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	CS6202 - Programming and Data Structures I
2	CS6301 - Programming and Data Structure II
3	CS6001 - C# and .Net programming
4	CS6703 - Grid and Cloud Computing
5	CS6302 - Database Management Systems
6	CS6551 - Computer Networks
7	CS6659 - Artificial Intelligence
8	CS6701 - Cryptography and Network Security
9	CS6008 - Human Computer Interaction
10	CS6601 - Distributed Systems
11	CS6501 - Internet Programming
12	CS6402 - Design and Analysis of Algorithms
13	CS6704 - Resource Management Techniques
14	CS6502 - Object Oriented Analysis and Design
15	CS6504 - Computer Graphics
16	CS6201 - Digital Principles and System Design

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

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

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
1	CS6202	Programming and Data Structures I	• Function with Variable number of argumentsAll operation (Insertion, Deletion, Merge, Traversal) • Double ended Queues – applications of queues

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

CS6202 PROGRAMMING AND DATA STRUCTURES I L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Be familiar with the basics of C programming language.
- Be exposed to the concepts of ADTs
- Learn linear data structures - list, stack, and queue.
- Be exposed to sorting, searching, hashing algorithms

UNIT I C PROGRAMMING FUNDAMENTALS- A REVIEW 9

Conditional statements – Control statements – Functions – Arrays – Preprocessor - Pointers - Variation in pointer declarations - Function Pointers - Function with Variable number of arguments

UNIT II C PROGRAMMING ADVANCED FEATURES 9

Structures and Unions - File handling concepts – File read – write – binary and Stdio - File Manipulations

UNIT III 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 operation (Insertion, Deletion, Merge, Traversal)

UNIT IV LINEAR DATA STRUCTURES – STACKS, QUEUES 9

Stack ADT - Evaluating arithmetic expressions- other applications- Queue ADT - circular queue implementation - Double ended Queues - applications of queues

UNIT V SORTING, SEARCHING AND HASH TECHNIQUES 9

Sorting algorithms: Insertion sort - Selection sort - Shell sort - Bubble sort - Quick sort - Merge sort - Radix sort – Searching: Linear search -Binary Search 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:

- Use the control structures of C appropriately for problems.
- Implement abstract data types for linear data structures.
- Apply the different linear data structures to problem solutions.
- Critically analyse the various algorithms.

TEXT BOOKS:

1. Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Pearson Education, 1988.
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", 2nd Edition, Pearson Education, 1997.

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L.Rivest, Clifford Stein, "Introduction to Algorithms", Second Edition, Mcgraw Hill, 2002.
2. Reema Thareja, "Data Structures Using C", Oxford University Press, 2011
3. Aho, Hopcroft and Ullman, "Data Structures and Algorithms", Pearson Education,1983.
4. Stephen G. Kochan, "Programming in C", 3rd edition, Pearson Ed

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

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
2	CS6301	Programming and Data Structure II	Inheritance — virtual functions. • AVL trees – B-Trees • Splay trees

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

CS6301 **PROGRAMMING AND DATA STRUCTURES II** L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Be familiar with the C++ concepts of abstraction, encapsulation, constructor, polymorphism, overloading and Inheritance.
- Learn advanced nonlinear data structures.
- Be exposed to graph algorithms
- Learn to apply Tree and Graph structures

UNIT I OBJECT ORIENTED PROGRAMMING FUNDAMENTALS 9

C++ Programming features - Data Abstraction - Encapsulation - class - object - constructors - static members - constant members - member functions - pointers - references - Role of this pointer - Storage classes – function as arguments.

UNIT II OBJECT ORIENTED PROGRAMMING CONCEPTS 9

String Handling - Copy Constructor - Polymorphism - compile time and run time polymorphisms - function overloading - operators overloading - dynamic memory allocation - Nested classes - Inheritance – virtual functions.

UNIT III C++ PROGRAMMING ADVANCED FEATURES 9

Abstract class - Exception handling - Standard libraries - Generic Programming - templates - class template - function template – STL – containers – iterators – function adaptors – allocators - Parameterizing the class - File handling concepts.

UNIT IV ADVANCED NON-LINEAR DATA STRUCTURES 9

AVL trees - B-Trees - Red-Black trees - Splay trees - Binomial Heaps - Fibonacci Heaps - Disjoint Sets - Amortized Analysis - accounting method - potential method - aggregate analysis.

UNIT V GRAPHS 9

Representation of Graphs - Breadth-first search - Depth-first search - Topological sort - Minimum Spanning Trees - Kruskal and Prim algorithm - Shortest path algorithm - Dijkstra"s algorithm - Bellman-Ford algorithm – Floyd - Warshall algorithm.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Design problem solutions using Object Oriented Techniques.
- Apply the concepts of data abstraction, encapsulation and inheritance for problem solutions.
- Use the control structures of C++ appropriately.
- Critically analyse the various algorithms.
- Apply the different data structures to problem solutions.

TEXT BOOKS:

1. Bjarne Stroustrup, "The C++ Programming Language", 3rd Edition, Pearson Education, 2007.
2. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C++", 2nd Edition, Pearson Education, 2005

REFERENCES:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Second Edition, Mc Graw Hill, 2002.
2. Michael T Goodrich, Roberto Tamassia, David Mount, "Data Structures and Algorithms in C++", 7th Edition, Wiley Publishers, 2004.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
3.	CS6001	C# AND .NET PROGRAMMING	• overview of C#, Literals, Variables • DataSet, typed dataset, Data Adapter • Creating Virtual Directory • working with XML and .NET

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

CS6001 C# AND .NET PROGRAMMING L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Understand the foundations of CLR execution.
- Learn the technologies of the .NET framework.
- Know the object oriented aspects of C#.
- Be aware of application development in .NET.
- Learn web based applications on .NET (ASP.NET).

UNIT I INTRODUCTION TO C# 9

Introducing C#, Understanding .NET, overview of C#, Literals, Variables, Data Types, Operators, checked and unchecked operators, Expressions, Branching, Looping, Methods, implicit and explicit casting, Constant, Arrays, Array Class, Array List, String, String Builder, Structure, Enumerations, boxing and unboxing.

UNIT II OBJECT ORIENTED ASPECTS OF C# 9

Class, Objects, Constructors and its types, inheritance, properties, indexers, index overloading, polymorphism, sealed class and methods, interface, abstract class, abstract and interface, operator overloading, delegates, events, errors and exception, Threading.

UNIT III APPLICATION DEVELOPMENT ON .NET 9

Building windows application, Creating our own window forms with events and controls, menu creation, inheriting window forms, SDI and MDI application, Dialog Box(Modal and Modeless), accessing data with ADO.NET, DataSet, typed dataset, Data Adapter, updating database using stored procedures, SQL Server with ADO.NET, handling exceptions, validating controls, windows application configuration.

UNIT IV WEB BASED APPLICATION DEVELOPMENT ON .NET 9

Programming web application with web forms, ASP.NET introduction, working with XML and .NET, Creating Virtual Directory and Web Application, session management techniques, web.config, web services, passing datasets, returning datasets from web services, handling transaction, handling exceptions, returning exceptions from SQL Server.

UNIT V CLR AND .NET FRAMEWORK 9

Assemblies, Versoning, Attributes, reflection, viewing meta data, type discovery, reflection on type, marshalling, remoting, security in .NET

TOTAL: 45 PERIODS

OUTCOMES:

After completing this course, the student will be able to:

- List the major elements of the .NET frame work
- Explain how C# fits into the .NET platform.
- Analyze the basic structure of a C# application
- Debug, compile, and run a simple application.
- Develop programs using C# on .NET
- Design and develop Web based applications on .NET
- Discuss CLR.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT.

TEXT BOOKS:

1. Herbert Schildt, "The Complete Reference: C# 4.0", Tata Mc Graw Hill, 2012.
2. Christian Nagel et al. "Professional C# 2012 with .NET 4.5", Wiley India, 2012.

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
4.	CS6703	GRID AND CLOUD COMPUTING	• Grid computing Infrastructures • OGSA services • Infrastructure, platform, software • Authentication and Authorization methods

PRINCIPAL
MOHAMED SATHAK A.J.COLLEGE OF EN
34, Rajiv Gandhi Road (OMR), Siruse
Chennai-603 103.

CS6703 GRID AND CLOUD COMPUTING L T P C 3 0 0 3

OBJECTIVES:

The student should be made to:

- Understand how Grid computing helps in solving large scale scientific problems.
- Gain knowledge on the concept of virtualization that is fundamental to cloud computing.
- Learn how to program the grid and the cloud.
- Understand the security issues in the grid and the cloud environment.

UNIT I INTRODUCTION 9

Evolution of Distributed computing: Scalable computing over the Internet - Technologies for network based systems - clusters of cooperative computers - Grid computing Infrastructures - cloud computing - service oriented architecture - Introduction to Grid Architecture and standards - Elements of Grid – Overview of Grid Architecture.

UNIT II GRID SERVICES 9

Introduction to Open Grid Services Architecture (OGSA) - Motivation - Functionality Requirements - Practical & Detailed view of OGSA/OGSI - Data intensive grid service models - OGSA services.

