premalatha, M.E., (Ph.D)

SUPERVISOR

Department of Computer Science
and Engineering
Mohamed Sathak A J College of Engineering.,
Siruseri, Chennai-603103

Project Viva-Voice held on 06.08.2021

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING CHENNAI - 603 103

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Multi-modal medical imaging technology and its collaborative diagnosis technology are developing rapidly. The application of medical image fusion technology in medical diagnosis becomes more important. In this project, a multi-modal medical image fusion algorithm based on Anisotropic Diffusion Filter decomposition model is proposed. Firstly, an Anisotropic Diffusion Filter (ADF) is presented and used to decompose the multi-modal medical image into three types of layers: Fine-Structure (FS), Coarse-Structure (CS), and Base Structure (BS) layers. Secondly, a gradient domain Pulse-Coupled Neural Network (PCNN) fusion strategy is used to merge the Fine Structure and Coarse Structure layers, and an energy attribute fusion strategy is used to merge the Base Structure layers. Finally, the fused image is obtained by combining the three types of fused layers.

The next goal is classification with segmentation of fused image with the help of Linear Discriminant Analysis (LDA) classifier, maximum entropy clustering segmentation, Gray Level Concurrence (GLCM) feature extraction and median filtering. Input of the proposed s system is considered as fused brain scan images of Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET). the brain images category is considered as tumor and normal. The good accuracy is achieved using LDA classifier. the affected percentage of tumor is also measured.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI-603 103.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CHAPTER 5

CONCLUSION AND FUTURE ENHANCEMENT

5.1 RESULT AND DISCUSSION

Fused images are used to diagnosis the diseases but in this project the discussion is based on particular topic of brain tumor. By using the project getting fused image as a output and accuracy and tumor affected percentage can be measured by using trained dataset, preprocessing, feature extraction, segmentation and classification. Using fused images detect tumor in cellular level and by using LDA algorithm to classification of the images to gain the given image is tumor or non-tumor. And by segmentation, feature extraction algorithms they comparing images with trained datasets to show the accuracy and to find tumor affected percentage.

5.2 CONCLUSION

This project proposes a novel and effective medical fusion method based on image decomposition, fusion and classification. The proposed fusion method ADF decomposes into three layers and fused by Pulse Coupled Neural Network and Energy Attribute Fusion to remove noise, preserve edges and preserve data of image and reconstructs it and get a fused image. The next process is to classification with segmentation of fused image with the help of LDA classifier, maximum entropy clustering segmentation, GLCM feature extraction and median filtering. The brain images are considered as tumor and non tumor by those algorithms and accuracy and affected percentage of the tumor image is also find by using those algorithms.

5.3 FUTURE ENHANCEMENT

This method can improve diagnosis and monitoring of disease progression. Models combining Positron Emission Tomography (PET) and Computed Tomography (CT) with magnetic resonance imaging (MRI) offer a one-step examination promoting the diagnostic and prognostic potentials for extra-cranial applications of image fusion in cancer. Digital image fusion is a comprehensive information of the multiple source images in order to obtain more accurate more comprehensive and more reliable description for a particular region or target. So that it can be facilitate the subsequent analysis and understanding the image.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING CHENNAI-603 103

DRIVER DROWSINESS DETECTION SYSTEM USING PYTHON

A PROJECT REPORT

Submitted by

ASIF FAYAZ S (311817104003)

MOHAMED NAZEER A (311817104016)

NAVEEN KUMAR S (311817104022)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A J COLLEGE OF ENGINEERING,

SIRUSERI IT PARK, OMR, CHENNAI – 603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103 *

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2021

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **"DRIVER DROWSINESS DETECTION SYSTEM USING PYTHON"** is the bonafide work of **"ASIF FAYAZ S (311817104003), MOHAMED NAZEER A (311817104016), NAVEEN KUMAR S (311817104022)"** who carried out the project work under my supervision.

