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**International Journal of Engineering Technology Research & Management** 

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### NEXT-GEN UNIVERSITY CAMPUS NETWORK WITH RIP V2 AND EIGRP INTEGRATION

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#### ABSTRACT

This project is about building a solid and scalable campus network using Cisco Packet Tracer. The idea is to create a reliable and flexible computer network for a fictional university, ensuring that professors, admin staff, and students can connect smoothly without any hassle. We are using a smart mix of Routing Information Protocol (RIP) and Enhanced Interior Gateway Routing Protocol (EIGRP) to keep things running efficiently. While working on this project, we get to grasp key networking concepts, like topology design, IP addressing, and how data moves through a network which has subnetting done on it. Plus, Virtual Local Area Networks (VLANs) help organize traffic better, making sure different departments don't interfere with each other.

#### Keywords:

RIP, EIGRP, VLANS, SUBNETS.

#### INTRODUCTION

This project is all about building a smooth, efficient network that connects a main campus with another branch in a different location. We do this using Enhance Interior Gateway Routing Protocol (EIGRP) and Routing Information protocol (RIP). Let's talk about RIP, is RIP (Routing Information Protocol)—a simple, easy-toconfigure routing protocol that works on hop count metric. Now let's talk EIGRP, think of it like RIP's smarter, faster cousin. It's based on IGRP tech, but it has way better performance and quicker updates. Thanks to something called DUAL (Diffusing Update Algorithm), all routers sync up instantly when network changes happen.Further more we'll also be setting up IP addresses, creating VLANs to keep things organized and enabling inter-VLAN communication.

#### **OBJECTIVES**

The aim of this project is to implement an advanced computer network to enhance fast routing, better network security by creating VLANS and enabling inter-Vlan routing. Routings outside the VLANS using Enhance Interior Gateway Routing Protocol (EIGRP) and Routing Information protocol (RIP)

#### METHODOLOGY

First off, we need to set the goals, figure out who needs what, and check out any existing network setup. Once we've got that down, we'll sketch out the big picture, including IP addresses and VLANs, to make sure everything is organized. Next we configure Enhance Interior Gateway Routing Protocol (EIGRP) and Routing Information protocol (RIP) to enable routing.

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Figure: University Campus Computer Network

#### **RESULTS AND DISCUSSION**

The Next-Gen University Campus Network with RIP V2 And EIGRP Integration was successfully built and implemented. This network design isolated the networks from interfering with other using vlans and inter-vlan routing helped the networks to communicate with each other while being isolated. Enhance Interior Gateway Routing Protocol (EIGRP) and Routing Information protocol (RIP) to enabled routing outside the interior networks.

#### ACKNOWLEDGEMENT

We would like to express our sincere gratitude to our mentors and instructors for their guidance and support throughout the development of Next-Gen University Campus Network with RIP V2 And EIGRP Integration. We also extent our thanks to the technical staff and peer who contributed valuable insights during the testing phase. Special thanks go to our institution for providing the necessary resources and environment to carry out this project

#### CONCLUSION

This project was all about turning networking theory into something real using Cisco Packet Tracer. We carefully planned, built, and tested a fully working network, making sure it met the specific needs—whether for a small office, a campus, a home setup, or a multi-branch organization.

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