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# CYBER SECURITY ATTACKS AND ASSOCIATED IOT

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**Abstract-In this paper our main focus is on cyber security attacks on smart cities and the role of internet of things associated with attacks. Internet of things is a platform where each day of the week technology is improving the roots of devices, processing, and communication ethics. The internet of things still is moulding into its new shape in every slice of a second. The need of universal design knowledge is at present resisting the study to get during the range of internet of things.The concurrent statistics analytics and summative information from IoT procedure open up marvellous opportunities for supervision and adaptable smart city infrastructures in a supplementary resourceful and sustainable means.**
**Keywords: cyber security, Attacks, IoT etc.**

## 1. INTRODUCTION

Smart City's worldwide aim generally to handle human faced challenges like climate changes, limited resources, Urbanization and growing population.

There are five important components for a city to be considered smart:

1. Modern information and communication technologies
2. Buildings
3. Utilities and infrastructure
4. Transportation
5. Traffic management
6. And the city itself

Areas where cities can become smarter:

1. Smart Governance by Public, Private and Civil government institutions and organizations.
2. Smart Economy through e-commerce and production.
3. Smart People with e-skills.
4. Smart mobility with proper traffic, parking and logistics management systems.
5. Smart living through reasonable consumption and good behaviour to environment.
6. Smart Environment through proper waste management and proper control over pollution.

Hardware and software manufacturer for smart city release products without sufficient penetration testing from certified professionals. Using such insecure products leads to getting the system hacked or termination of the system permanently. Components like electricity supply, water distribution, road signs face huge threat for cyber security attacks some of the components of infrastructure of a city that face these threats are:

1. Cameras: can be hacked violating individuals privacy and can be used to spy on governments.
2. Communication Networks: Wi-Fi, 4G, RFID,GSM etc each have loopholes that can be exploited for personal use and must be checked before releasing to public.
3. Transport Management Systems: most vulnerable, systems like air traffic control systems or street road signals face huge threats from cyber criminals.

Privacy is ensured by protecting five privacy related components: protecting identity of personnel under protection that handle confidential data etc.

The major Privacy Related Challenges to Data/Information from cyber criminals are:-

1. Eavesdropping: To listen to all conversations by tapping into the telephone system or by cloning the victim's phone so as the calls received by him get transferred to the attacker.
2. Dos (Denial of Service): In this type of attack the attacker is to block some system to be used by anyone by passing repeated requests, so the system may crash and become inaccessible.
3. Man-in-the-middle attack: In this attack the attacker use sniffer like wires hark etc. to sniff out packets send by the victim to get meaningful information from it.
4. Identification: using basic data info of victim to get full access to user info that can be used in future for the purpose of identity theft.

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5. Phishing: In this the type of attack the attacker creates fake webpage, website or system that looks just like the original one to trap the user into giving login info and other confidential or personal info for e.g. It may create fake government website to get login info for tax payer's data or site of bank to get credit card info.

Smart City Indexing

- Barcelona: This metropolitanarea scoretall on the surroundings and well-groomed parking.
- New York City NYC: scoreelevated on elegantboulevardillumination and chictravelorganization.
- London: London scored tall on expertise and open information.
- Nice: The French conurbation scored sky-scraping on atmosphere and agency cohesion.
- Singapore: Singapore scored soaring on tidyinterchangeadministration and ingeniousmakes use ofknowledge.

Reason for Barcelona being on the top:

- Consistent above average performance across all metrics unlike other cities (for e.g. Singapore's smart traffic system is best but it has low performance in other metrics).
- Barcelona's contribution in the metropolitanpracticescheme as fine as Amsterdam's standcome close to demonstrates the necessary frameworks for setting-up a well-builtelegant city flora and fauna between administration, business and society.
- Make use ofexpertise to help,assist the growth of chic cities as well makes them susceptible to cyber-attacks.

PFS (perfect forward secrecy) will contributeasignificantcharacter there in that it doesn't essentiallyput off attacks,butavoidlong-standing data cooperation.

