Analyzing and addressing wi-fi connectivity in college campus: A Technical report

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DONE BY :

23MAB0A13: B Srinivas

23MAB0A06:T Venkat Vaastav

Reddy

23MAB0A17:G Hrithik Sai

23MAB0A01:N Vishvesh

23MAB0F02:C Vydik

Introduction:

As technology continues to advance, the use of the internet has become an integral part of our daily lives. The National Institute of Technology (NIT) campus has also embraced this trend by providing Wi-Fi and Ethernet services to its students, faculty, and staff. However, with the increasing number of users and devices, there have been some issues with the Wi-Fi and Ethernet connectivity on campus. Additionally, there have been complaints about the inability to access certain useful websites due to them being blocked. This technical report aims to address these problems and provide recommendations for improvement

Summary:

This technical report addresses the connectivity issues faced by users (students) at the National Institute of Technology (NIT) regarding Wi-Fi, Ethernet, and blocked useful websites. The methodology involved gathering information from 50 members to identify common complaints and locations with connectivity problems. WiFi issues such as slow speeds and dead zones were noted in specific areas like the stadium, library, hostels, and certain classrooms. Ethernet problems included non-functional ports during power outages and slowdowns in internet speed.

Moreover, users expressed frustration over the blocking of useful websites like Chess.com, Lichess, Amazon Music, Easy engineering, Doku-men, Typing.com, and Z-type, which are valuable for academic and research purposes. The report recommends solutions such as expanding WiFi coverage, optimizing network infrastructure, implementing a whitelist system for website access, and providing alternative access methods for blocked sites. These measures aim to improve overall network performance, enhance productivity, and address users' needs effectively at NIT.

Table of contents :

References	Sources Consulted and Referenced

Methodology :

- Gather information on reported Wi–Fi issues from users (students).
- Identify common complaints such as slow speeds, intermittent connections, LAN issues, and dead zones.

Analysis :

Places where people experience low/no wi-fi connections

- Stadium
- Library
- NAB E 303
- 1.8k hostel
- IFC A
- IFC B
- Times Square

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ETHERNET ISSUES :

- When the power goes out, the Ethernet connection ceases to function
- The internet frequently experiences slowdowns.
- The Ethernet connection sometimes becomes non-functional for no reason
- The ethernet port is non-functional in some rooms

Blockage of some useful websites

In addition to the Wi-Fi and Ethernet problems, there have been complaints about the inability to access certain useful websites on campus. These websites are often blocked by the network administrator for security reasons, but they are essential for academic and research purposes. This has caused inconvenience and frustration among the users, as they are unable to access important resources.

blocked websites that are useful

- **Chess.com**
  Chess.com is a popular online platform for playing, learning, and discussing chess. It offers a range of features such as live chess gameplay with players worldwide, chess puzzles, lessons, and analysis tools.
- **Lichess**
  Lichess is a free and open-source online chess platform that offers a wide range of features for players of all levels.
- **Amazon Music**

  Amazon Music is a streaming service offered by Amazon that provides users access to a vast library of songs, albums, and playlists.
- **Easy engineering**

"Easy Engineer" is dedicated to providing simplified explanations, tutorials, and resources related to engineering topics. It could offer content catering to students, beginners, or enthusiasts who are looking to understand engineering concepts without getting overwhelmed by technical details.

● Dokumen

"Dokumen" refers to a specific website related to document management, sharing, collaboration, or any other specific purpose