SIGNATURE
Mrs. G.PREMALATHA,M.E.,(Ph.D).,
HEAD OF THE DEPARTMENT

Department of Computer Science and Engineering
Mohamed Sathak A J College of Engineering
IT Sipcot, OMR, Siruseri,
Chennai – 603 103

SIGNATURE
Mrs. G.PREMALATHA,M.E.,(Ph.D).,
SUPERVISOR
Assistant Professor
Department of Computer Science and Engineering
Mohamed Sathak A J College of Engineering
IT Sipcot, OMR, Siruseri,
Chennai – 603 103

Project Viva-Voce held on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

INTERNAL EXAMINER

EXTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103

ABSTRACT

In smart city, all kinds of users' data are stored in electronic devices to make everything intelligent. A smartphone is the most widely used electronic device and it is the pivot of all smart systems. However, current smartphones are not competent to manage users' sensitive data, and they are facing the privacy leakage caused by data over-collection. Data over-collection, which means smartphones apps collect users' data more than its original function while within the permission scope, is rapidly becoming one of the most serious potential security hazards in smart city. In this paper, we study the current state of data over-collection and study some most frequent data over-collected cases. We present a mobile-cloud framework, which is an active approach to eradicate the data overcollection. By putting all users' data into a cloud, the security of users' data can be greatly improved. We have done extensive experiments and the experimental results have demonstrated the effectiveness of our approach.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
GATTUR-603 103.
KANCHIPURAM DT.

CHAPTER 7

CONCLUSION

Thus, one would have successfully designed and developed the implementation of the Driver Drowsiness Detector using Python and OpenCV along with a camera which detects the face.

The system to be developed is to be tested and limitations are identified. The restof the work will be done according to what is planned already.

7.1 FUTURE SCOPE

This framework can be stretched out further to have abundant security highlights, for example, just a certain no. of individuals can have specialist get to or work the vehicle.

If there should be an occurrence of an endeavor to robbery, the vehicle's motor doesn't begin or an alarm sound.

A picture of the burglar is taken in an attempted theft & sent to the owner of the vehicle who can register a case against the thief of the vehicle.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
GATTUR-603 103.
KANCHIPURAM DT.

DEEP LEARNING FOR SOIL FERTILITY AND PLANT NETRIENT MANAGEMENT USING CRA NEURAL NETWORKS

A PROJECT REPORT

Submitted by

DINESH D (311817104004)

MOHAMED RIYAZ M A (311817104017)

VENKATESAN S (311817104034)

In partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI IT PARK, OMR, CHENNAI – 603 103

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI-603 103

PRINCIPAL
MOHAMED SATHAK A.J COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2021

ANNA UNIVERSITY: CHENNAI 600025

BONAFIDE CERTIFICATE

Certified that this project report **"DEEP LEARNING FOR SOIL FERTILITY AND PLANT NUTRIENT MANAGEMENT USING CRA NEURAL NETWORKS"** is the bonafide work of **"DINESH D (311817104004), MOHAMED RIYAZ M A (311817104017), VENKATESAN S (311817104034)"** who carried out the project work under my supervision.

SIGNATURE
Mrs. G.PREMALATHA, M.E., (Ph.D).,
HEAD OF THE DEPARTMENT

Department of Computer Science and Engineering
Mohamed Sathak A J College of Engineering
IT Sipcot, OMR, Siruseri,
Chennai – 603 103

SIGNATURE
Mr. S.SENTHIL PANDI, M.E, (Ph.D).,
SUPERVISOR
Assistant Professor
Department of Information Technology

Mohamed Sathak A J College of Engineering
IT Sipcot, OMR, Siruseri,
Chennai – 603 103

Project Viva-Voce held on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

INTERNAL EXAMINERS

EXTERNAL EXAMINERS

ABSTRACT

Deep learning procedures are colossally regarded in the examination field of cultivating. The cultivating factors atmosphere, deluge, soil, pesticides, and fertilizers are the basic careful perspective to raise the age of yields. The key piece of agribusiness is soil for yield creating. There are various laboratory and field methods to classify soil, but these have limitations like time and labor-consuming. Examination of soil is a basic bit of soil asset the administrators in development. The earth examination is especially significant for cultivators to observe the amount of chemical and organic fertilizers need to add to the soil, for improving soil nutrients level to yield more crops. The rule focal point of this work is to look at soil supplements utilizing deep learning gathering techniques. This paper talks about different computer-based soil classification practices divided into two streams. First is image processing and computer vision-based soil classification approaches which include the conventional image processing algorithms and methods to classify soil using different features like texture, color, and particle size. Second is deep learning and deep learning-based soil classification approaches, such as CNN, RNN, ANN which yields state-of-the-art results. Specific sort's earth has a different variety of improvements. The system will base on captured image data, 70% for training, 15% for testing and 15% for validation. This paper picks Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Sulfur, Iron, Zinc, and so on, supplements for investigating the earth upgrades utilizing CNN, RNN, ANN. The execution of the portrayal computations is taken a gander at subject to the going with two factors: accuracy and execution time .The important of soil testing playes an important role in the farmers life.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

CHAPTER 7

CONCLUSION

This project proposes a novel and effective soil classification method based on image processing. This method is used to minimize the time to find out the chemical and organic fertilizer need to add for the soil to yield more crops.