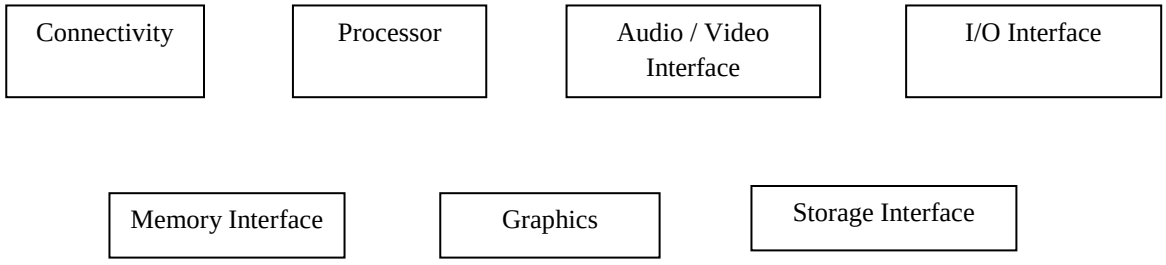


Fig. 1 IoT device components

| Specification | Arduino Uno | Arduino Yun | Intel Galileo Gen 2 | Intel Edison | Beagle Bone Black | Electric Imp 003 | Raspberry Pi B+ | ARM mbed NXP LPC1768 |
|---|---|---|---|---|---|---|---|---|
| CPU | ATMega 328P | ATmega32 u4, and Atheros AR933 | Intel QuarkTM SoC X1000 | Intel QuarkTM SoC X1000 | Sitara AM3358BZCZ 100 | ARM Cortex M4F | Broadcom BCM2835 | ARM Cortex M3 |
| GPU | - | - | - | - | PowerVR SGX530 @520 MHz | - | VideoCore IV Multimedia | - |
| Derivingvoltage | 5Volt | 5Volt, 3Volt | 5Volt | 3.3Volt | 3.3Volt | 3.3Volt | 5Volt | 5Volt |
| Programming platform | Wired | Wired | Wired, Wyliodrin | Wired, C, C++, | C, C++, Python, Perl, Ruby | Squirrel | Python, C, C ++, Java | C, C++ |
| Development environments | Arduino IDE | Arduino IDE | Arduino IDE | Arduino IDE, Eclipse, Intel XDK | Debian, Android, | Electric Imp IDE | NOOBS | C/C++ SDK, |

Table 1 comparison of IoT hardware technology with current procedures.

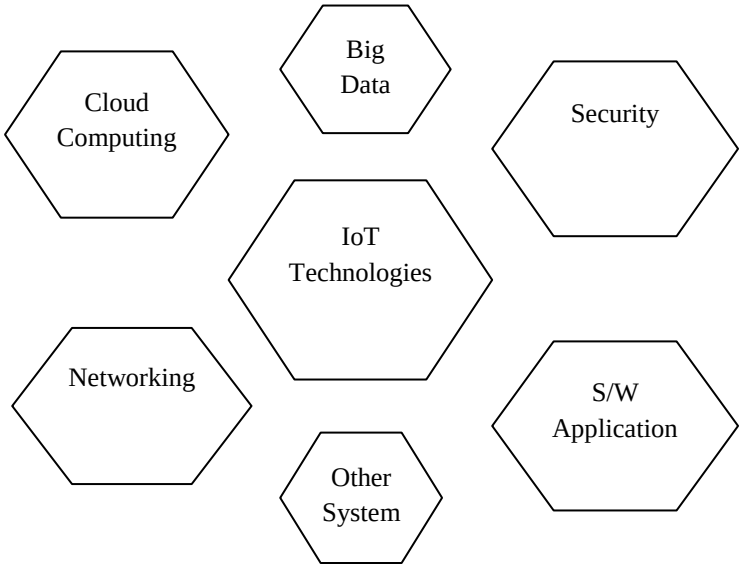


Fig. 2 IoT Technologies

## 2. RELATED WORK

Cities foreverinsistarmed forces to improve the excellence of life and buildmilitary more competent. During the previouslittleduration, the idea of elegant cities has played asignificantfunction in academic world and in business [4]. The goal of elegant cities is to renovaterustic and metropolitan areas into chairs of self-governingnovelty [5]. Such elegant cities look fordiminish the costs in civicfitness, protection;carrying and supplysupporttheirfinancial system [6].Considerfacilitating in the extended term, the dream for anelegant city would be that all the cities' systems and structures will watch their individualsituation and hold out self-repair upon need [7].

| Specification | WiFi | WiMAX | LR-WPAN | Mobile communication | Bluetooth | LoRa |
|---|---|---|---|---|---|---|
| Regulation | IEEE 802.11 a/c/b | IEEE 802.16 | IEEE 802.15.4 | 2G-GSM, CDMA 3G-UMTS | IEEE 802.15.1 | LoRaWAN R1.0 |
| Frequency band | 5–60 Ghz | 2–66 Ghz | 868/915 Mhz, 2.4 Ghz | 865 Mhz, 2.4 Ghz | 2.4 Ghz | 868/900 Mhz |
| Data scale | 1 Mb/s–6.75 Gb/s | 1 Mb/s–1 Gb/s (Fixed) 50–100 Mb/s | 40–250 Kb/s | 2G: 50–100 kb/s 3G: 200 kb/s | 1–24 Mb/s | 0.3–50 Kb/s |
| Transmission Scope | 20–100 m | <50000m | 10–20 m | Wholefield | 8–10 m | <30000 m |
| Energy burning | High | Medium | Low | Medium | Bluetooth: Medium BLE: Very Low | Very Low |

Table 2 comparison IoT communication technologies.