● Typing.com

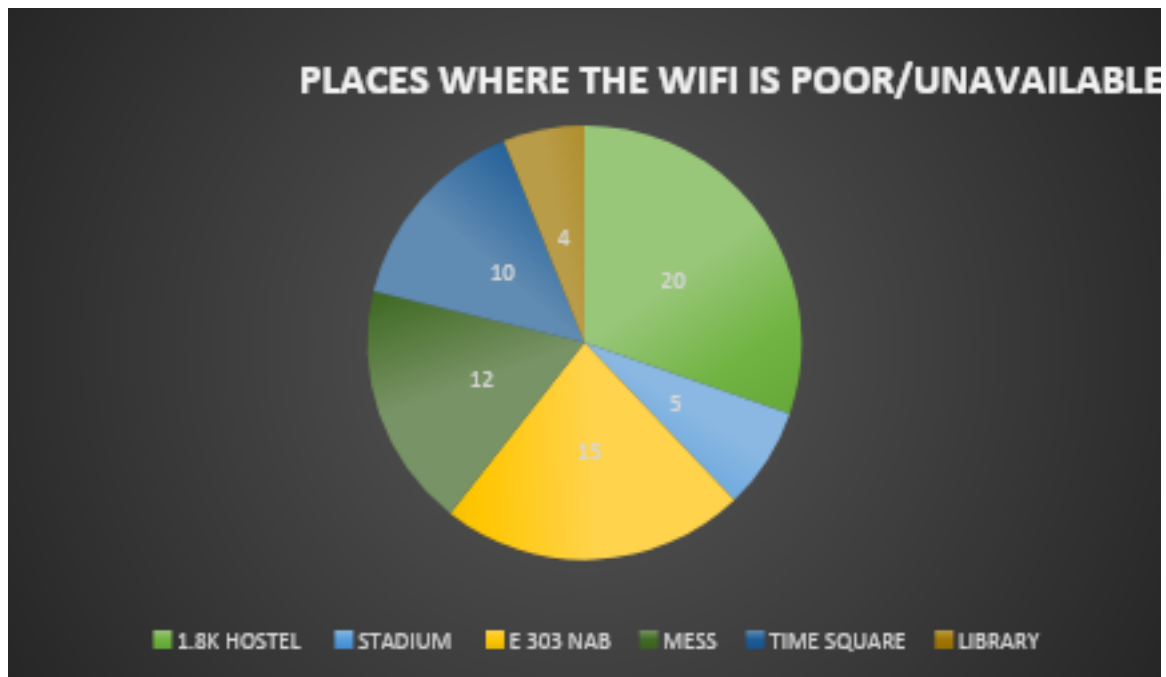"Typing.com" is a typing application designed to help users improve their typing speed and accuracy.

● Ztype
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ZType is an engaging typing game crafted to enhance users' typing speed and accuracy through an entertaining and interactive experience.

<u>Recommendations</u>

- Increase network coverage: The Wi-Fi coverage on campus should be expanded to ensure that all areas have a strong and stable connection. This can be achieved by installing additional access points in strategic locations.

- Implement a whitelist system: Instead of blocking certain websites, a whitelist system can be implemented where only approved websites are accessible on the campus network. This will ensure that important websites are not blocked and will also enhance network security.

PLACES WHERE THE WIFI IS POOR/UNAVAILABLE

Legend: 1.8K HOSTEL, STADIUM, E 303 NAB, MESS, TIME SQUARE, LIBRARY

****THE ABOVE DATA IS COLLECTED OUT OF 50 MEMBERS

❖ NOTE: THERE ARE SOME STUDENTS SAYING MULTIPLE PLACES

Conclusion

In conclusion, the Wi-Fi and Ethernet problems on the NIT campus are mainly due to the high volume of users and devices, as well as the lack of proper optimization. These issues can be addressed by upgrading the network infrastructure, optimizing the network, and increasing network coverage. Additionally, the issue of unavailable access to blocked useful websites can be resolved by implementing a whitelist system and providing alternative access methods. These recommendations, if implemented, will greatly improve the overall network experience on campus and enhance the productivity and efficiency of the users.

References :

Fortinet Firewall Logs:

- Fortinet firewall logs or reports detailing network traffic patterns, firewall rule configurations, and website access attempts.

Website Access Logs:

- Logs from web servers or proxy servers indicating attempts to access specific websites, including those categorized as blocked or restricted based on network policies.