7.1 EXPERIMENTAL RESULT

The collected data set was pre-processed and some records are removed from the data. After preprocessing step, the data set was converted into Low, Medium and High based on nutrients level mentioned in. Apply CNN, RNN and ANN algorithm to classify the soil nutrients as Very High, High, Medium, Low and Very Low. The execution time and the accuracy rate of classification algorithms with the types of nutrients is compared and executes the final result.

7.2 FUTURE ENHANCEMENT:

The project was successfully implemented and done. However, the proponents would like to make the following recommendations to further improve the project. Collect more soil samples for the data sets which could yield on more accurate results.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

IMPLEMENTATION OF OFFLINE NAVIGATION SYSTEM FOR FISHERMEN WITH ANC AND PAW SERVER

A PROJECT REPORT

Submitted by

JAVID ASLAM J (311817104011)

MOHAMED SAJED (311817104018)

RAHUMANGANI R (311817104025)

in partial fulfilment for the award of the degree

of

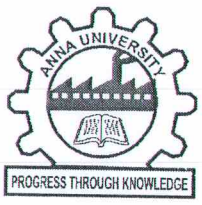
BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103



PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2021

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"IMPLEMENTATION OF OFFLINE NAVIGATION SYSTEM FOR FISHERMEN WITH ANC AND PAW SERVER"** is the bonafide work of **" JAVID ASLAM J (311817104011), MOHAMED SAJED S (311817104018), RAHUMANGANI R (311817104025) " who carried out the project work under my supervision.**

Mrs. G. Premalatha, M.E., (Ph.D),

HEAD OF THE DEPARTMENT

Dept. of Computer Science and Engineering

Mohamed Sathak A J College of

Engineering Siruseri,

Chennai- 603103.

Mrs. G. Premalatha, M.E., (Ph.D),

SUPERVISOR

Assistant Professor

Dept. of Computer Science and Engineering

Mohamed Sathak A J College of

Engineering Siruseri,

Chennai- 603103.

Submitted for the project viva voce on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Sea foods and goods had become one of the major life source and nourishment thing in this advanced modern world whereas a countries nourishment is based on both agricultural and sea goods. Fishermen who put their life on danger to provide sea goods to the common people where they face many problems such as poor navigation through sea etc. This is because of the poor navigation systems provided by the nation to these people.

Implementing a navigation system with advanced features like asynchronous network connectivity, proposing hierarchical path algorithm for border plotting, offline feature within the mobile device or Tablet which will help to overcome the network issues by hosting the web application within mobile.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI · 603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

CHAPTER 7

CONCULSION & FUTURE ENHANCEMENT

7.1 CONCLUSION

Thus, the developed web application does not allow the fishermen to cross the border by mistake. With the simple circuitry and the use of inbuild sensors in smartphone makes the module a low cost product, which can be purchased even by every fisherman. This system provides an accurate and a precise value of the latitude and longitude. The process of routing the fishermen is more efficient with the help of this system which have been implemented.

7.2 FUTURE ENHANCEMENT

A Differential Global Positioning System (DGPS) can be implemented which is an enhancement to the Global Positioning System (GPS) which provides improved location accuracy, in the range of operations of each system, from the 15-metre (49 ft) nominal GPS accuracy to about 1–3 centimetres (0.39–1.18 in) in case of the best implementations.

Voice or audio processing can be done that are programs on digital devices that listen and respond to verbal commands.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

DIGITAL MEDIA MARKETING USING TREND ANALYSIS ON SOCIAL MEDIA

A Project Report

Submitted by

JASIR HUSSAIN S (311817104010)

MOHAMED FAYAZ P R (311817104014)

In partial fulfilment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A.J COLLEGE OF ENGINEERING

SIRUSERI – CHENNAI – 603 103

ANNA UNIVERSITY : CHENNAI 600 025

APRIL 2021

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"DIGITAL MEDIA MARKETING USING TREND ANALYSIS ON SOCIAL MEDIA"** is the bonafide work of **"Jasir Hussain S (311817104010), Mohamed Fayaz P R (311817104014)"** who carried out the project work under my supervision.

Mrs. Premalatha, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Mrs.Sankari, M.E., (Ph.D),
SUPERVISOR
Assistant Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Submitted for the project viva voice on 06.08.21

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING CHENNAI-603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Retaining the most valuable customers is a major problem facing companies in this information age. Especially, the field of telecommunication faces complex challenges due to a number of vibrant competitive service providers.