UNIT III VIRTUALIZATION 9

Cloud deployment models: public, private, hybrid, community - Categories of cloud computing: Everything as a service: Infrastructure, platform, software - Pros and Cons of cloud computing - Implementation levels of virtualization - virtualization structure - virtualization of CPU, Memory and I/O devices - virtual clusters and Resource Management - Virtualization for data center automation.

UNIT IV PROGRAMMING MODEL 9

Open source grid middleware packages - Globus Toolkit (GT4) Architecture , Configuration - Usage of Globus – Main components and Programming model - Introduction to Hadoop Framework - Mapreduce, Input splitting, map and reduce functions, specifying input and output parameters, configuring and running a job – Design of Hadoop file system, HDFS concepts, command line and java interface, dataflow of File read & File write.

UNIT V SECURITY 9

Trust models for Grid security environment – Authentication and Authorization methods – Grid security infrastructure - Cloud Infrastructure security: network, host and application level - aspects of data security, provider data and its security, Identity and access management architecture, IAM practices in the cloud, SaaS, PaaS, IaaS availability in the cloud, Key privacy issues in the cloud.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Apply grid computing techniques to solve large scale scientific problems.
- Apply the concept of virtualization.
- Use the grid and cloud tool kits.
- Apply the security models in the grid and the cloud environment.

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

TEXT BOOK:

1. Kai Hwang, Geoffery C. Fox and Jack J. Dongarra, "Distributed and Cloud Computing: Clusters, Grids, Clouds and the Future of Internet", First Edition, Morgan Kaufman Publisher, an Imprint of Elsevier, 2012.

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

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
5	CS6302	Database Management System	• Components of DBMS • DDL-DML-DCL-TCL-Embedded SQL • RAID • DATABASE SECURITY • XML Databases.

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

CS6302 **DATABASE MANAGEMENT SYSTEMS** L T P C
3 0 0 3

OBJECTIVES:

- To expose the students to the fundamentals of Database Management Systems.
- To make the students understand the relational model.
- To familiarize the students with ER diagrams.
- To expose the students to SQL.
- To make the students to understand the fundamentals of Transaction Processing and Query Processing.
- To familiarize the students with the different types of databases.
- To make the students understand the Security Issues in Databases.

UNIT I INTRODUCTION TO DBMS 10

File Systems Organization - Sequential, Pointer, Indexed, Direct - Purpose of Database System- Database System Terminologies-Database characteristics- Data models – Types of data models – Components of DBMS- Relational Algebra. LOGICAL DATABASE DESIGN: Relational DBMS - Codd's Rule - Entity-Relationship model - Extended ER Normalization – Functional Dependencies, Anomaly- 1NF to 5NF- Domain Key Normal Form – Denormalization

UNIT II SQL & QUERY OPTIMIZATION 8

SQL Standards - Data types - Database Objects- DDL-DML-DCL-TCL-Embedded SQL-Static Vs Dynamic SQL - QUERY OPTIMIZATION: Query Processing and Optimization - Heuristics and Cost Estimates in Query Optimization.

UNIT III TRANSACTION PROCESSING AND CONCURRENCY CONTROL 8

Introduction-Properties of Transaction- Serializability- Concurrency Control - Locking Mechanisms- Two Phase Commit Protocol-Dead lock.

UNIT IV TRENDS IN DATABASE TECHNOLOGY 10

Overview of Physical Storage Media - Magnetic Disks - RAID - Tertiary storage - File Organization - Organization of Records in Files - Indexing and Hashing -Ordered Indices - B+ tree Index Files - B tree Index Files - Static Hashing - Dynamic Hashing - Introduction to Distributed Databases- Client server technology- Multidimensional and Parallel databases- Spatial and multimedia databases- Mobile and web databases- Data Warehouse-Mining- Data marts.

UNIT V ADVANCED TOPICS 9

DATABASE SECURITY: Data Classification-Threats and risks - Database access Control - Types of Privileges -Cryptography- Statistical Databases.- Distributed Databases-Architecture-Transaction Processing-Data Warehousing and Mining-Classification-Association rules-Clustering-Information Retrieval- Relevance ranking-Crawling and Indexing the Web- Object Oriented Databases-XML Databases.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Design Databases for applications.
- Use the Relational model, ER diagrams.
- Apply concurrency control and recovery mechanisms for practical problems.
- Design the Query Processor and Transaction Processor.
- Apply security concepts to databases.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING CHENNAI

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

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
6	CS6551	COMPUTER NETWORKS	• Error Detection - Flow control • multicast routing • TCP Congestion control • Electronic Mail (SMTP, POP3, IMAP, MIME)

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

CS6551 **COMPUTER NETWORKS** L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Understand the division of network functionalities into layers.
- Be familiar with the components required to build different types of networks
- Be exposed to the required functionality at each layer
- Learn the flow control and congestion control algorithms

UNIT I FUNDAMENTALS & LINK LAYER 9

Building a network - Requirements - Layering and protocols - Internet Architecture - Network software - Performance ; Link layer Services - Framing - Error Detection - Flow control

UNIT II MEDIA ACCESS & INTERNETWORKING 9

Media access control - Ethernet (802.3) - Wireless LANs - 802.11 - Bluetooth - Switching and bridging - Basic Internetworking (IP, CIDR, ARP, DHCP,ICMP)

UNIT III ROUTING 9

Routing (RIP, OSPF, metrics) - Switch basics - Global Internet (Areas, BGP, IPv6), Multicast - addresses - multicast routing (DVMRP, PIM)

UNIT IV TRANSPORT LAYER 9

Overview of Transport layer - UDP - Reliable byte stream (TCP) - Connection management - Flow control - Retransmission - TCP Congestion control - Congestion avoidance (DECbit, RED) - QoS - Application requirements

UNIT V APPLICATION LAYER 9

Traditional applications -Electronic Mail (SMTP, POP3, IMAP, MIME) - HTTP - Web Services - DNS - SNMP

TOTAL: 45 PERIODS

OUTCOMES:

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

- Identify the components required to build different types of networks
- Choose the required functionality at each layer for given application
- Identify solution for each functionality at each layer
- Trace the flow of information from one node to another node in the network

TEXT BOOK:

1. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", Fifth Edition, Morgan Kaufmann Publishers, 2011.

REFERENCES:

1. James F. Kurose, Keith W. Ross, "Computer Networking - A Top-Down Approach Featuring the Internet", Fifth Edition, Pearson Education, 2009.
2. Nader. F. Mir, "Computer and Communication Networks", Pearson Prentice Hall Publishers, 2010.
3. Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, "Computer Networks: An Open Source Approach", Mc Graw Hill Publisher, 2011.
4. Behrouz A. Forouzan, "Data communication and Networking", Fourth Edition, Tata McGraw - Hill, 2011.

MOHAMED SATHAK AJ. COLLEGE OF ENGINEERING · CHENNAI

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
7	CS6659	ARTIFICIAL INTELLIGENCE	• Problem solving methods • Rule value approach • Knowledge Acquisition

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

CS6659 ARTIFICIAL INTELLIGENCE L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Study the concepts of Artificial Intelligence.
- Learn the methods of solving problems using Artificial Intelligence.
- Introduce the concepts of Expert Systems and machine learning.

UNIT I INTRODUCTION TO AI AND PRODUCTION SYSTEMS 9

Introduction to AI-Problem formulation, Problem Definition -Production systems, Control strategies, Search strategies. Problem characteristics, Production system characteristics -Specialized production system- Problem solving methods - Problem graphs, Matching, Indexing and Heuristic functions -Hill Climbing-Depth first and Breath first, Constraints satisfaction - Related algorithms, Measure of performance and analysis of search algorithms.

UNIT II REPRESENTATION OF KNOWLEDGE 9

Game playing - Knowledge representation, Knowledge representation using Predicate logic, Introduction to predicate calculus, Resolution, Use of predicate calculus, Knowledge representation using other logic-Structured representation of knowledge.

UNIT III KNOWLEDGE INFERENCE 9

Knowledge representation -Production based system, Frame based system. Inference - Backward chaining, Forward chaining, Rule value approach, Fuzzy reasoning - Certainty factors, Bayesian Theory-Bayesian Network-Dempster - Shafer theory.

UNIT IV PLANNING AND MACHINE LEARNING 9

Basic plan generation systems - Strips -Advanced plan generation systems – K strips -Strategic explanations -Why, Why not and how explanations. Learning- Machine learning, adaptive Learning.

UNIT V EXPERT SYSTEMS 9

Expert systems - Architecture of expert systems, Roles of expert systems - Knowledge Acquisition – Meta knowledge, Heuristics. Typical expert systems - MYCIN, DART, XOON, Expert systems shells.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Identify problems that are amenable to solution by AI methods.
- Identify appropriate AI methods to solve a given problem.
- Formalise a given problem in the language/framework of different AI methods.
- Implement basic AI algorithms.
- Design and carry out an empirical evaluation of different algorithms on a problem formalisation, and state the conclusions that the evaluation supports.

