Network and Information Security

ITE4001

(C1 Slot)

Fall semester 2018-19

Review-I

Title :- Extending wifi range and providing anonomity using raspberry pi.

Submitted By:-

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Abstract :-

The internet provider or the websites we visit often track where we came from and watch where we head off to next. A VPN - or virtual private network - helps us to browse the internet more anonymously by routing your traffic through a server that is not your point of origin. There are plenty of companies offering services with varying degrees of security and varying degrees of cost. But if we want to use the service for the free and we are bit technical with some basic coding and a Raspberry Pi computer, we can build our own VPN server. It will give you the option of appearing to be from somewhere else and allow you to browse the internet more securely through your home network, and access shared files and media on your home computer. As we are implementing our personal VPN using raspberry pi, it will also act as the wifi extender . So we can connect more than one device to the connection at a time and it will also increase the range of the network.

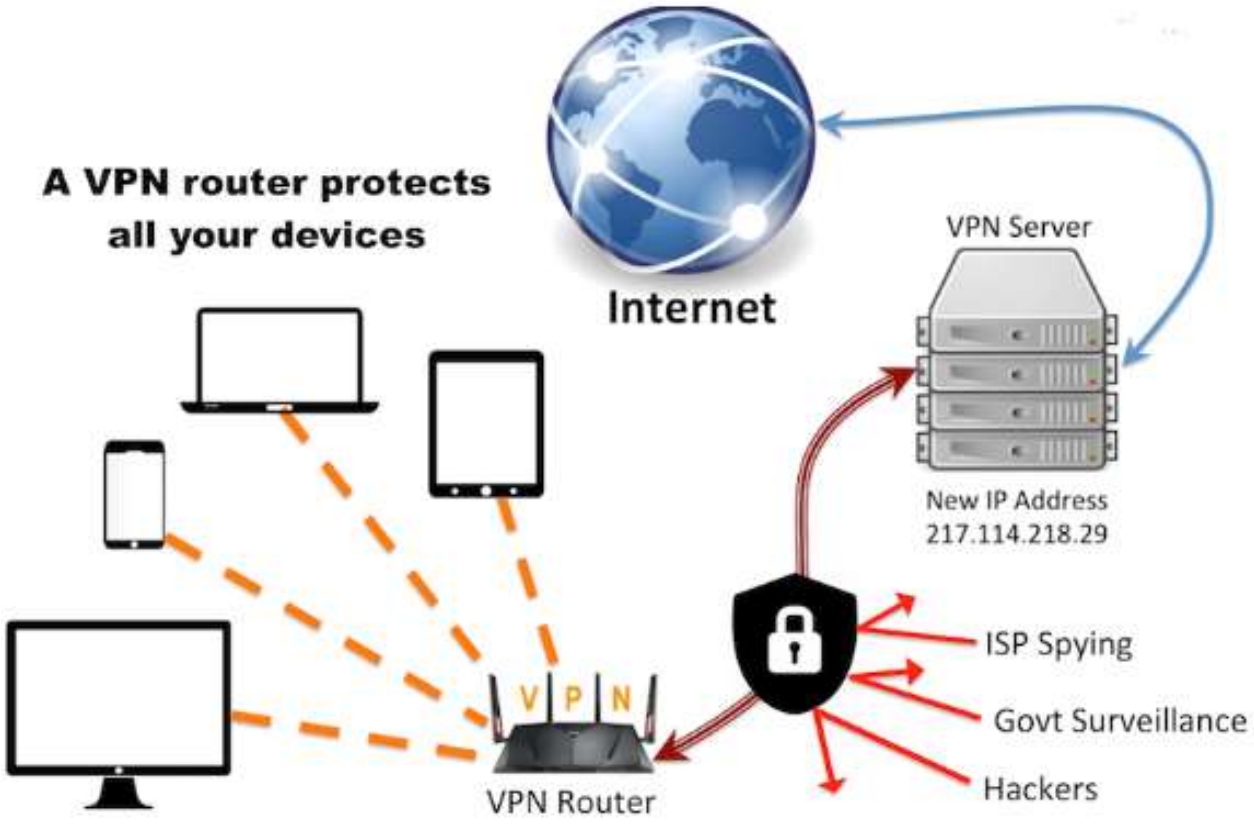
Literature Survey :-

Sno.	Title, Author , Journal name , Year of publication	Summary
1.	• **Web Hosting and Live Streaming Using Raspberry-Pi for Home Automation.** • Anuja A. Borkar, Krutika D. Sargar, Siddhi U. Jadhav, Shraddha J. Satpute, Ruchika R. Karande • International Journal of Advance Research, Ideas and Innovations in Technology. • 2017	In this paper the author discussed that with the advancement of technology today not only we can access the information from anyplace, at any time, by any person, but we can also control and monitor various devices from anyplace, at any time. This report represents the application of IoT for Smart Home Automation system which includes a Raspberry Pi as a processing unit for data which is extracted from various sub-systems like, Temperature sensing system, Automatic light system, Cooling system, and Gas detection system, Water level sensing system, Motion detection system and Lights on and off system. All these systems are monitored and controlled remotely by a web page. This will help the users of any age to control and monitor their home from anywhere in the world at any time.

2.	• **Research on tunneling techniques in virtual private networks.** • IEEE • August 2002	In this paper authors discussed the trend of virtual private networks (VPN) to be used for information exchange between enterprises, between branches of enterprises and between enterprises and their employees instead of traditional dial networks and leased lines and techniques and protocols used to implement the VPN. The tunneling technique is the key technique to implement VPN. With the VPN implementation requirements in mind, we perform comparative research on the existing tunneling protocols including GRE, L2TP, IPSec and IP/IP. We also propose an integrated scheme of tunneling mechanism that supports VPN under the current condition.