Therefore, it has become very difficult for them to retain existing customers. Since the cost of acquiring new customers is much higher than the cost of retaining the existing customers, it is the time for the telecom industries to take necessary steps to retain the customers to stabilize their market value.

CRM (Customer Relationship Management) uses data mining techniques to interact with customers. It investigates the use of a technique, supervised learning, for the management and analysis of customer-related data warehouse and information.

Data mining technologies extract hidden information and knowledge from large data stored in databases or data warehouses, which supports the corporate in decision making process.

Several data mining techniques have been proposed in the literature for predicting the happy and stressed customer using heterogeneous customer records. Probably, the stressed customers are in the urge of moving out to competitive service providers.

The project analysis the telecom customer data available in open dataset and predict the customer stress by applying supervised machine-learning algorithms mainly using Deep Neural Network.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * COL 609 * CHENNAI

CHAPTER 8

CONCLUSION AND FUTURE ENHANCEMENT

The teaching reform of environmental art design specialty is the need of social reform and higher education. In order to meet the needs of the society for skilled talents, creating a complete and compatible teaching system is the requirement and guarantee for the construction and development of environmental art design in the new era. Based on the history of digital media era, this study combines design thinking with performance, combines digital media technology with professional knowledge communication teaching, and evaluates the new curriculum, which reflects the importance of the concept, style and implementation of digital media. Compared with the macro professional teaching system reform, the basic environment design level of curriculum teaching is relatively low. However, if the importance of reform is ignored, the teaching contents and methods suitable for vocational education can not be adapted in time. The introduction of new teaching concept will seriously affect the coordination of the whole vocational education system and the overall development goal. This study reviews the development of environmental planning education in the digital age, and finds that the teaching of environmental planning education mainly considers interior design and landscape design and coexists with many industries. It also defines the stages of several periods.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING - CHENNAI - 603 103

SECURED DATA STREAMING WITH HLS ENCRYPTION AND HMAC AUTHENTICATION IN SERVER

A Project Report

Submitted by

Najeeha Banu A (311817104021)

Manoj K (311817104013)

In partial fulfilment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A.J COLLEGE OF ENGINEERING

SIRUSERI – CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2021

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING - CHENNAI - 603 103.

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"SECURED DATA STREAMING WITH HLS ENCRYPTION AND HMAC AUTHENTICATION IN SERVER"** is the bonafide work of **"NAJEEHA BANU A (311817104021), MANOJ K (311817104013)"** who carried out the project work under my supervision.

Mrs. Premalatha, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603 103

Mrs.M. Sankari M.E., (Ph.D)
SUPERVISOR
Assistant Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering,Siruseri, Chennai-603 103

Submitted for the project viva voce on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

INTERNAL EXAMINER

EXTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING CHENNAI - 603 103

ABSTRACT

The technology has increased vastly over the last decade. Users are largely looking on and trusting the cloud for storage and security. A significant issue the present approach poses is the information stored in cloud can be exploited easily, intensifying severe risk on data confidentiality. The threat to cyber security is growing at vast rate. Cybercrime prevention can be easy- when equipped with a little technical advice and common sense, many attacks can be avoided. Online criminals, in general are trying to make their move successful as quickly and easily as possible. They will be forced to search for easier targets if we make their job more difficult by the use of cyber security tools.

The best methodology for fighting against cybercrime is through education and enforcement of laws as well as highly developed security services. Cyber criminals are becoming more sophisticated and are now targeting consumers as well as public and private organizations. Having set the right kind of network security assures the stable working of computer network. As the data are available only for authorized users, it is possible for hackers to pretend to be one, by providing the correct user name and password Cyber security issues are rising due to the lack of cyber security. A new approach we introduce is broadcast cipher for improving the fortification of data using erasure coding.

It can achieve this by constructing a secure storage system that supports data encryption using an HTTP Live Streaming (HLS) protocol. Alongside HLS, Hash Message Authentication Code (HMAC) is used to generate private keys. Now a days, live streaming platforms like amazon prime,hotstar are releasing new movies during this corona lockdowns. However, they losing their data by some network attacks easily.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CONCLUSION

The proposed work concluded that, the cloud computing paradigm is being collaborated with video encryption and decryption to make a module that has both more safe and secured. The proposed system can be a game changer in the field of live streaming platforms and other streaming technologies. Overall from the work presented it is shown that proper combination of low-level features that have low computational complexity are sufficient for video encryption compared to complex feature encryption methods. To improve the performance of the HLS algorithm, it is planned to do in a cloud service providers.This can be furthermore be improved by using higher level algorithms and better classification to improve efficiency and accuracy.