TEXT BOOKS:

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", Mc Graw Hill- 2008.(Units-I,II,VI & V)
2. Dan W. Patterson, "Introduction to AI and ES", Pearson Education, 2007.(Unit-III)

REFERENCES:

1. Peter Jackson, "Introduction to Expert Systems", 3rd Edition, Pearson Education, 2007.
2. Stuart Russel and Peter Norvig "AI - A Modern Approach", 2nd Edition, Pearson Education 2007.
3. Deepak Khemani "Artificial Intelligence", Tata Mc Graw Hill Education 2013.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHEEPURAM DT

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
8	CS6701	CRYPTOGRAPHY AND NETWORK SECURITY	• Techniques • Advanced Encryption Standard (AES) • Roles of Firewalls • Virus and related threats

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

CS6701 CRYPTOGRAPHY AND NETWORK SECURITY L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Understand OSI security architecture and classical encryption techniques.
- Acquire fundamental knowledge on the concepts of finite fields and number theory.
- Understand various block cipher and stream cipher models.
- Describe the principles of public key cryptosystems, hash functions and digital signature.

UNIT I INTRODUCTION & NUMBER THEORY 10

Services, Mechanisms and attacks-the OSI security architecture-Network security model-Classical Encryption techniques (Symmetric cipher model, substitution techniques, transposition techniques, steganography).FINITE FIELDS AND NUMBER THEORY: Groups, Rings, Fields-Modular arithmetic-Euclid"s algorithm-Finite fields- Polynomial Arithmetic -Prime numbers-Fermat"s and Euler"s theorem-Testing for primality -The Chinese remainder theorem- Discrete logarithms.

UNIT II BLOCK CIPHERS & PUBLIC KEY CRYPTOGRAPHY 10

Data Encryption Standard-Block cipher principles-block cipher modes of operation-Advanced Encryption Standard (AES)-Triple DES-Blowfish-RC5 algorithm. **Public key cryptography:** Principles of public key cryptosystems-The RSA algorithm-Key management - Diffie Hellman Key exchange-Elliptic curve arithmetic-Elliptic curve cryptography.

UNIT III HASH FUNCTIONS AND DIGITAL SIGNATURES 8

Authentication requirement - Authentication function - MAC - Hash function - Security of hash function and MAC -MD5 - SHA - HMAC - CMAC - Digital signature and authentication protocols - DSS – EI Gamal – Schnorr.

UNIT IV SECURITY PRACTICE & SYSTEM SECURITY 8

Authentication applications - Kerberos - X.509 Authentication services - Internet Firewalls for Trusted System: Roles of Firewalls - Firewall related terminology- Types of Firewalls - Firewall designs - SET for E-Commerce Transactions. Intruder - Intrusion detection system - Virus and related threats - Countermeasures - Firewalls design principles - Trusted systems - Practical implementation of cryptography and security.

UNIT V E-MAIL, IP & WEB SECURITY 9

E-mail Security: Security Services for E-mail-attacks possible through E-mail - establishing keys privacy-authentication of the source-Message Integrity-Non-repudiation-Pretty Good Privacy-S/MIME. **IPSecurity:** Overview of IPSec - IP and IPv6-Authentication Header-Encapsulation Security Payload (ESP)-Internet Key Exchange (Phases of IKE, ISAKMP/IKE Encoding). **Web Security:** SSL/TLS Basic Protocol-computing the keys- client authentication-PKI as deployed by SSLAttacks fixed in v3-Exportability-Encoding-Secure Electronic Transaction (SET).

TOTAL: 45 PERIODS

OUTCOMES:

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

- Compare various Cryptographic Techniques
- Design Secure applications
- Inject secure coding in the developed applications

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT.

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
9	CS6008	HUMAN COMPUTER INTERACTION	• Prototyping in practice • collaboration models • Mobile Information Architecture • Contextual Tools

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

CS6008 **HUMAN COMPUTER INTERACTION** L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Learn the foundations of Human Computer Interaction.
- Be familiar with the design technologies for individuals and persons with disabilities.
- Be aware of mobile HCI.
- 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.

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

Cognitive models -Socio-Organizational issues and stake holder 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.

UNIT V WEB INTERFACE DESIGN 9

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

L: 45, T: 0, TOTAL: 45 PERIODS

OUTCOMES:

Upon completion of the course, the student 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 Interaction", 3rd Edition, Pearson Education, 2004 (UNIT I , II & III).
2. Brian Fling, "Mobile Design and Development", First Edition , O"Reilly Media Inc., 2009 (UNIT -IV).
3. Bill Scott and Theresa Neil, "Designing Web Interfaces", First Edition, O"Reilly, 2009.(UNIT-V).

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

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
10	CS6601	DISTRIBUTED SYSTEMS	• Distributed File Systems • Synchronizing physical clocks • Transactions and Concurrency Control • Load Balancing Approach

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

CS6601 **DISTRIBUTED SYSTEMS** L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Understand foundations of Distributed Systems.
- Introduce the idea of peer to peer services and file system.
- Understand in detail the system level and support required for distributed system.
- Understand the issues involved in studying process and resource management.

UNIT I INTRODUCTION 7

Examples of Distributed Systems-Trends in Distributed Systems - Focus on resource sharing - Challenges. **Case study:** World Wide Web.

UNIT II COMMUNICATION IN DISTRIBUTED SYSTEM 10

System Model – Inter process Communication - the API for internet protocols – External data representation and Multicast communication. **Network virtualization:** Overlay networks. **Case study:** MPI **Remote Method Invocation And Objects:** Remote Invocation – Introduction - Request-reply protocols - Remote procedure call - Remote method invocation. **Case study:** Java RMI - Group communication - Publish-subscribe systems - Message queues - Shared memory approaches - Distributed objects - Case study: Enterprise Java Beans -from objects to components.

UNIT III PEER TO PEER SERVICES AND FILE SYSTEM 10

Peer-to-peer Systems – Introduction - Napster and its legacy - Peer-to-peer – Middleware - Routing overlays. **Overlay case studies:** Pastry, Tapestry- Distributed File Systems -Introduction - File service architecture - Andrew File system. **File System:** Features-File model -File accessing models - File sharing semantics **Naming:** Identifiers, Addresses, Name Resolution - Name Space Implementation – Name Caches – LDAP.

UNIT IV SYNCHRONIZATION AND REPLICATION 9

Introduction - Clocks, events and process states - Synchronizing physical clocks- Logical time and logical clocks - Global states - Coordination and Agreement - Introduction - Distributed mutual exclusion - Elections - Transactions and Concurrency Control- Transactions -Nested transactions - Locks - Optimistic concurrency control - Timestamp ordering - Atomic Commit protocols -Distributed deadlocks – Replication – Case study – Coda.

UNIT V PROCESS & RESOURCE MANAGEMENT 9

Process Management: Process Migration: Features, Mechanism - Threads: Models, Issues, Implementation. **Resource Management:** Introduction- Features of Scheduling Algorithms -Task Assignment Approach - Load Balancing Approach - Load Sharing Approach.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Discuss trends in Distributed Systems.
- Apply network virtualization.
- Apply remote method invocation and objects.
- Design process and resource management systems.

TEXT BOOK:

1. George Coulouris, Jean Dollimore and Tim Kindberg, "Distributed Systems Concepts and Design", Fifth Edition, Pearson Education, 2012.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
11	CS6501	INTERNET PROGRAMMING	• HTML 5.0 , XHTML, CSS 3. • JDBC perspectives, JDBC program example • Database Driven web service from an application.

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

CS6501 **INTERNET PROGRAMMING** **L T P C**
3 1 0 4

OBJECTIVES:

The student should be made to:

- Learn Java Programming.
- Understand different Internet Technologies.
- Be exposed to java specific web services architecture.

UNIT I JAVA PROGRAMMING **9**

An overview of Java – Data Types – Variables and Arrays – Operators – Control Statements – Classes - Objects - Methods - Inheritance - Packages - Abstract classes - Interfaces and Inner classes - Exception handling - Introduction to Threads - Multithreading - String handling - Streams and I/O – Applets.

UNIT II WEBSITES BASICS, HTML 5, CSS 3, WEB 2.0 **8**

Web 2.0: Basics-RIA Rich Internet Applications - Collaborations tools - **Understanding websites and web servers:** Understanding Internet – Difference between websites and web server- Internet technologies Overview -Understanding the difference between internet and intranet; **HTML and CSS:** HTML 5.0 , XHTML, CSS 3.

UNIT III CLIENT SIDE AND SERVER SIDE PROGRAMMING **11**

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. **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 **8**

An introduction to PHP: PHP- Using PHP- Variables- Program control- Built-in functions-Connecting to Database – Using Cookies-Regular Expressions; **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 (L:45+T:15): 60 PERIODS

OUTCOMES:

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

- Implement Java programs.
- Create a basic website using HTML and Cascading Style Sheets.
- Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms.
- Design rich client presentation using AJAX.
- Design and implement simple web page in PHP, and to present data in XML format.
- Design and implement server side programs using Servlets and JSP.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
12	CS6402	DESIGN AND ANALYSIS OF ALGORITHMS	• Knapsack Problem • Optimal Binary Search Trees • The Maximum-Flow Problem • Backtracking – n-Queens problem

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

CS6402 **DESIGN AND ANALYSIS OF ALGORITHMS** L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Learn the algorithm analysis techniques.
- Become familiar with the different algorithm design techniques.
- Understand the limitations of Algorithm power.