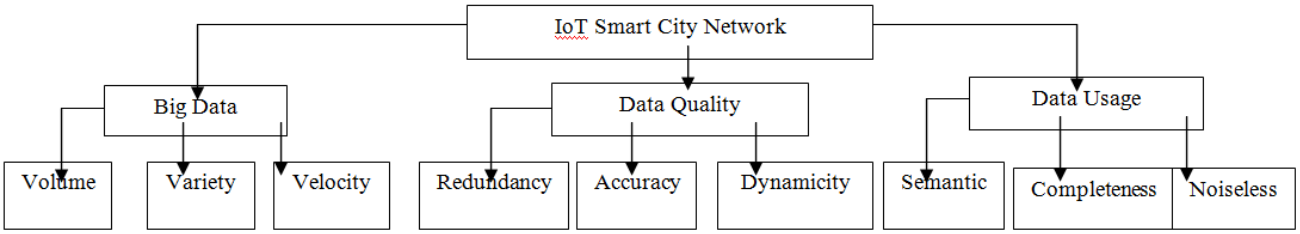


Fig. 3 IoT Data Characteristics

## 3. CONCLUSION:

The interconnection of the corporal and the cyber life by the Internet of Things require dealing with the vast intricacy that comes from the interface of both lives, which is millions of calculating, processing, actuating and communicating nodes worldwide. In this we can conclude that Internet of things have big impact on cyber crimes in mobile technologies, security and mobile computing

## 4. REFERENCES:


[1] Daj, C. Samoila, and D. Ursutiu, "Digital marketing and regulatory challenges of Machine-to-Machine (M2M) Communications," 9th International Conference on Remote Engineering and Virtual Instrumentation (REV), 2012.

[2] A.T. Capossele, V. Cervo, C. Petrioli, and D. Spenza, "Counteracting Denial-of-Sleep Attacks in Wake-up-radio-based Sensing Systems. In Sensing, Communication, and Networking (SECON)," 13th Annual IEEE International Conference on IEEE, pp. 1-9, 2016.

[3] S. Soursos, I.P. Žarko, P. Zwickl, I. Gojmerac, G. Bianchi, and G. Carrozzo, G., 2016, "Towards the cross-domain interoperability of IoT platforms. In Networks and Communications (EuCNC)," European Conference on. IEEE, pp. 398-402, 2016.

[4] R. Petrolo, V. Loscr`ı, N. Mitton, Towards a smart city based on cloud of things, a survey on the smart city vision and paradigms, Transactions on Emerging Telecommunications Technologies. [27] E. Von Hippel, Democratizing innovation: The evolving phenomenon of 950 user innovation, Journal f¨ur Betriebswirtschaft 55 (1) (2005) 63–78. [28] D. Puiu, P. Barnaghi, R. T¨onjes, D. K¨umper, M. I. Ali, A. Mileo, J. X. Parreira, M. Fischer, S. Kolozali, N. Farajidavar, et al., Citypulse: Large scale data analytics framework for smart cities, IEEE Access 4 (2016) 1086–1108

[5] S.B. Yoon, B. Petrov, and K. Liu, "December. Advanced wafer level technology: Enabling innovations in mobile, IoT and wearable electronics," In Electronics Packaging and Technology Conference (EPTC, IEEE), pp. 1-5, 2015.

[6] M. Elkhodr, S. Shahrestani, and H. Cheung, "A Smart Home Application Based on the Internet of Things Management Platform. In Data Science and Data Intensive Systems (DSDIS)," IEEE International Conference on, pp. 491-496, 2015.

[7] B. Bowerman, J. Braverman, J. Taylor, H. Todosow, U. Von Wimmersperg, The vision of a smart city, in: 2nd International Life Extension Technology Workshop, Paris, Vol. 28, 2000.

[8] Joerg Henkel and Lars Bauer. 2010. What is Adaptive Computing? SIGDA Newsl. 40, 5 (May 2010), 1–1.

[9] Tomas Bures, Danny Weyns, Christian Berger, Stefan Biffl, Marian Daun, Thomas Gabor, DavidGarlan, Ilias Gerostathopoulos, Christine Julien, Filip Krikava, Richard Mordinyi, and Nikos Pronios. 2015. Software Engineering for Smart Cyber-Physical Systems – Towards a Research Agenda: Report on the First International Workshop on Software Engineering for Smart CPS. SIGSOFT Softw. Eng. Notes 40, 6 (Nov. 2015), 28–32

[10] N.G. Leveson. 2011. Engineering a Safer World: Systems Thinking Applied to Safety. MIT PRESS.

[11] Hendrik Van Brussel, Luc Bongaorts, Jo Wyns, Paul Valckenaers, and Tony Van Ginderachter, 1999. A Conceptual Framework for Holonic Manufacturing: Identification of Manufacturing Holons, Journal of Manufacturing Systems, Elsevier, Vol. 18/No. 1.

[12] Luca Pazzi. 2015. Control Theory Meets Software Engineering: The Holonic Perspective. In Proceedings of the 1st International Workshop on Control Theory for Software Engineering (CTSE 2015). ACM, New York, NY, USA, 34–41.

[13] Arthur Koestler. 1970. Beyond reductionism; new perspectives in the life sciences (Koestler and Smythies eds.). Proceedings of the Alpbach Symposium. (1970).

[14] L. Pazzi and M. Pradelli. 2012. Modularity and Part-Whole Compositionality for Computing the State Semantics of Statecharts. In Application of Concurrency to System Design (ACSD), 2012, 12th International Conference on.