FUTURE DIRECTION

This method can be further abridged in as an inbuilt tool or an application for simplifying the user's need for secure data storage.

The data de-duplication can be implemented towards the data files thus securing more storage spaces. Having a different encryption key for each user data file thus arranging more security while data sharing.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103 *

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

DRIVING ASSISTANCE WITH PREDICTIVE BRAKE AND ACCELARATION VALUES THROUGH MOBILE SENSORS

A PROJECT REPORT

Submitted by

FAHIRA S	311817104006
KESAVAN H	311817104012
SYED SAHIR AHMED K	311817104032

in partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A J COLLEGE OF ENGINEERING,
SIRUSERI IT PARK, OMR, CHENNAI – 603 103

ANNA UNIVERSITY : CHENNAI 600 025

APRIL 2021

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

DRIVING ASSISTANCE WITH PREDICTIVE BRAKE AND ACCELARATION VALUES THROUGH MOBILE SENSORS

Certified that this project report titled **"DRIVING ASSISTANCE WITH PREDICTIVE BRAKE AND ACCELERATION VALUES THROUGH MOBILE SENSORS"** is the bonafide work of **"FAHIRA S (311817104006), KESAVAN H (311817104012) and SYED SAHIR AHAMED K (311817104032)"**who carried out the project work under my supervision.

Mrs. Premalatha, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
Department of Computer Science and Engineering
Mohamed Sathak A J College of Engineering,
Siruseri, Chennai - 603103

Mr. A. Syed Ismail, M.E., (Ph.D),
SUPERVISOR
Assistant Professor
Department of Computer Science and Engineering
Mohamed Sathak A J College of Engineering,
Siruseri, Chennai - 603103

Submitted for the project viva voice on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

INTERNAL EXAMINER

EXTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING - 603 103 - CHENNAI

ABSTRACT

Accident rates increases day by day in our modern world and one of the major reason is lousy braking.Sensing various driving behaviors, such as accelerations, brakes, turns, and change lanes is of great interest to many applications. We develop aapplication called "Rider-Pal" that adopts the novel techniques to improve the overall accuracy on driving analytics.Braking system in our Automobiles can be made Automated in order to avoid hard braking and accidents.Most of the modern mobile devices come with gyro sensors and acceleration sensors. Properly interacting and utilizing the data from these sensors will help us to build a robust assisting system

Sensing various driving behaviours, such as accelerations, brakes and turns is of great interest and a great deal of research has been done to enhance such applications. While these schemes can detect the driving quality, they do not prevent the bikers from the road accidents.

This is an instance of detecting the driving sense and road conditions by using gyroscope. In this paper, the braking system of the bike which is applied automatically by analysing the conditions of the roads and turnings are considered in order to avoid the accidents caused due to the over or lousy brakes being applied.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING *603 103 - CHENNAI - MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

CHAPTER 6

CONCLUSION & FUTURE IMPLEMENTATION

6.1CONCLUSION

The process of design of chassis and frames, especially in special heavy vehicles, is fundamental stage in total production process. Many of vehicles properties are strictly connected with the chassis or frame. Dynamic properties and static or geometric parameters of the vehicle depends on chassis or frames. Also vibration phenomena in heavy vehicles are an important issue. As far as dynamic responses isolation in cabs is well recognized for the isolation of loads there are many investigations needed. These issues are very important for vehicle designers and engineers and has to be take into focused consideration in all productions processes, especially during assumptions and constructions of chassis or frames.The review of the solutions in constructions of the chassis and frames allows to make some assumptions for PS Szcześniak project in scope of research programme DEMONSTRATOR + Supporting scientific research and development works in demonstration scale, the title of the project is Develop High Mobility Wheeled Platform for special applications.