UNIT I INTRODUCTION 9

Notion of an Algorithm - Fundamentals of Algorithmic Problem Solving - Important Problem Types - Fundamentals of the Analysis of Algorithm Efficiency - Analysis Framework - Asymptotic Notations and its properties - Mathematical analysis for Recursive and Non-recursive algorithms.

UNIT II BRUTE FORCE AND DIVIDE-AND-CONQUER 9

Brute Force - Closest-Pair and Convex-Hull Problems-Exhaustive Search - Traveling Salesman Problem - Knapsack Problem - Assignment problem.

Divide and conquer methodology - Merge sort - Quick sort - Binary search - Multiplication of Large Integers - Strassen"s Matrix Multiplication-Closest-Pair and Convex-Hull Problems.

UNIT III DYNAMIC PROGRAMMING AND GREEDY TECHNIQUE 9

Computing a Binomial Coefficient - Warshall"s and Floyd" algorithm - Optimal Binary Search Trees - Knapsack Problem and Memory functions. Greedy Technique- Prim"s algorithm- Kruskal's Algorithm- Dijkstra's Algorithm-Huffman Trees.

UNIT IV ITERATIVE IMPROVEMENT 9

The Simplex Method-The Maximum-Flow Problem – Maximm Matching in Bipartite Graphs- The Stable marriage Problem.

UNIT V COPING WITH THE LIMITATIONS OF ALGORITHM POWER 9

Limitations of Algorithm Power-Lower-Bound Arguments-Decision Trees-P, NP and NP-Complete Problems--Coping with the Limitations - Backtracking - n-Queens problem - Hamiltonian Circuit Problem - Subset Sum Problem-Branch and Bound - Assignment problem - Knapsack Problem - Traveling Salesman Problem- Approximation Algorithms for NP - Hard Problems - Traveling Salesman problem – Knapsack problem.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Design algorithms for various computing problems.
- Analyze the time and space complexity of algorithms.
- Critically analyze the different algorithm design techniques for a given problem.
- Modify existing algorithms to improve efficiency.

TEXT BOOK:

1. Anany Levitin, "Introduction to the Design and Analysis of Algorithms", Third Edition, Pearson Education, 2012.

REFERENCES:

1. Thomas H.Cormen, Charles E.Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Third Edition, PHI Learning Private Limited, 2012.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
13	CS6704	RESOURCE MANAGEMENT TECHNIQUES	• Resource allocation problems • Ralphson method • Time charts and resource leveling

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

CS6704 RESOURCE MANAGEMENT TECHNIQUES L T P C
3 0 0 3

OBJECTIVES:

The student should be made to:

- Be familiar with resource management techniques.
- Learn to solve problems in linear programming and Integer programming.
- Be exposed to CPM and PERT.

UNIT I LINEAR PROGRAMMING 9

Principal components of decision problem - Modeling phases - LP Formulation and graphic solution - Resource allocation problems - Simplex method - Sensitivity analysis.

UNIT II DUALITY AND NETWORKS 9

Definition of dual problem - Primal - Dual relation ships - Dual simplex methods - Post optimality analysis - Transportation and assignment model - Shortest route problem.

UNIT III INTEGER PROGRAMMING 9

Cutting plan algorithm - Branch and bound methods, Multistage (Dynamic) programming.

UNIT IV CLASSICAL OPTIMISATION THEORY: 9

Unconstrained external problems, Newton - Ralphson method - Equality constraints - Jacobean methods - Lagrangian method - Kuhn - Tucker conditions - Simple problems.

UNIT V OBJECT SCHEDULING: 9

Network diagram representation - Critical path method - Time charts and resource leveling - PERT.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Solve optimization problems using simplex method.
- Apply integer programming and linear programming to solve real-life applications.
- Use PERT and CPM for problems in project management

TEXT BOOK:

1. H.A. Taha, "Operation Research", Prentice Hall of India, 2002.

REFERENCES:

1. Paneer Selvam, „Operations Research", Prentice Hall of India, 2002
2. Anderson „Quantitative Methods for Business", 8th Edition, Thomson Learning, 2002.
3. Winston „Operation Research", Thomson Learning, 2003.
4. Vohra, „Quantitative Techniques in Management", Tata Mc Graw Hill, 2002.
5. Anand Sarma, „Operation Research", Himalaya Publishing House, 2003.

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

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
14	CS6502	OBJECT ORIENTED ANALYSIS AND DESIGN	• State Diagrams – Activity Diagrams • Design Patterns • include, extend and generalization • UML class diagrams

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

CS6502 OBJECT ORIENTED ANALYSIS AND DESIGN L T P C 3 0 0 3

OBJECTIVES:

The student should be made to:

- Learn the basics of OO analysis and design skills.
- Learn the UML design diagrams.
- Learn to map design to code.
- Be exposed to the various testing techniques.

UNIT I UML DIAGRAMS 9

Introduction to OOAD - Unified Process - UML diagrams - Use Case - Class Diagrams- Interaction Diagrams - State Diagrams - Activity Diagrams - Package, component and Deployment Diagrams.

UNIT II DESIGN PATTERNS 9

GRASP: Designing objects with responsibilities - Creator - Information expert - Low Coupling - High Cohesion - Controller - Design Patterns - creational - factory method - structural - Bridge - Adapter - behavioral – Strategy – observer.

UNIT III CASE STUDY 9

Case study - the Next Gen POS system, Inception -Use case Modeling - Relating Use cases - include, extend and generalization - Elaboration - Domain Models - Finding conceptual classes and description classes - Associations - Attributes - Domain model refinement - Finding conceptual class Hierarchies - Aggregation and Composition.

UNIT IV APPLYING DESIGN PATTERNS 9

System sequence diagrams - Relationship between sequence diagrams and use cases Logical architecture and UML package diagram – Logical architecture refinement - UML class diagrams - UML interaction diagrams - Applying GoF design patterns.

UNIT V CODING AND TESTING 9

Mapping design to code - Testing: Issues in OO Testing - Class Testing - OO Integration Testing - GUI Testing – OO System Testing.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Design and implement projects using OO concepts.
- Use the UML analysis and design diagrams.
- Apply appropriate design patterns.
- Create code from design.
- Compare and contrast various testing techniques.

TEXT BOOK:

1. Craig Larman, "Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development", Third Edition, Pearson Education, 2005.

REFERENCES:

1. Simon Bennett, Steve Mc Robb and Ray Farmer, "Object Oriented Systems Analysis and Design Using UML", Fourth Edition, Mc-Graw Hill Education, 2010.
2. Erich Gamma, and Richard Helm, Ralph Johnson, John Vlissides, "Design patterns: Elements of Reusable Object-Oriented Software", Addison-Wesley, 1995.
3. Martin Fowler, "UML Distilled: A Brief Guide to the Standard Object Modeling Language", Third edition, Addison Wesley, 2003.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR 603 103
SIRUSERI, CHENGALPATTU DT.

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
15.	CS6504	COMPUTER GRAPHICS	• Matrix representations • HSV colour model • morphing – tweening

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

CS6504 COMPUTER GRAPHICS L T P C 3 0 0 3

OBJECTIVES:

The student should be made to:

- Gain knowledge about graphics hardware devices and software used.
- Understand the two dimensional graphics and their transformations.
- Understand the three dimensional graphics and their transformations.
- Appreciate illumination and color models.
- Be familiar with understand clipping techniques.

UNIT I INTRODUCTION 9

Survey of computer graphics, Overview of graphics systems – Video display devices, Raster scan systems, Random scan systems, Graphics monitors and Workstations, Input devices, Hard copy Devices, Graphics Software; Output primitives - points and lines, line drawing algorithms, loading the frame buffer, line function; circle and ellipse generating algorithms; Pixel addressing and object geometry, filled area primitives.

UNIT II TWO DIMENSIONAL GRAPHICS 9

Two dimensional geometric transformations - Matrix representations and homogeneous coordinates, composite transformations; Two dimensional viewing - viewing pipeline, viewing coordinate reference frame; widow-to-viewport coordinate transformation, Two dimensional viewing functions; clipping operations – point, line, and polygon clipping algorithms.

UNIT III THREE DIMENSIONAL GRAPHICS 10

Three dimensional concepts; Three dimensional object representations - Polygon surfaces- Polygon tables- Plane equations - Polygon meshes; Curved Lines and surfaces, Quadratic surfaces; Blobby objects; Spline representations – Bezier curves and surfaces -B-Spline curves and surfaces. TRANSFORMATION AND VIEWING: Three dimensional geometric and modeling transformations - Translation, Rotation, Scaling, composite transformations; Three dimensional viewing – viewing pipeline, viewing coordinates, Projections, Clipping; Visible surface detection methods.