3.	• **Virtual Private Network – A Survey.** • M.Krithikaa, M.Priyadharsini and C.Subha • International Journal of Trend in Research and Development • 2016	In this paper they introduced the concept of Virtual Private Network extends a private network across a public network, such as the internet. It enables the user to send and receive data across shared public network as if their computing devices were directly connected to the private network. This VPN services is fully dedicated to the small and medium size companies.
4.	• **Secure VPN Server Deployed on Raspberry Pi.** • Pooja Karan Bist, Akansha Santosh Mekade, Anurag Mohan Nair, Madhumita Chatterjee • Journal of Network Communications and Emerging Technologies (JNCET) • 2018	The proposed system is focused on setting up a VPN server and securing the connection between the VPN host machine and the client that is accessing it remotely. The project aims at providing multiple layers of protection in the form of authentication during the connection establishment between a vpn client and the vpn server deployed on raspberry pi. The VPN server deployed on Raspberry Pi enables user to access their virtual connection to home network at any time and on a low power consumption. The multi-tier authentication assures the security of connection establishment between the server and the client

5.	• **RASBI CLOUD: RASPBERRY PI** • Baladhandapani.T, Vinoth Kumar.V • international journal of research in computer applications and robotics issn 2320-7345 • 2017	The cloud computing is a very good technology, on the other hand raspberry Pi is a marvellous innovation. The combination of good technology and the marvellous innovation to provide a prone free secured data storage is the aim of proposed system. The system illustrates a design of Raspberry Pi Own cloud server this can act as your very own personal cloud storage. Due to the continuous working of the server the raspberry Pi kit is provided with an external fan to avoid evolving heat. The proposed system with the providence of highly-secured data storage cloud server can be deployed in Industries with high conscious of data security.

Architecture Diagram :-



Identified problem :-

Over the public internet connection all our activities are tracked out and the admin of the network have access to our browsing history. Moreover, most of the public connections allow only one device at a time, for one user to connect to the network and range of the network is also very limited.

A Virtual Private Network , connection method can be used to add security and privacy to private and public networks, like WiFi Hotspots and the Internet. Privacy is increased with a Virtual Private Network because the user's initial IP address is replaced with one from the Virtual Private Network provider. Subscribers can obtain an IP address from any gateway city the VPN service provides. As we are making our personal VPN it will also act as the wifi extender , so we can connect more than one device to the connection.

References :-

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