6.2FUTURE IMPLEMENTATION

Preliminary static analysis in a Linux environment of a suspect file can yield a wealth of valuable information that will shape the direction of future dynamic and more complete static analysis of the file. Through a logical, step-by-step file identification and profiling process, and using a variety of different tools and approaches, a meaningful file profile can be ascertained. There are a wide variety of tools for conducting a file profile, many of which were demonstrated in this chapter. Independent of the tools used and the specific suspect file being examined, there is a need for a file profiling methodology to ensure that data is acquired in as consistent and repeatable a manner as possible. For forensic purposes, it is also necessary to maintain detailed documentation of the steps taken on a suspect file. Refer to the Field Notes at the end of this chapter for documentation guidance. The methodology in this chapter provides a robust foundation for the forensic identification and profiling of a target file.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING - CHENNAI - 603 103.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CUSTOMER STRESS PREDICTING IN TELECOM INDUSTRY USING MACHINE LEARNING

A Project Report

Submitted by

Mohamed Furose H (311817104015)

Santhoshraja L (311817104028)

Shahid Yaaser J (311817104030)

In partial fulfilment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A.J COLLEGE OF ENGINEERING

SIRUSERI – CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2021

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"CUSTOMER STRESS PREDICTING IN TELECOM INDUSTRY USING MACHINE LEARNING"** is the bonafide work of **"Mohamed Furose H (311817104015), Santhoshraja L (311817104028), Shahid Yaaser J (311817104030)"** who carried out the project work under my supervision.

Mrs.G.Premalatha, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Mr.A.Syed Ismail, M.E., (Ph.D),
SUPERVISOR
Assistant Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Submitted for the project viva voice on 06.08.21

INTERNAL EXAMINER

EXTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI-603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

ABSTRACT

Retaining the most valuable customers is a major problem facing companies in this information age. Especially, the field of telecommunication faces complex challenges due to a number of vibrant competitive service providers. Therefore, it has become very difficult for them to retain existing customers. Since the cost of acquiring new customers is much higher than the cost of retaining the existing customers, it is the time for the telecom industries to take necessary steps to retain the customers to stabilize their market value.

CRM uses data mining (one of the elements of CRM) techniques to interact with customers. This study investigates the use of a technique, supervised learning, for the management and analysis of customer-related data warehouse and information.

Data mining technologies extract hidden information and knowledge from large data stored in databases or data warehouses, which supports the corporate in decision making process. Several data mining techniques have been proposed in the literature for predicting the happy and stressed customer using heterogeneous customer records. Probably, the stressed customers are in the urge of moving out to competitive service providers.

This project analysis the telecom customer data available in open dataset and predict the customer stress by applying supervised machine-learning algorithms mainly using Deep Neural Network.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

CHAPTER 8

CONCLUSION

The importance of this type of project in the telecom market is to help companies make more profit. It has become known that predicting churn is one of the most important sources of income to telecom companies. Hence, this research aimed to build a system that predicts the churn of customers in telecom company. These prediction models need to achieve high accuracy values. To test and train the model, the sample data is divided into 70% for training and 30% for testing. I chose to perform cross-validation with 10-folds for validation and hyper parameter optimization.

I have applied feature engineering, effective feature transformation and selection approach to make the features ready for machine learning algorithms. In addition, I encountered another problem: the data was not balanced. Only about 5% of the entries represent customers' churn. This problem was solved by undersampling or using trees algorithms not affected by this problem. Four tree based algorithms were chosen because of their diversity and applicability in this type of prediction. These algorithms are Deep Neural Network, Random Forest, Support Vector Machine algorithm, and KNN algorithm.

The method of preparation and selection of features and entering the mobile social network features had the biggest impact on the success of this model, since the value of accuracy reached 93.301%. DNN model achieved the best results in all measurements. The accuracy value was 93.301%.

The SVM algorithm comes in the second place and the random forest and SVM came third and fourth regarding accuracy values. I have evaluated the models by fitting a new dataset related to different periods and without any proactive action from marketing. The decrease in result could be due to the non- stationary data model phenomenon, so the model needs training each period of time.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

SECURE DATA TRANSMISSION FOR CLUSTER BASED SENSOR NETWORKS AND NETWORK SECURITY

A PROJECT REPORT

Submitted by

MOHAMED SUHAIL M (311817104019)

MOHAMMED SULAIMAN B (311817104020)

SABEER AHAMEDS (311817104027)

In partial fulfilment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

MARCH 2021

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI - 603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"SECURE DATA TRANSMISSION FOR CLUSTER BASED SENSOR NETWORKS AND NETWORK SECURITY"** is the bonafide work of **MOHAMED SUHAIL M (311817104019), MOHAMMED SULAIMAN B (311817104020), SABEER AHAMED S (311817104027)** who carried out the project work under my supervision.

Mrs. Premalatha, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Mrs Sankari M., M.E., (Ph.D),
SUPERVISOR
Assistant Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Submitted for the project viva voice on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT

INTERNAL EXAMINER

EXTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103.