UNIT IV ILLUMINATION AND COLOUR MODELS 7

Light sources - basic illumination models – halftone patterns and dithering techniques; Properties of light - Standard primaries and chromaticity diagram; Intuitive colour concepts - RGB colour model - YIQ colour model - CMY colour model - HSV colour model - HLS colour model; Colour selection.

UNIT V ANIMATIONS & REALISM 10

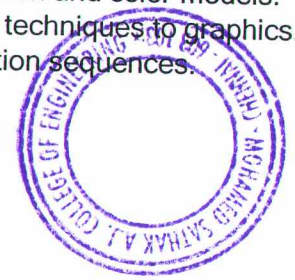
ANIMATION GRAPHICS: Design of Animation sequences - animation function - raster animation - key frame systems – motion specification -morphing - tweening. **COMPUTER GRAPHICS REALISM:** Tiling the plane – Recursively defined curves – Koch curves – C curves – Dragons – space filling curves - fractals - Grammar based models - fractals - turtle graphics - ray tracing.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Design two dimensional graphics.
- Apply two dimensional transformations.
- Design three dimensional graphics.
- Apply three dimensional transformations.
- Apply Illumination and color models.
- Apply clipping techniques to graphics.
- Design animation sequences.



PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT.

MOHAMEDSATHAKAJCOLLEGEOFENGINEERING

(Approved by AICTE, New Delhi and affiliated to Anna University, Chennai)
SiruseriIT Park, Egattur, Chennai - 603 103

S.No.	Subject Code	Subject Name	Name of the content that include experimental learning through project work
16	IT6502	DIGITAL SIGNAL PROCESSING	• Decimation – in – time Algorithms • Frequency sampling techniques • Quantization noise • Overflow error

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

IT6502 **DIGITAL SIGNAL PROCESSING** L T P C
3 1 0 4

OBJECTIVES:

- To introduce discrete Fourier transform and its applications.
- To teach the design of infinite and finite impulse response filters for filtering undesired signals.
- To introduce signal processing concepts in systems having more than one sampling frequency.

UNIT I SIGNALS AND SYSTEMS 9

Basic elements of DSP - concepts of frequency in Analog and Digital Signals - sampling theorem - Discrete - time signals, systems - Analysis of discrete time LTI systems - Z transform - Convolution – Correlation.

UNIT II FREQUENCY TRANSFORMATIONS 9

Introduction to DFT - Properties of DFT - Circular Convolution - Filtering methods based on DFT - FFT Algorithms - Decimation - in - time Algorithms, Decimation - in - frequency Algorithms - Use of FFT in Linear Filtering - DCT - Use and Application of DCT.

UNIT III IIR FILTER DESIGN 9

Structures of IIR - Analog filter design - Discrete time IIR filter from analog filter - IIR filter design by Impulse Invariance, Bilinear transformation, Approximation of derivatives - (LPF, HPF, BPF, BRF) filter design using frequency translation.

UNIT IV FIR FILTER DESIGN 9

Structures of FIR - Linear phase FIR filter - Fourier Series - Filter design using windowing techniques (Rectangular Window, Hamming Window, Hanning Window), Frequency sampling techniques

UNIT V FINITE WORD LENGTH EFFECTS IN DIGITAL FILTERS 9

Binary fixed point and floating point number representations - Comparison - Quantization noise - truncation and rounding - quantization noise power- input quantization error- coefficient quantization error - limit cycle oscillations-dead band- Overflow error-signal scaling.

TOTAL (L:45+T:15): 60 PERIODS

OUTCOMES:

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

- Perform frequency transforms for the signals.
- Design IIR and FIR filters.
- Finite word length effects in digital filters

TEXT BOOK:

1. John G. Proakis and Dimitris G.Manolakis, "Digital Signal Processing – Principles, Algorithms & Applications", Fourth Edition, Pearson Education, Prentice Hall, 2007.

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
KANCHIPURAM DT.

REFERENCES:

1. Emmanuel C.Ifeachor, and Barrie.W.Jervis, "Digital Signal Processing", Second Edition, Pearson Education, Prentice Hall, 2002.
2. Sanjit K. Mitra, "Digital Signal Processing – A Computer Based Approach", Third Edition, Tata Mc Graw Hill, 2007.
3. A.V.Oppenheim, R.W. Schafer and J.R. Buck, Discrete-Time Signal Processing, 8th Indian Reprint, Pearson, 2004.
4. Andreas Antoniou, "Digital Signal Processing", Tata McGraw Hill, 2006.

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

TWO WHEELER SAFETY DETECTION SYSTEM USING MACHINE LEARNING

A PROJECT REPORT

Submitted by

ARUN PRASANTH A.P (311816104006)

SULTHAN MOHAIDEEN N.K (311816104035)

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
KANCHIPURAM DT.

MOHAMED SATHAK A.J COLLEGE OF ENGINEERING

SIRUSERI, OMR, CHENNAI – 603103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2020

AUTOMATED BRAKING SYSTEM FOR BIKES USING GYROSCOPIC TECHNIQUE

A PROJECT REPORT

Submitted by

ARUN REKHA A (311815104002)

MAHISHA VARSHINI C (311815104018)

MOHAMED SATHAK A.J. COLLEGE LIBRARY

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
SIRUSERI, CHENNAI-603103.
KANCHEEPURAM DT.

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

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

APRIL 2019

ANNA UNIVERSITY CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled " **AUTOMATED BRAKING SYSTEM FOR BIKES USING GYROSCOPIC TECHNIQUE**" is the bonafide work of " **ARUN REKHA A (311815104002), MAHISHA VARSHINI C (311815104018),** who carried out the project work under my supervision.

LIBRARY

01.04.19

Mr. K.Suresh, M.E., (Ph.D),

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

Mr.A.Syed Ismail, M.E., (Ph.D),

SUPERVISOR

Assistant Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

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

Submitted for the project viva voce on 01.04.2019

INTERNAL EXAMINER

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

1/4/19

EXTERNAL EXAMINER

ABSTRACT

The main goal of this project is to avoid accidents.Accident rates are increasing day by day in our modern world,one of the major reason is lousy braking and overbraking.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 accident. Most of the smartphone application has gyroscope sensor that is used to the sense the orientation of the smartphone. Here smartphone application called Riderguide is created that adopts the novel techniques to improve the overall accuracy on driving analytics. Braking system can be made Automated in order to avoid accidents while riding bikes and feedback will be displayed in the smartphone application by sensing various behaviors of the riders.GPU is connected to the vehicle in order to gothrough the database and analyse the turnings for applying brakes accurately.

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

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

CHAPTER 6

OUTPUT AND EXPLATION

The result of the research study through the literature review,research survey and analysis proved that the fusion/integration of both the biometric technology and the RFID technology should be considered.As the expected outcome is to have a universal access card and access control system,the research work aims that it will identify the fingerprint of the users.

The system will also identify its users by RFID card detection additional to fingerprint reading optionwhich is default.The system is expected to successfully stimulate the user records.

CHAPTER 7

CONCLUSION

The proposed system is more secure and transparent than the normal existing system.Influence of fraud data entry in the database can be maintained simply with the use of this universal access card system.

Only the authorized person can maintain the database.Users can be authenticated using the RFID swapping and the thumb detection.Inthe plan,it is expected that the proposed system will be more transparent,reliable than the existing system.

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

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

SUPER MART-AN RFID BASED SMART SHOPPING SYSTEM

A PROJECT REPORT

Submitted by

ASIRA BANU I (311815104003)

RAHILA SULTANA BEGUM M (311815104031)

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
LIBRARY

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

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

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2019

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

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled " **SUPER MART-AN RFID BASED SMART SHOPPING SYSTEM** " is the bonafide work of " **ASIRA BANU I (311815104003), RAHILA SULTANA BEGUM M (311815104031),** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D),

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Sathak A J College of

gineering, Siruseri, Chennai-603103

Mr.R.Sampath, M.Tech., (Ph.D).

SUPERVISOR

Associate Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

LIBRARY

Submitted for the project viva voce on 01.04.19

MUHAMED SATHAK A.J. COLLEGE OF ENGINEERING
SIRUSERI-603 103.
KANCHIPURAM DT.

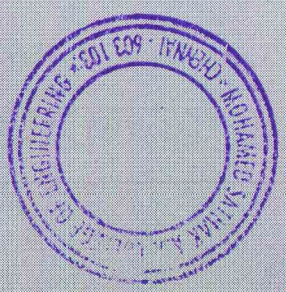
INTERNAL EXAMINER

EXTERNAL EXAMINER

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

ABSTRACT

In a supermarket the customers face some inconveniences like searching the products, waiting in queue for billing the products which takes more time for shopping and also forget what they intend to buy. The Smart Shopping System overcomes these issues by using RFID technology. Each product is labelled with a unique RFID tag and when crossing the RFID reader a notification will be sent to the customer. When the products are being collected in the shopping cart the RFID tags are scanned and it is transmitted for billing. This reduces the time taken in check-out counter in supermarkets. Thus the Smart Shopping System using RFID technology allows the users to self-checkout and increases productivity time.



