Sensor Recharging Framework with Secured Packet Scheduling for Named Data Networking Based (WSN)

A Project Report

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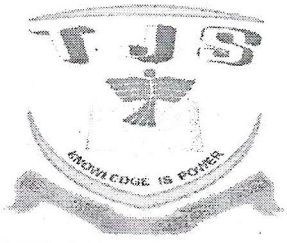
In partial fulfilment for the award the degree of

BACHELOR OF ENGINEERING

COMPUTER SCIENCE AND ENGINEERING



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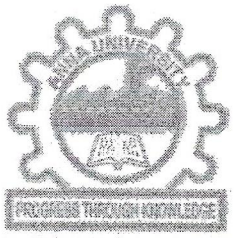

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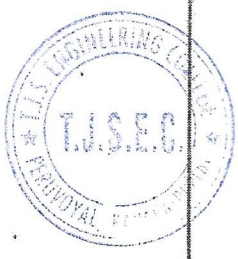
JUNE 2022



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BONAFIED CERTIFICATE

Certificate that this project report " Sensor Recharging Framework with Secured Packet Scheduling for Named Data Networking Based (WSN)" is the bonafide work of the following students.

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Submitted for viva voce held on _____at T.J.S Engineering College, Peruvoyal.

T.J.S.E.C

EXTERNAL EXAMINER

INTERNAL EXAMINER

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ABSTRACT

Create a Wireless Sensor Network topology to Simulation environment on Wireless Sensor Network topology with more number of nodes and implement Adhoc On-Demand Distance Vector Routing Protocol to transmit the message from source to destination. With more number of sensor nodes and form the divided by clusters zones and select cluster head based on algorithm to transmit the message from cluster head to sink. A sensor nodes and implement Node recharge algorithm based on, Checking Energy Status and Emergency energy report to transmit the message from cluster head to sink. A Wireless Sensor Network topology with more number of sensor nodes and implement Maximum Weight Sum algorithm for select routing for charging vehicle. Implement Data gathering algorithm for aggregate all information in data gathering vehicle and implement NDN (Named Data Networking) Based data transmission to increase the security of the network. Packet delivery ratio, End to end delay, energy consumption, remaining energy are measured for Mobile recharging framework with Secured packet scheduling for Named data networking Based WSN and outputs are shown using graphs.One of the fundamental problems faced by wireless sensor networks is its constrained lifetime due to scarce energy supply available during their operation. In this paper we are going to model an efficient real time wireless recharging for wireless sensor network along with Dynamic Multilevel Priority (DMP) packet scheduling and Multiple Travelling Salesman Problem with Deadlines (m-MTSP). For that firstly a Real time recharging scheme is adopted. An NDN based Real time recharging scheme is one of the best real time recharging scheme which uses multiple mobile vehicles for recharging, and also provides more scalability and robustness. In this proposed work, an efficient real time wireless recharging protocol which is named as, Enhanced Mobile recharging Framework is developed, by including DMP packet scheduling along with above mentioned NDN based real time recharging scheme. By adopting DMP packet scheduling and m-MTSP scheme along with the Real time recharging framework further improves the network performance.

Keywords: Wireless Charging Technology, Real Time Recharging, NDN, NETWRAP, Sencars, DMP

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CS8591 COMPUTER NETWORKS

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OBJECTIVES:

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

UNIT I INTRODUCTION AND PHYSICAL LAYER 9

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

UNIT II DATA-LINK LAYER & MEDIA ACCESS 9

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

UNIT III NETWORK LAYER 9

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

UNIT IV TRANSPORT LAYER 9

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

UNIT V APPLICATION LAYER 9

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

TOTAL : 45 PERIODS

OUTCOMES:

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

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

TEXT BOOK:

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

REFERENCES

1. Larry L. Peterson, Bruce S. Davie, Computer Networks: A Systems Approach, FifthEdition, Morgan Kaufmann Publishers Inc., 2012.
2. William Stallings, Data and Computer Communications, Tenth Edition, PearsonEducation, 2013.
3. Nader F. Mir, Computer and Communication Networks, Second Edition, PrenticeHall, 2014.
4. Ying-Dar Lin, Ren-Hung Hwang and Fred Baker, Computer Networks: An OpenSource Approach, McGraw Hill Publisher, 2011.
5. James F. Kurose, Keith W. Ross, Computer Networking, A Top-Down ApproachCS8581 NETWORKS LABORATORY

OBJECTIVES:

- To learn and use network commands.
- To learn socket programming.
- To implement and analyze various network protocols.
- To learn and use simulation tools.
- To use simulation tools to analyze the performance of various network protocols.

LIST OF EXPERIMENTS

1. Learn to use commands like tcpdump, netstat, ifconfig, nslookup and traceroute. Captureping and traceroute PDUs using a network protocol analyzer and examine.
2. Write a HTTP web client program to download a web page using TCP sockets.
3. Applications using TCP sockets like:

- Echo client and echo server
- Chat
- File Transfer

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