ABSTRACT

Secure data transmission is a critical issue for wireless sensor networks(WSNs). Clustering is an effective and practical way to enhance the system performance of WSNs. In this paper, it study a secure data transmission for cluster-based WSNs (CWSNs), where the clusters are formed dynamically and periodically. it propose two secure and efficient data transmission (SET) protocols for CWSNs, called SET-IBS and SET-IBOOS, by using the identity-based digital signature (IBS) scheme and the identity-based online/offline digital signature (IBOOS) scheme, respectively.

In SET-IBS, security relies on the hardness of the Diffie-Hellman problem in the pairing domain. SET-IBOOS further reduces the computational overhead for protocol security, which is crucial for WSNs, while its security relies on the hardness of the discrete logarithm problem.

It show the feasibility of the SET-IBS and SET-IBOOS protocols with respect to the security requirements and security analysis against various attacks. The calculations and simulations are provided to illustrate the efficiency of the proposed protocols. The results show that the proposed protocols have better performance than the existing secure protocols for CWSNs, in terms of security overhead and energy consumption.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103 *

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

CHAPTER 7

CONCLUSIONAND FUTURE ENHANCEMENT

The first reviewed the data transmission issues and the security issues in CWSNs. The deficiency of the symmetric key management for secure data transmission has been discussed. Then presented two secure and efficient data transmission protocols respectively for CWSNs, SET-IBS and SET-IBOOS. In the evaluation section, provided feasibility of the proposed SET-IBS and SET-IBOOS with respect to the security requirements and analysis against routing attacks. SET-IBS and SET-IBOOS are efficient in communication and applying the ID-based crypto-system, which achieves security requirements in CWSNs, as well as solved the orphan node problem in the secure transmission protocols with the symmetric key management. Lastly, the comparison in the calculation and simulation results show that, the proposed SET-IBS and SET-IBOOS protocols have better performance than existing.

In this project further show the energy consumption for every node in the network. In the above show one how to transfer data in secure and efficient way not about the energy.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT.

RICE LEAF DISEASES DETECTION USING FASTER R-CNN

A PROJECT REPORT

Submitted by

JAI BALAJI V	**311817104009**
NITHYADARSHNI S	**311817104023**
RAHAMATHULLAH K	**311817104024**

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

MOHAMED SATHAK A J COLLEGE OF ENGINEERING,
SIRUSERI IT PARK, OMR, CHENNAI – 603 103

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103.

ANNA UNIVERSITY : CHENNAI 600 025

APRIL 2021

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"RICE LEAF DISEASES DETECTION USING FASTER R-CNN"** is the bonafide work of **"JAI BALAJI V (311817104009), NITHYADARSHNI S (311817104023) and RAHAMATHULLAH K (311817104024)"** who carried out the project work under my supervision.

Mrs. Premalatha G, M.E., (Ph.D),
HEAD OF DEPARTMENT
Assistant Professor
Department of Computer Science and Engg.,
Mohamed Sathak A J College of Engineering,
Siruseri, Chennai - 603103

Mrs. Sathyapriya K, M.E.,
SUPERVISOR
Assistant Professor
Department of Computer Science and Engg.,
Mohamed Sathak A J College of Engineering,
Siruseri, Chennai - 603103

Submitted for the project viva voice on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

INTERNAL EXAMINER

EXTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * CHENNAI - 603 103

ABSTRACT

One of the major challenges faced by the agricultural industry is the need for accurate and early detection of diseases that affect crops. Diseases affect the quality of crops and are capable of wiping out hectares of crop yield resulting in major loss to farmers. Earlier diagnostic techniques are time consuming and require the presence of highly skilled professionals to analyze the affected plants, understand the symptoms, identify the disease and thereby suggest suitable remedies. The limitations of such techniques have enforced the need to look for alternative techniques which can detect and classify diseases at an early stage. Therefore, in our project, deep learning concepts are used to recognize crop diseases in a timely and accurate manner, which will not only upgrade the accuracy of plant protection but also expand the scope of computer vision in the field of precision agriculture. Faster Region-based Convolutional Neural Network (Faster R-CNN) model was applied by using the Keras and Tensor Flow Object Detection framework to perform rice leaf disease detection and diagnosis using healthy and diseased rice plants leaves, through deep learning methods. Our proposed system will detect the rice leaf disease from the image of the rice leaf and display the rice leaf disease name and diagnosis to the user. Faster and accurate prediction of rice leaf diseases could help to develop an early treatment technique ensuring the healthy development of the rice industry.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI · 603 103

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CHAPTER 9

CONCLUSION

In this project, a deep learning approach is proposed for identification of three common rice leaf diseases. Based on 4,000 collected rice leaf images, the features of rice leaf diseases is analyzed and detected based on Faster R-CNN model for identification of rice leaf diseases. The deep convolutional was applied to alleviate overfitting and reduce the number of parameters.