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

CHAPTER 6

CONCLUSION

The Smart App based shopping system assisted by RFID will be easy and inexpensive to implement compared to the existing systems. The App based smart concept proposed here is first of its kind. The existing systems have been properly analysed and drawbacks identified and addressed in the proposed system. The use of ESP module for Microcontroller to network communication will make sure that there is no interference issue if there is another store in the vicinity running similar system. The potential of a system like this is huge; the store owners can analyse the trend or flavour of their customers in real time and offer them spontaneous offers and deals. The proposed system will put an end to the issue of long waits at checkout counters. Since we are living in a world where every second matters, the time saving technologies like this won't take much time to dominate.

By means of this paper intent to simplify the billing process, make it swift and increase the security using RFID technique. This will take the overall shopping experience to a different level. Different parameters such as the system parameters of smart shopping like products name, products cost, are continuously display.

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

Location Based Crop Recommendation System using Big Data Analytics

A PROJECT REPORT

Submitted by

ASMA P A (311815104004)

HIDHAYATHUN NASEERA K R (311815104010)

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 2019

APRIL 2019

ANNA UNIVERSITY: : CHE NAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"Location Ba Crop Recommendation System Using Big Data Analytics"** is the bonafide wo , **ASMA P A (311815104004) , HIDHAYATHUN NASEERA K R (311815104010),** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D.),

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

1/4/19

Ms.S.Indirakumari, B.Tech ., M.E.

SUPERVISOR

Assistant Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

LIBRARY

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

Submitted for the project viva voce on 01/04/2019

INTERNAL EXAMINER

1/4/19

EXTERNAL EXAMINER

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

ABSTRACT

Agricultural research has strengthened the optimized economical profit, ternationally and is very vast and important field to gain more benefits. In future riculture is the only scope for livelihood.

But today more number of people having lands don't know how to yield the ops efficiently and they are unaware which type of crops suitable for which soil.

In this proposed system to implement the application to identify the best op that can be harvested based on the location, types of soil, water source of that d whether that land is based on rain or bore water and suggest what type of crop suitable for that soil. So through this application a system is provided for any son to do agriculture in a smarter way.

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

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

CHAPTER 8

CONCLUSION

Thus the project using the Hadoop Framework and Big Data methodology, an application is implemented for the person who is interested to harvest a crop which will provide the best crop that can be cultivated in the land based on the soil, duration of the crop to be harvested and the amount that can be invested initially. Through this application agriculture is made smarter and becomes user friendly for the farmers as well as normal people who are new to agriculture.

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

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

Visible Light Communication for Audio and Video Transmissions

A PROJECT REPORT

Submitted by

ATHIQ AHMED KHAN M (311815104005)

MEERAAN SHA A.R (311815104020)

MOHAMED MAAHIL S (311815104022)

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
LIBRARY

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

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

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2019

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled " **VISIBLE LIGHT COMMUNICATION FOR AUDIO AND VIDEO TRANSMISSIONS** " is the bonafide work of **ATHEEQ AHMED KHAN M (311815104005), MEERAAN SHA A.R (311815104020), MOHAMED MAAHIL S (311815104022),** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603103

S. Indirakumari 1/4/19
Ms.S.Indirakumari, M.E.,
SUPERVISOR
Assistant Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering,Siruseri,Chennai-603103

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

Submitted for the project viva voce on 01/04/2019

1/4/19

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Visible light communication (VLC) is the term given to an optical wireless communication system that conveys information by modulating light that is visible to the human eye. Continuous improvements in wireless communication systems, e.g. 3G, 4G, etc.., a coming crisis is expected due to the lack of sufficient Radio Frequency (RF) resources, this limitation in bandwidth can't support the growth in demand for high data rates and the large numbers of communication systems, the extension or enrichment of wireless services and other being increased in user demand for these services, but the available RF spectrum for usage is very limited. So the new technology of Li-Fi came into picture. Light fidelity (Li-Fi) is a new short range optical wireless communication technology which provides data transmission like text, audio, video by using Light-Emitting Diodes (LEDs) to transmit data depending on light illumination properties In this technology, LEDs are used to transmit data in the visible light spectrum. This technology can be compared with that of Wi-Fi and offers advantages like increased accessible spectrum, efficiency,security, low latency and much higher speed. Communication is achieved by switching LED lights on and off at a speed higher than what is perceptible to the human eye.This concept promises to solve issues such as the shortage of radio-frequency bandwidth and boot out the disadvantages of Wi-Fi. Li-Fi is the upcoming and on growing technology acting as competent for various other developing and already invented technologies. Hence the future applications of the Li-Fi can be predicted and extended to different platforms and various walks of human life.

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

CHAPTER 7

CONCLUSION

The use of Visible Light Communication has gained substantial interest lately especially for its potential of offering high data rates, high security, no RF interference and lower energy consumption. This paper provides a comprehensive study on the impact of visible light communication on audio and video transmissions and identifies the challenges and remaining open issues. Additionally, a real experimental test-bed is setup to test the performance of audio transmission over VLC under various conditions such as distance from the source, impact of interfering lighting, etc. This thesis demonstrated a solution to the problem of integrating Visible Light Communication technology with present infrastructure, without having to make major changes to that infrastructure. The proposed system was segmented into two parts with different interface protocols and was demonstrated practically. Visible Light Communication is a rapidly growing segment of the field of communication. Moreover, subjective tests have been carried out to assess the quality of the audio transmission over the VLC system under varying conditions, as perceived by the user. The results show that within an office environment, the artificial light has the greatest impact on the user perceived audio quality when compared to the impact of the natural light.

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

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING - CHENNAI - 603103

ADVANCED PRISON SECURITY SYSTEM

A PROJECT REPORT

Submitted by

BALAJI P (311815104006)

KARTHIKEYAN R (311815104015)

VIKASH L (311815104040)

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

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

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2019

ANNA UNI[illegible]ENNAI 600 025

BO[illegible]ATE

Certified that this [illegible]ED PRISON SECURITY SYSTEM " is [illegible]aB BALAJI P (311815104006), KARTHIKEYAN [illegible]4015), VIKASH L (311815104040) " who carried out the proje[illegible] under my supervision.

Mr. K.[illegible], M.E., (Ph.D).

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Satahk A J College of

Engineering, Siruseri, Chennai-603103

Mr. M.Mohideen Abdul Kader, M.E

SUPERVISOR

Assistant Professor

Dept. of CSE

Mohamed Satahk A J College of

Engineering, Siruseri, Chennai-6

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

Submitted for the project viva voce on 8/04/2019

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

INTERNAL EXAMINER

EXTERNAL EX

ABSTRACT

Goal of this project is to minimize the time delay and improve the automation system in prison. To develop a webpage to monitor the prisoners with a gsm module to track their location and heart beat sensor to track their vitals. A camera to capture the abnormalities at the time of emergencies.

At present, the prison has the surveillance camera and few security guards are employed to monitor the illegal movement of prisoners. Prisoners has opportunity to flee away from prison. To control this undesirable situation Techniques like CCTV surveillance with image processing based solutions, Drones etc are available. Deployment of these techniques incurs high cost, does not give exact location of the prisoner.

Thus this project are developing an automated prison security system to track and monitor the prisoners inside the prison.

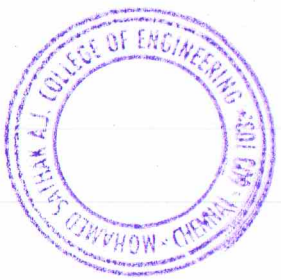
PRINCIPAL
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
EGATTUR-603 103.
KANCHIPURAM DT

CHAPTER 7

CONCLUSION & FUTURE ENHANCEMENT

roject an automated prison survelliance system using internet of things is ligital hearbeat sensor and gps module is used to track and monitor the neir position and vitals. with this prison security system will be upgraded. ystem will reduce the enhancement of prison breaking. And also reduce the attempting suicide. The prison clashes will be found immediately and s will be taken as soon as possible. The medical emergencies can be treated

ipgraded with new features like sms alerts for the guards and supervisors onormal activities. An electric shock method will make the system more posed system can also be used at various areas likes coal mining, mentally r security, healthcare for senior citizens.



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

LICENSE PLATE RECOGNITION USING AN IMPROVED SEGMENTATION AND CHARACTER RECOGNITION

A PROJECT REPORT

Submitted by

DEVA SAHAYAM . G (311815104007)

IRFAN KHAN . H . S (311815104012)

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 2019

LIBRARY

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 " **LICENSE PLATE RECOGNITION USING AN IMPROVED SEGMENTATION AND CHARACTER RECOGNITION** " is the bonafide work of " **DEVASAHAYAM. G (311815104007), IRFAN KHAN .H.S (311815104012),** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D),

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Satahk A J College of

Engineering, Siruseri, Chennai-603103

Mr. D. Justin Xaviour M.E

SUPERVISOR

Assistant Professor

Dept. of CSE

Mohamed Satahk A J College of

Engineering, Siruseri, Chennai-603103

Submitted for the project viva voce on _____

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

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT:

The project presents license plate recognition system using connected component analysis and template matching model for accurate identification. Automatic license plate recognition (ALPR) is the extraction of vehicle license plate information from an image. The system model uses already captured images for this recognition process. First the recognition system starts with character identification based on number plate extraction, Splitting characters and template matching. ALPR as a real life application has to quickly and successfully process license plates under different environmental conditions, such as day time. It plays an important role in numerous real-life applications, such as automatic toll collection, traffic law enforcement, parking lot access control, and road traffic monitoring. The system uses different templates for identifying the characters from input image. After character recognition, an identified group of characters will be compared with database number plates for authentication. The proposed model has low complexity and less time consuming in terms of number plate segmentation and character recognition. This can improve the system performance and make the system more efficient by taking relevant samples. Here in this proposed system we are using ROI extraction inorder to get the exact region of the preprocessed image. Morphological process results in segmentation of the image and trained for further comparison with data base image. Here we are using neural network for the comparison of the input image with database image and it inturn results in whether the number plate is authenticated or unauthenticated.

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

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

CHAPTER-6

RESULT AND DISCUSSION:

In this paper proposed a feature based number plate recognition. The feature based number plate recognition improves the performance of number plate recognition. The process of feature extraction performs by wavelet transform function. Wavelet transforms function gives a better texture feature. The extracted texture feature goes through quantization process. The vector quantization gives the binary format of number plate. For the optimsation of vector used BP neural network model. BP neural network is novel algorithm for data optimization. Fitting approach is necessary for template matching. For matching the characters with the database, input images must be equalsized with the database characters. Here the characters are fit to 24x42. The extracted characters cut from plate and the characters on database are now equal-sized. The next step is template matching. Template matching is an effective algorithm for recognition of characters. The character image is compared with the ones in the database and the best similarity is measured. In the final module, each segmented character from the previous module will be matched with the stored templates of the character pixel by pixel. In future reduces the training time and computational time of template generation.

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

EMERGENCY MEDICAL SERVICE THROUGH SMART AMBULANCE

A PROJECT REPORT

Submitted by

HARISHA S(311815104008)

PRADEEPA N(311815104029)

LIBRARY

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
SIRUSERI-603103.
KANCHIPURAM DT.

ANNA UNIVERSITY: CHENNAI 600 025

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING

APRIL 2019

ANNA UNIVERSITY::CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled " **EMERGENCY MEDIC SERVICE THROUGH SMART AMBULANCE** " is the bonafide worl **HARISHA S (311815104008), PRADEEPA N (311815104029),** who ca out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D),	Mrs.T.A.Annie, M.E.,
HEAD OF THE DEPARTMENT	**SUPERVISOR**
Associate Professor	Assistant Professor
Dept. of CSE	Dept. of CSE
Mohamed Sathak A J College of	Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603103	Engineering, Siruseri, Chennai-6

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

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

Submitted for the project viva voce on 1.04.2019

ABSTRACT

Emergency medical service plays a vital role in saving lives but now a days many lives are being expired before the person approach the healthcare experts due to lack of health condition of the person unknown by the healthcare experts.

The project serves the delay about the person health condition by means of sending the health status of the person to the healthcare experts before the ambulance reaches the hospital.

The proposed system will help the rural community people and health care experts to save the life of the person who met the accident and also reduce the death ratio of the accident cases.

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

CHAPTER 7

CONCLUSION AND FUTURE WORK

Emergency medical system saves the life of the needy person by taking the treatment on time. This system will help the people who all are far from the hospital then want to reaches the hospital at any time. The system will help the healthcare experts to prepare themselves to make necessary arrangement to treat the patient based on the health condition. Emergency medical system will reduce the death ratio of accident cases.

The basic concept can be upgraded and an ambulance itself can be made as equal to hospital. Once the ambulance feature increased, it will be possible to carry out a mini operation in the ambulance with the help of best doctors all over the world through video conference. Hence Smart Ambulance needs for creation of Mini Hospital in ambulance.

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

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

SMART HOME AUTOMATION WITH HYBRID APPLICATION

A PROJECT REPORT

Submitted by

IRFANA J (311815104011)

RESHMA BANU A (311815104032)

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 2019

LIBRARY
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 **"SMART HOME AUTOMATION WITH HYBRID APPLICATION"** is the bonafide work of **"IRFANA J(311815104011),RESHMA BANU A(311815104032)"**, who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D),
HEAD OF THE DEPARTMENT
Associate Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603103

Mr.M.Mohideen Abdulkader M.E.,
SUPERVISOR
Assistant Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603103

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

Submitted for the project viva voce on 01/APR/2019

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

The ultimate aim of this project is to build a smart home automation with hybrid application. This application pays its work both in security and surveillance phase.

The existing system for smart home automation is a muted work. In which the selected appliance is about to controlled in a metered environment. The remote automation lags here and it requires the proper network configuration so that it has to be connected throughout the process. The solution for this process is to build an application that runs in cross platforms and to overcome the network lagging.

the proposed solution named smart home automation system with hybrid application is build using the cordova platform. Since it is just similar to the eb application, it accepts the cross platform environment. And it cost less because the arm micro controller used in this project helps to design multiple functions in a single processor. This increases the feature of remote conductivity.

thus, by using the proposed solution, the issues in smart home automation with android application like time delay and inappropriate data usage has been reduced to improve the automation system.

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

CHAPTER 6

SYSTEM TESTING

- **ROBOTIUM TEST**

Robotium is an open-source test framework for writing automatic gray box testing cases for Android applications. With the support of Robotium, test case developers can write function, system and acceptance test scenarios, spanning multiple Android activities. Robotium can be used both for testing applications where the source code is available and applications where only the APK file is available and the implementation details are not known.The framework is released under Apache License 2.0. Its founder and main developer is Renas Reda. Version 5.0.1 was released on January 5, 2014. Robotium is similar to Selenium, but for Android. It has support for Android features such as activities, toasts, menus and context menus.

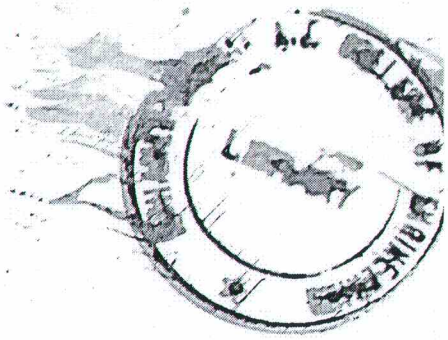
- **SELENIUM TEST**

Selenium is portable framework for testing web applications. Selenium provides a playback (formerly also recording) tool for authoring functional tests without the need to learn a test scripting language (Selenium IDE). It also provides a test domain-specific language (Selenese) to write tests in a number of popular programming languages,including C#, Groovy, Java, Perl, PHP, Python, Ruby and Scala. The tests can then run against most modern web browsers. Selenium deploys on Windows, Linux . It is open-source software, released under the Apache 2.0 license: web developers can download and use it without charge.

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

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

Multiple Scenarios Online Healthcare System with Advanced Predictions



A PROJECT REPORT

Submitted by

G. MANORAJA (311815104019)

A.S. SWAROOP (311815104038)

In partial fulfilment 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, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

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

APRIL 2019

ANNA UNIVERSITY: : CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"Multiple Scenario Online Healthcare System with Advanced Predictions"** is the bonafide work of **MANO RAJA G (311815104019), SWAROOP A S (311815104038),** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D.),

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Satahk A J College of Engineering, Siruseri, Chennai-603103

Mr.A.Syed Ismail, M.E., (Ph.D.),

SUPERVISOR

Assistant Professor

Dept. of CSE

Mohamed Satahk A J College of Engineering, Siruseri, Chennai-603103

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

Submitted for the project viva voce on 01/04/2019

INTERNAL EXAMINER

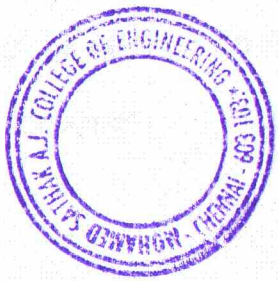
EXTERNAL EXAMINER

ABSTRACT

The objective of this project is to bring out a online healthcare system which is available to the general public to get a complete system at their arms. One need not depend upon any reliability to seek healthcare. There exist no barriers in seeking medical advices or getting medical help. This online health care system will provide a basic idea for the people to identify what kind of problem they are facing regarding health.

Once the required information's being collected from the application user the system will Gather the users situation and will predict the actual problem as per the symptoms. Once the required data are being gathered it will also be used to train the system by using the concepts of machine learning.

After identifying the health issue the system will redirect the user to the authorised and perspective doctor near to the person. Healthcare must be provided to everyone with ease and with exact results and accurate diagnosis. This was the main motivation of taking this as our project to build a complete healthcare system with an advanced prediction level.



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

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENTS

The Most Important Feature of this paper is to Develop a cost-effective Automation to Smart Home automation. The flexibility in the control of the designed smart phone based HAS is spread across the world as it can be controlled through the Internet. A wide range of sensors is used to capture the readings of temperature, humidity, water level, gas leakage and the flame sensing devices making it an efficient system for security as well as for monitoring. The specifications of this system and the ease of implementation aids large scale manufacturing and its acceptance in the industrial domain. In addition to the simplicity of the design, the application software embedded is Hybrid, the most profound smartphone base, platform independent and an open source which tags the smartphone to be the controller in this project owing to cost reduction aspect.

In Future, the voice controlled system is integrated to make it easy for the physically challenged people and old age people to handle. Knowing the power factor of the load, the energy consumption (kWh) and hence the tariff information of the beneficiary can be provided.

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

PREDICTION OF BREAST CANCER USING MACHINE LEARNING ALGORITHMS

A PROJECT REPORT

Submitted by

MAHAJABEEN SULTHANA B (311815104017)

A JAMELA RUKSHANA (311815104013)

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
LIBRARY

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

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

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,

SIRUSERI, CHENNAI – 603 103

ANNA UNIVERSITY: CHENNAI 600 025

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING

APRIL 2019

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **" PREDICTION OF BREAST CANCER USING MACHINE LEARNING ALGORITHMS "** is the bonafide work of **" MAHAJABEEN SULTHANA B (311815104017), A JAMELA RUKSHANA (311815104013)"** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D.),
HEAD OF THE DEPARTMENT
Associate Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603103

Ms.M.Thahaseen Fathima M.E.,
SUPERVISOR
Assistant Professor
Dept. of CSE
Mohamed Sathak A J College of
Engineering, Siruseri, Chennai-603103

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

Submitted for the project viva voce on 11/4/19

INTERNAL EXAMINER

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING

EXTERNAL EXAMINER

ABSTRACT

Breast cancer in females is the most common cancer diseases and leading cause of death. In the recent years, Computer Aided Diagnosis (CAD) is very useful for detection of breast cancer. Mammography can be used as an efficient tool for breast cancer diagnosis. A computer based diagnosis and classification system can reduce unnecessary biopsy. This paper presents the tumor detection algorithm from mammogram, this study shows the outcome of applying image processing morphological operation on mammogram breast cancer image, Since micro calcification clusters are primary indicators of malignant types of breast cancer, its detection is important to prevent and treat the disease. This paper proposes a method for detection of micro calcification clusters in mammograms using sequential Difference of Gaussian filters (DoG), and Gaussian filters. These regions are classified by SVM classifier using the most dominant features which are extracted from CSLBP features and DoG features. The proposed method was tested on 75 mammographic images, from the mini-MIAS database. The methodology achieved a accuracy of 89.33%.

KEYWORDS: Region of Interest, Difference of Gaussian, Gaussian, Center Symmetric Local Binary Pattern, SVM Classifier

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

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

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

AUTOMATED SURVILLANCE SYSTEM USING MACHINE LEARNING AND VIDEO ANOMALY DETECTION

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING
LIBRARY

A PROJECT REPORT

Submitted by

MOHAMMAD MOHSIN (311815104023)

MUTHU MOHAMED ALI L.A (311815104027)

THOUFIQ ANSARI K.S (311815104039)

In partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

IN

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

COMPUTER SCIENCE AND ENGINEERING

MOHAMED SATHAK A. J. COLLEGE OF ENGINEERING,
SIRUSERI, CHENNAI – 603 103

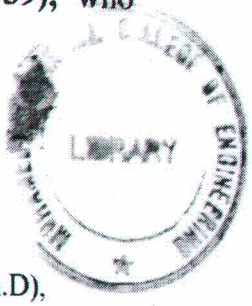
MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * 603 103

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2019

ANNA UNIVERSITY: CHENNAI 600 025
BONAFIDE CERTIFICATE

Certified that this project report titled " **AUTOMATED SURVEILLANCE SYSTEM USING MACHINE LEARNING AND VIDEO ANOMALY DETECTION** " is the bonafide work of " **MOHAMMAD MOHSIN (311815104023), MUTHU MOHAMED ALI L...A (311815104027), THOUFIQ ANSARI K.S (311815104039),** who carried out the project work under my supervision.



Mr. K.Suresh, M.E., (Ph.D),

HEAD OF THE DEPARTMENT

Associate Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

Mr.R.Sampath, M.Tech., (Ph.D),

SUPERVISOR

Associate Professor

Dept. of CSE

Mohamed Sathak A J College of

Engineering, Siruseri, Chennai-603103

Submitted for the project viva voce on 01/04/2019

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

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Goal of this project is to minimize the accidents in daily life and make the roads a safer place. The current video surveillance systems require a constant human presence to monitor the video which makes it prone to human errors. The Indian traffic is known to be vulnerable to a large number of accidents every year.

The existing surveillance systems require a constant human presence for monitoring the traffic and anomalous activities, this makes it prone to human errors. Lack of communication and incorrect location makes it difficult for ambulance to reach the accident location. A fundamental challenge in intelligent Video surveillance is to automatically detect anomolus events in complex and crowded scene.

The proposed solution named Automated Surveillance System Using Machine Learning and Video Anomaly Detection, it is a non-human surveillance system which will monitor the traffic and detect for anomalous event.The camera recorder is used to record videos, the recorded footage is analyzed and splitted into frames. If accident is detected in the frames, the GSM module gets activated which sends an alert message to the authorities.

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

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

CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENTS

In this project, a video anomaly detecting system at traffic and highways that is apable of detecting accidents and also alert the authorities has been developed. The xperiment has been performed using MATLAB tool with Arduino GSM module. The xperiment includes two accident videos and the system is able to successfully detect the ccident. The proposed system can be used for surveillance in various fields for security urposes. The system is going to make use of video anomaly detection algorithms like STAE d AMDN which can detect alteration between frames. The system is made to learn various nomalies using the concept of machine learning.

To improve the performance of the detection and algorithm, problems created by adows and occlusion is planned to be addressed by using better background modeling hniq... and re-segmentation of the segmented vehicle region using average color and itness distance of blocks in the segmented vehicle regions. The processing speed will be reased in future and the video quality will also be improved.The future system will support nanned live camera surveillance and monitoring. These systems can be made to send the S location of the abnomalous event. And also it is planned to make the vehicle detection tracking algorithm operate under night conditions. Also it is planned to collect more fic data from different camera angles to make the algorithm robust to various conditions situations.

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

A.J. COLLEGE OF ENGINEERING

UNIVERSAL ACCESS CARD BASED ON FINGERPRINT AND RFID AUTHENTICATION

A PROJECT REPORT

Submitted by

SELCIA R (311815104033)

SURUTHI E (311815104037)

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 2019

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

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report titled **"UNIVERSAL ACCESS CARD BASED ON FINGERPRINT AND RFID AUTHENTICATION "** is the bonafide work of **"SELCIA.R (311815104033), SURUTHI.E(311815104037),** who carried out the project work under my supervision.

Mr. K.Suresh, M.E., (Ph.D).,	Mrs.T.A.Annie,M.E.,
HEAD OF THE DEPARTMENT	**SUPERVISOR**
Associate Professor	Assistant Professor
Dept. of CSE	Dept. of CSE
Mohamed Satahk A J College of	Mohamed Satahk A J College of
Engineering, Siruseri, Chennai-603103	Engineering, Siruseri, Chennai-603103

Submitted for the project viva voice on 01-04-2019

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

INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

Goal of this project is to avoid the transfer and transaction problem during the use of RFID tag.In view of the problems of RFID tag, Such as security defects and high computationl cost, and improved light weight Universal Access Card using RFID tag is proposed in this paper.This improved Access Card doesn't depend on the trusted third party, so that this system has a wider application space.The analysis results show that this Card system not only satisfies the security requirements of the tag, but also overcomes the security defects of various e-transaction attacks. This improved system has larger promotion in the aspect of security and efficiency.

The frequency used will depend on the RFID application, with actual obtained distances sometimes varying considerably from what might be expected. For example, when the U.S. State Department announced it was to issue electronic passports enabled with an RFID chip, it said the chips would only be able to be read from approximately four inches away. However, the State Department was soon confronted with evidence that RFID readers could skim the information from the RFID tags from much farther than 4 inches, some claiming upward of 33 feet away, proving the difference between advertised and actual range can vary immensely.If read longer ranges are needed, using particular tags with additional power can boost read ranges to 300-plus feet.

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING · CHENNAI · 603103

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

CHAPTER 6

CONCLUSION&FUTURE IMPLEMENTATION

6.1 CONCLUSION

Orientation sensors are ineffective in determining orientations due to the magnetic and accelerative interferences resulting from general use. By integrating the angular velocity output of the Nexus S gyroscope, we were able to predict angular orientations to within 6% for test rotations, as well as detecting turns while the phone's orientation was constantly changing. When the user was walking, taking turns, and travelling up. By knowing the orientation of the phone at any time, it is possible to perform standard rotational mathematics to rotate measured vectors to a desired reference frame.

6.2 FUTURE IMPLEMENTATION

As part of future work, we aim to utilize the gyroscope's ability in solving the problems mentioned above by developing a sensor fusion based indoor tracking application that combines the sensor data from the gyroscope, accelerometer and the orientation sensor.The specifications like angular position , identification of slopes , speed brakes , types of roads and turnings is made and this can be improved by storing the information from user to the database.

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

MOHAMED SATHAK A.J. COLLEGE OF ENGINEERING * 603 103 * MAA