

Group 10

RESEARCH METHODS

MGTE 31222

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RESEARCH TOPIC

**Addressing Vulnerabilities and Threats in Internet of Things (IoT)
Devices: Enhancing Cybersecurity Measures and Managing
Digital Footprinting**



RESEARCH PROBLEM

Unintended utilization of IoT devices leading to the unwanted generation of digital footprints, posing challenges in privacy and security.



AIM OF THE RESEARCH

To investigate how cybersecurity measures employed by IoT developers can effectively prevent vulnerabilities, including digital footprinting, in IoT devices



RESEARCH OBJECTIVES

- 01** Determine the prevalent IoT devices characterized by vulnerabilities, particularly concerning issues such as digital footprinting.
- 02** Analyze and categorize the recurring patterns observed in these vulnerable IoT devices.
- 03** Identify the probable causes of vulnerabilities during the development phase of identified IoT devices.
- 04** Propose and delineate actionable steps to effectively mitigate the identified vulnerabilities in IoT devices.



LITERATURE REVIEW

Future IoT-Enabled Threats and Vulnerabilities: State of the Art, Challenges and Future Prospects(2020)

- Authors - Astha Srivastava, Shashank Gupta, Megha Quamara, Pooja Chaudhary, Vidyadhar Jinnappa Aski
- Focus - Identifying and predicting upcoming cybersecurity challenges in IoT systems.

A Survey on Sensor-Based Threats and Attacks to Smart Devices and Applications(2021)

- Authors - Amit Kumar Sikder, Giuseppe Petracca, Hidayet Aksu, Trent Jaeger, and A. Selcuk Uluagac
- Focus -Examining the various threats and attacks targeting sensor-based smart devices.

Estimating indoor crowd density and movement behavior using WiFi sensing(2022)

- Authors - Syed Salman Alam, Muhammad Al-Qurishi and Riad Souissi
- Focus -Utilizing WiFi sensing technology for accurate indoor crowd monitoring.

LITERATURE REVIEW

A Review of Human Mobility Research Based on Big Data and Its Implication for Smart City Development(2022)

- Authors - Anqi Wang, Anshu Zhang, Edwin H. W. Chan, Wenzhong Shi, Xiaolin Zhou and Zhewei Liu
- Focus - Exploring how IoT-driven big data enhances our grasp of human mobility patterns for informed smart city planning.

Extracting Social and Community Intelligence from Digital Footprints: An Emerging Research Area(2010)

- Authors - Daqing Zhang, Bin Guo, Bin Li and Zhiwen Yu
- Focus - Discovering approaches to extract meaningful insights from interactions and activities of connected devices in the online realm.

LITERATURE REVIEW SUMMARY

Similarities

- All literature pieces discuss the utilization of IoT devices and the analysis of digital footprints.
- They highlight the importance of understanding the security implications of IoT technology.

Differences

- Some papers focus on specific threats and vulnerabilities in IoT systems, while others explore broader applications such as crowd density estimation and urban planning.
- While some papers delve into sensor-based threats and attacks, others examine the extraction of intelligence from digital footprints.
- While existing research often focuses on identifying threats and vulnerabilities, our study prioritizes preventing privacy and security risks

THANK YOU

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