This Faster R-CNN model is used to identify approaches for rice leaf diseases was implemented using Tensor Flow and Keras frameworks on the GPU platform. With the data set, this proposed Faster R-CNN model was trained to classify three type of rice leaf disease. According tothe experiment result, the proposed algorithm realizes a recognition accuracy of 98.5%, which gives better performance than the other popular learning techniques. Since Faster R-CNN architecture has its own Region Proposal Network which is faster as compared to selective and it also improves region proposal generation model while training. This also helps us reduce the overall detection time. Thus Region Proposal Network (RPN) when compared to selective search, also contributed marginally to the improvement of mAP. Thus the proposed Faster R-CNN model realizes higher convergence speed during the training process and higher accuracy is achieved.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

DIGITAL MEDIA MARKETING USING TREND ANALYSIS ON SOCIAL MEDIA

A Project Report

Submitted by

JASIR HUSSAIN S (311817104010)

MOHAMED FAYAZ P R (311817104014)

In partial fulfilment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A.J COLLEGE OF ENGINEERING

SIRUSERI – CHENNAI – 603 103

ANNA UNIVERSITY : CHENNAI 600 025

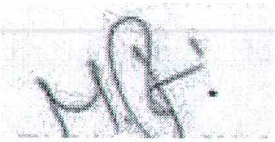
APRIL 2021

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

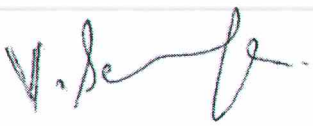
ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"DIGITAL MEDIA MARKETING USING TREND ANALYSIS ON SOCIAL MEDIA"** is the bonafide work of **"Jasir Hussain S (311817104010), Mohamed Fayaz P R (311817104014)"** who carried out the project work under my supervision.



Mrs. Premalatha, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103



Mrs.Sankari, M.E., (Ph.D),
SUPERVISOR
Assistant Professor
CSE Department
Mohamed Sathak A J College of Engg.,
Siruseri, Chennai-603103

Submitted for the project viva voice on 06.08.21

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603103.
KANCHIPURAM DT

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Retaining the most valuable customers is a major problem facing companies in this information age. Especially, the field of telecommunication faces complex challenges due to a number of vibrant competitive service providers.

Therefore, it has become very difficult for them to retain existing customers. Since the cost of acquiring new customers is much higher than the cost of retaining the existing customers, it is the time for the telecom industries to take necessary steps to retain the customers to stabilize their market value.

CRM (Customer Relationship Management) uses data mining techniques to interact with customers. It investigates the use of a technique, supervised learning, for the management and analysis of customer-related data warehouse and information.

Data mining technologies extract hidden information and knowledge from large data stored in databases or data warehouses, which supports the corporate in decision making process.

Several data mining techniques have been proposed in the literature for predicting the happy and stressed customer using heterogeneous customer records. Probably, the stressed customers are in the urge of moving out to competitive service providers.

The project analysis the telecom customer data available in open dataset and predict the customer stress by applying supervised machine-learning algorithms mainly using Deep Neural Network.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING - CHENNAI - 603 103.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.

CHAPTER 9

CONCLUSION

In this project, a deep learning approach is proposed for identification of three common rice leaf diseases. Based on 4,000 collected rice leaf images, the features of rice leaf diseases is analyzed and detected based on Faster R-CNN model for identification of rice leaf diseases. The deep convolutional was applied to alleviate overfitting and reduce the number of parameters.

This Faster R-CNN model is used to identify approaches for rice leaf diseases was implemented using Tensor Flow and Keras frameworks on the GPU platform. With the data set, this proposed Faster R-CNN model was trained to classify three type of rice leaf disease. According tothe experiment result, the proposed algorithm realizes a recognition accuracy of 98.5%, which gives better performance than the other popular learning techniques. Since Faster R-CNN architecture has its own Region Proposal Network which is faster as compared to selective and it also improves region proposal generation model while training. This also helps us reduce the overall detection time. Thus Region Proposal Network (RPN) when compared to selective search, also contributed marginally to the improvement of mAP. Thus the proposed Faster R-CNN model realizes higher convergence speed during the training process and higher accuracy is achieved.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT.